DEVELOPING CONCEPTUAL FRAMEWORKS FOR STRUCTURING LEGAL KNOWLEDGE TO BUILD KNOWLEDGE-BASED SYSTEMS

by

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This dissertation adopts an interdisciplinary approach to the field of law and artificial intelligence. It argues that the conceptual structuring of legal knowledge within an appropriate theoretical framework is of primary importance when building knowledge-based systems. While technical considerations also play a role, they must take second place to an in-depth understanding of the law.

Two alternative methods of structuring legal knowledge in very different domains are used to explore the thesis. A deep-structure approach is used on nervous shock, a rather obscure area of the law of negligence. A script-based method is applied to impaired driving, a well-known part of the criminal law. A knowledge-based system is implemented in each area. The two systems, Nervous Shock Advisor (NSA) and Impaired Driving Advisor (IDA), and the methodologies they embody, are described and contrasted.

In light of the work undertaken, consideration is given to the feasibility of lawyers without much technical knowledge using general-purpose tools to build knowledge-based systems for themselves.
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CHAPTER 1

INTRODUCTION

1.1 Scope

The thesis develops two conceptual frameworks that demonstrate alternative ways of structuring legal knowledge so that it can be used to build knowledge-based computer systems (KBS's).

The knowledge in question is drawn from two widely differing domains of law. The first, nervous shock, is a relatively obscure corner of the law of negligence, which is part of the common law. In other words, it is case-based law that derives its authority from a body of cases that have accumulated gradually over hundreds of years. The second domain, impaired driving, provides a distinct contrast. Rather than being an obscure backwater like nervous shock, it is one of the most frequently applied areas of the criminal law. Furthermore, it is statute-based, not case-based law. That means that its authority stems from the relevant provisions of a statute, namely, the Criminal Code, the federal statute in which are enumerated most acts that constitute criminal offences in Canada. A customary
way of looking at the difference between the two types of law is that the common law is judge-made law whereas statute law is created by a legislature. However, that distinction is a slight oversimplification because even statutory provisions must ultimately be interpreted by judges when doubt arises about their intended meaning.

Using the knowledge structured within the two conceptual frameworks as a foundation, the thesis implements working KBS's in each of the domains of law: Nervous Shock Advisor (NSA), and Impaired Driving Advisor (IDA). Each system is analyzed in detail, both from a conceptual and technical point of view, and compared with the other.

1.2 Objectives

The primary goal of the thesis is to show that the exercise of structuring legal knowledge in a way that allows computers to manipulate it can provide fresh insights into the nature of law itself. As part of that process, an attempt is made to build KBS's that lawyers would find practical and usable. In addition, the feasibility of lawyers without any formal training in computer science building such systems themselves, using off-the-shelf software, is also explored.¹
1.3 Speaking as a Lawyer

I began graduate studies after spending 10 years working as a lawyer in the rough and tumble of a litigation practice. The respite allowed me the luxury of reflecting on what goes on in the so-called "real world", and thinking about ways in which a lawyer's lot might be improved through the application of computer technology, specifically KBS's.

Throughout the thesis I talk about how lawyers think, and what might be useful to them. My assessment is based on my own experience in practice and the views that countless other lawyers have expressed to me over the years. The evidence is anecdotal. I did not conduct a systematic survey of a representative sample of lawyers as part of this research. Such an undertaking was outside its scope. The extent to which the observations I make about lawyers are generalizable to the profession as a whole depends on how representative my own experience was, as well as that of the many other lawyers I encountered whose views were similar to my own. In the absence of survey data, the considerable length of time I spent in practice is the best guarantee of the accuracy of these observations.

A widely held view in legal circles is that practitioners and legal academics exist at opposite ends of the spectrum. An academic puts it thus.

"Enamoured by theory, we become blind to the facts and instead of tailoring our hypotheses to the evidence, we let the tail wag the dog. The remedy, as
Wittgenstein saw, lies in squarely confronting the messy complexities of our institutions and practices and abandoning any preconceptions about achieving theoretical elegance in examining them - 'the axis of reference of our examination must be rotated, but about the fixed point of our real need' (Philosophical Investigations Para. 108).

"In the legal world, there seems to be a great gulf separating practitioners and theorists. One suspects that the reason for this is that theorists are fond of letting their fancies run free. Unconstrained by reality, they develop elaborate abstract constructions far removed from the practices they are supposed to be theorizing about. Hence their results are unlikely to be of value to practical men and women." \(^2\)

The thesis seeks to bridge the gap between these two solitudes by blending the experience I accumulated in a decade of practice with a theoretical analysis of the law.\(^3\)

1.4 Orientation

The thesis is interdisciplinary. It straddles the two disciplines of law and computer science, but places more emphasis on the former. The bias reflects the main thrust of the thesis, which is the structuring of legal knowledge within a conceptual framework to make it more amenable to computerization. It is only natural that the emphasis should be placed on the integrity of the knowledge itself rather than on the tool which is used to manipulate it.

The thesis is written to be intelligible to lawyers who know little or nothing about computers and may even be a little intimidated by them. Technical jargon is minimized to avoid turning off that audience. The thesis is also aimed at non-
lawyers whose knowledge of the legal system is minimal. For that reason, many legal matters that would be self-evident to a lawyer are explained in some detail.

The thesis does not pretend to break new ground in computer science. It takes well-understood techniques and uses them as a tool to apply to the law. The innovation lies in the manner in which elements from the two disciplines are conjoined.

1.5 Defining Terms

In statutes and other legal documents, it is customary to put a definition section right at the beginning. I shall follow the legal model and define a number of important terms before launching into the body of the thesis. That will remove any ambiguity about their intended meaning when they are encountered by the reader.

1.5.1 Knowledge-Based System (KBS)

What exactly is meant by the term "knowledge-based system"? In essence, it is a kind of computer program. The name evolved as a more generic substitute for the term "expert system". "Expert system" was the original name coined within the discipline of Artificial Intelligence (AI) to describe a computer program based on the knowledge of a human expert in a particular domain. Much
of this knowledge was in the form of so-called *heuristics* or rules of thumb that experts typically employ to solve problems quickly and effectively in their fields of expertise. The essential characteristic of heuristics is that they reduce search. They enable experts to navigate through a problem space towards an effective solution without chasing down too many blind alleys and wasting a lot of valuable time. From a computer science perspective, heuristics are a means of coping with the so-called *combinatorial explosion*. In theory, certain problems have so many potential solutions that it would take an inordinate amount of processing time to check them all out. The use of heuristics in some cases can eliminate a huge number of theoretically possible but actually implausible solutions and thereby render a problem tractable.

Expert systems first emerged in the early seventies and have experienced a phenomenal growth ever since. They were designed to give advice to a user, typically in a narrow subject area, in response to facts elicted as input. These systems differed significantly from standard computer programs in that they did not follow an *algorithm*, a fixed series of procedural steps, designed to perform a specific, well-defined task. Instead, by applying the *modus ponens* inference rule to a body of if-then rules in a *knowledge base* (KB), collectively representing an expert's knowledge, they were able to solve a variety of ill-formed, domain-specific problems. In any given instance, the path navigated through the KB (i.e. the sequence of rules that "fire") depends entirely on the facts received as input. By
contrast, when an ordinary program executes, it always follows
the same main routine from start to finish, detouring from its
main line only to perform subroutines when particular branching
conditions are satisfied. Although the essence of *modus ponens*
is quite simple (i.e. If the antecedent \( p \) of the formula "\( p \)
implies \( q \)" is true, then the consequent \( q \) is also true), it can
be used effectively to explicitly state a wide range of
possibilities. This versatility is achieved by stringing
different premises together with various combinations of the
logical connectives AND and OR, and prefacing premises with the
negation operator NOT.

The expert systems business really took off when "shell" systems
appeared on the market. The shells were developed as a result of
the insight that it was possible to separate knowledge from
inference entirely rather than having the knowledge inextricably
intertwined with the reasoning mechanism. In other words, the
same *inference engine*, the piece of software capable of applying
logic to rules, could be used on a stand-alone basis to reason
about any number of KB's containing knowledge drawn from very
different domains, provided that the knowledge could be
formulated as a set of rules. A particular KB simply had to be
loaded into the inference engine before running a consultation on
the body of knowledge it contained.

The advent of shells gave programming a new twist. Hitherto,
data was embedded in the program itself. Untangling the data
from the procedural code was virtually impossible. Of course, to
some extent it was feasible to re-use chunks of code in different applications. In fact, it was standard practice for programmers to use toolkits of common subroutines and programming devices to avoid re-inventing the wheel every time they wrote a new program. However, this recycling effort did not come close to the level of re-usability offered by shells.

The pejorative term "shell game" was recently used by Roger Schank, a pillar of the AI establishment, in an article sharply critical of the over-hyped expert systems industry that sprang up almost overnight in the wake of the appearance of the first shells. The criticism is well-founded. In its heyday, the industry assiduously fostered the impression that, given the right shell, expert systems would virtually build themselves. Progressive business enterprises rushed to jump on the bandwagon thinking that the new technology would give them a competitive edge. To the delight of expert systems promoters, others rushed to follow suit, fearful that they might miss the boat. For a while, "expert sytems" became the hot buzzword. It was featured prominently in trade journal advertisements and included in the titles of a whole spate of books and articles. However, the bubble eventually burst and disillusionment set in when it became clear that there was much more to building an expert system than consumers of the technology had been led to suppose. Good tools can help, but only so much. Roger Schank sums the situation up pithily.

"The assumption of the venture capitalists was that given the right tool, any programmer could build an expert system. This idea was a marketable one, so it worked in their terms. Of course, it wasn't an idea
that had a lot of reality in it. Building a complex AI system is certainly made easier by having a good environment for programming, but knowing what to program is the real issue."

To use simple analogy, anyone who uses a word processor knows that it makes the mechanics of writing a great deal easier than in the past. The prospect of writing a thesis these days without one is inconceivable. Yet for all the advantages a good word processing program offers, it does nothing to ensure that what is ultimately produced by the user will not be utter drivel, albeit very nicely formatted.

The most difficult part of building an expert system is the task of extracting knowledge from a human expert, analyzing it and organizing it into a coherent whole. That process, coupled with the final stage of implementing the expert system came to be called "knowledge engineering". The name has a pretentious ring to it, but we seem to be stuck with it. On the plus side, it does manage to get across the idea of shaping knowledge as though it were some sort of physical stuff that can be worked with and used to build tangible structures. Knowledge engineering has gained the status of a recognized occupation. It even has its own journals, a sure sign of having arrived.

While knowledge engineering first emerged as a specialty within AI, it has become increasingly multidisciplinary in nature. That is probably just as well because the types of skills it calls for are an odd assortment that are not exactly congruent with those that go into the making of a top-notch computer scientist. High on the list of desirable qualities that a
budding knowledge engineer should possess are the ability to communicate effectively with others and to establish good interpersonal relations. While there are exceptions, computer types are not noted for their abilities in either of these areas. In fact, the stereotype is just the opposite. Hot-shot programmers are notorious for preferring to commune with their computers rather than other human beings, except for members of their own clique. The image of the goofy-looking, bespectacled computer nerd, sporting a battery of pens crammed into a plastic holder in his shirt pocket has been immortalized by cartoonists like Gary Larson of "The Far Side" fame in cartoons like "The Great Nerd Drive of '76". A herd of nerds is pictured being driven along by cowboys, just like cattle. Like all generalizations, this is an exaggeration. However, there is an element of truth to it. The weird lifestyle and attitudes of the hacker sub-culture have been documented by Sherry Turkle in her book The Second Self. The book was based on research done at MIT and its environs, the Mecca for the type.

The term "expert system" has gradually lost its currency and been superseded by the more neutral "knowledge-based system" used in the title of this thesis. Debates arose in the AI community about whether the level of the knowledge underlying some systems was sophisticated enough to justify calling them expert. At one point, a distinction began to be drawn between the more simple-minded systems built on knowledge culled from readily available sources and those systems that relied on the arcane knowledge of acknowledged experts. The former came to be called simply
"knowledge systems" to distinguish them from true expert systems that were considered to be a cut above their more mundane relatives. Eventually, however, "knowledge-based system" gained increasing acceptance as a generic, overarching term broad enough to encompass all advice-giving computer programs based on human knowledge, regardless of their level of expertise.

Knowledge-based systems can be extremely useful tools even though, strictly speaking, the knowledge they contain may not be esoteric enough to warrant calling them expert. Therefore, it seems preferable to use the more general term rather than get into a debate about where on the continuum of complexity a particular system falls. It is futile to perpetuate the knowledge simpliciter versus expert knowledge dichotomy. One must simply remember that KBS's can vary widely in their level of knowledge. However, having said that, I would add that both systems described in the thesis could legitimately be called expert because they meet the criteria of those who insist on drawing a distinction.

1.5.2 Structuring Legal Knowledge

The thesis focuses on structuring legal knowledge in ways that will allow it to be used to build KBS's. That is to say, it is primarily concerned with the process of gathering together the knowledge in a domain of law, analyzing it, breaking it up into constituent parts, and organizing all those parts with respect to
one another so that they form a coherent whole. The final phase of the process is to actually implement a KBS using the structure that has been created as a blueprint.

In effect, the undertaking described above amounts to more or less the same thing as knowledge engineering. However, I have chosen to avoid that commonly accepted AI term and to talk about "knowledge structuring" as opposed to "knowledge engineering". Not only is the former term self-explanatory, but more importantly it places the emphasis squarely on that part of the system-building process that the thesis argues is of primary importance. Knowledge engineering, on the other hand, is a term that covers more territory. Although it includes the knowledge structuring phase, it extends beyond it to encompass a sizeable chunk of the implementation phase. It is true that a distinction is usually drawn in AI between the role of knowledge engineer and that of programmer. However, the two do tend to overlap. Knowledge engineers deal with a level of detail that is really part and parcel of the business of implementation. While they do not normally write the final code that is required to get a system up and running, they do write pseudo code that programmers can then translate into whatever computer language is being used to build the KBS. Although, for the purposes of the thesis, I act as both knowledge engineer and programmer, I argue very strongly that the knowledge structuring phase of the process is of primary importance.
Knowledge structuring is the first step towards creating a KBS. The key point to bear in mind about it is that it is essentially conceptual, not technical. The conceptual structure is the foundation on top of which the detailed programming that goes into implementing a KBS is subsequently built. While both stages are important, the first is critical. Like a house built on a flawed foundation, a basic structural defect in the design of a KBS cannot be cured by any work that is put into it later, no matter how ingenious that might be.

Although I have stressed the importance of knowledge structuring, I do not wish to denigrate the significance of the implementation phase. The latter is the culmination point at which the computer is used as a testbed for trying out the ideas embodied in the conceptual structure. The great benefit of computers in this respect is their absolute intolerance. Unfortunately, that also happens to be their most frustrating characteristic. The information that computers are given as input must be well-defined in every detail and consistent overall, otherwise the program will not work. Unlike human beings, defective programs do not degrade gracefully in their performance at the edges of their competence; they fail altogether.

Lawyers feel comfortable working with the inherent ambiguity of traditional legal language because it gives them room to manoeuvre. By exploiting its open-endedness, they are often able to devise arguments that can get a client out of a tight corner. It becomes second nature for lawyers not to allow themselves to
get pinned down any more than necessary. They like to keep as many options open as possible. The vagueness of legal concepts is more of a blessing than a curse to them because it gives them scope for creative interpretation.

Learning to accept the machine's relentless insistence on absolute precision is a difficult adjustment for people like lawyers who are accustomed to being able to get away with a certain amount of hedging. Yet for all its drawbacks, the computer has the enormous benefit of forcing lawyers to think about legal knowledge in new ways. Since the knowledge that a computer is expected to manipulate must be represented in a way that is concrete enough for it to be assigned a precise meaning, the vaguely worded concepts of traditional legal discourse will not suffice. A more precise means of description must be found. The specifics of how this might be done will be explored at some length later on. It will be seen that a useful side-effect of the endeavour is to enhance one's understanding of the subject matter in much the same way that being obliged to teach somebody something invariably does.

After the legal knowledge has been structured within a conceptual framework, it must be translated into a form that makes it intelligible to a computer. The second phase, which is technical in nature, is referred to in AI as knowledge representation (KR). At this juncture, it becomes necessary to give a thumbnail sketch that shows where knowledge representation fits in the overall AI scheme of things.
The knowledge engineering process referred to earlier is usually divided into two main phases: knowledge acquisition (KA) and knowledge representation. Knowledge acquisition is the debriefing procedure by which domain knowledge is extracted from a human expert. Knowledge representation is the subsequent stage at which the knowledge is expressed in terms that allow a computer to manipulate it symbolically. Within the AI community, the term "knowledge representation" is used in a primarily technical sense to refer to the programming formalism that is used to capture the knowledge that a KBS contains.

In AI terms, what has been described here as the structuring of legal knowledge would generally be regarded as falling within the knowledge acquisition phase of the knowledge engineering process. That is the stage at which the raw knowledge that has been extracted from the expert is massaged into a shape which will serve as the basis of the technical knowledge representation scheme. However, that being the case, it is a misnomer to use the term "knowledge acquisition" to describe something that goes beyond mere acquisition and includes knowledge structuring. The term is misleading because it implies nothing more than that the knowledge is being gathered together. "Knowledge structuring" is a better term because it is far more descriptive. It makes it plain that the knowledge is being organized in some coherent way, not just collected.

If the standard AI term "knowledge representation" had not acquired a primarily technical connotation within the field, it
would be an acceptable substitute for "knowledge structuring". Terminology should not be multiplied needlessly. As things stand, however, KR is usually associated with the technical details of representing knowledge at the implementation level; although, as Hector Levesque has pointed out, it can mean a lot of different things to a lot of different people.

"Part of the problem is that KR has evolved (and absorbed material) from a number of research areas with quite different goals and methods, such as psychology (in terms of realistic human memory models), linguistics (representations of word senses), philosophy (the nature of concepts and propositions), logic (varieties of formal reasoning), and computer science (information systems)."

Knowledge structuring, on the other hand, refers to a basic structure that remains unchanged regardless of how it is represented, like the underlying structure of a book which remains unaltered when it is translated from one language to another. The translation analogy seems particularly apt with respect to AI because the KR issue often does come down to a choice between one computer language or another. The decision can be a little more generic than a matter of language. For example, it can relate to whether the system uses rules, frames, a combination of the two (i.e. hybrid), or other data structures, as placeholders into which the knowledge is slotted for computational purposes. These KR schemes are offered by a variety of different languages. However, the idea behind knowledge structuring is that the basic conceptual structure that has been imposed on the knowledge remains the same irrespective of the programming formalism that is used by the KBS to translate this structure into a working program. To illustrate the point,
the thesis will show how the Nervous Shock Advisor can be ported from a purely rule-based to a hybrid format using rules and frames, while retaining the same underlying structure. There is no denying that KR issues are important. One sort of technical formalism may be preferred to another for a number of compelling reasons. These issues will also be discussed as part of the thesis.

In light of the foregoing, it might be more descriptive to divide the knowledge engineering process into three phases by interposing an intermediate phase called knowledge structuring between knowledge acquisition and knowledge representation. This breakdown would have the advantage of drawing a clear distinction between what has fittingly been called the knowledge level and symbol level of knowledge representation. An alternative is to stick with the accepted nomenclature, but to further divide the knowledge representation phase into two sub-phases: conceptual knowledge representation (CKR) and technical knowledge representation (TKR). Now that it has been made clear what the intended meaning of knowledge structuring is, CKR can be used as a synonym for it. The latter term has the benefit of being much terser and of building onto the accepted terminology without the risk of causing confusion between levels.
1.5.3 Practicality and Usability

A secondary aim of the thesis is to attempt to build KBS's that lawyers would find useful and easy to use. User-friendliness needs no elaboration. The sort of usefulness contemplated here is limited to the resolution of legal issues. It does not include the administrative, business and other non-legal problems that lawyers must attend to as part of their practice. Nor does it encompass ancillary tasks that are part of the legal process, like document assembly. Document-assembly programs are used for litigation support, conveyancing, estates, and other repetitive tasks in which much of the text is boilerplate. While these programs are useful, they have nothing to do with evaluating the legal merits of a case.

In short, as envisioned here, a KBS is an interactive computer program that elicits pertinent facts about a case from the user and provides information in response that assists in resolving legal problems. It can be regarded as a legal research tool that supplements more conventional methods of research such as law libraries and legal databases. The advantages of KBS's as compared to more traditional means of obtaining legal information will be discussed in due course.


3 Jack Batten, a former lawyer who practised for three years, wrote a series of books that give a good feel for the realities of the Canadian legal system. His writing, based on extensive interviews with lawyers and judges, was motivated by a desire to make the connection between the law and its practice that had eluded him during his brief legal career. For a sense of how the two intersect, see: *Lawyers* (Toronto: Macmillan of Canada, 1980); *In Court* (Toronto: Macmillan of Canada, 1982); *Judges* (Toronto: Macmillan of Canada, 1986); *On Trial* (Toronto: Macmillan of Canada, 1988).

4 Roger Schank, "Where's the AI?" *AI Magazine*, 12, No. 4 (1991), p. 44.

5 Supra, note 4, p. 44.


Non-lawyers among the readers need to understand what lawyers really do. Otherwise they will not be able to appreciate fully how KBS's can be of benefit to lawyers. The description of lawyering that follows is not an idealized composite pieced together from the literature on the subject; it is drawn from my own first-hand experience. Putting it in legal terms, the description is based on direct evidence rather than hearsay.

Theorizing about what lawyers do is not particularly useful. Working lawyers are not much given to theorizing; they are too busy doing. Analyzing the law itself is another matter. When it comes to that, a theoretical perspective is invaluable. The thesis attempts to marry theory with practice so that each informs and benefits from the other. But we shall begin with the practical perspective.
2.1 Winning is (Almost) Everything

Lawyers are intellectual mercenaries, hired guns who sell their services for money to one side in a dispute or a transaction. Regardless of how much high-flown rhetoric one hears about what a noble calling the law is, there is no escaping this fundamental reality of practice. It flows inexorably from the adversarial nature of our justice system. One side is pitted against the other. Law is not the disinterested pursuit of truth, at least as far as practising lawyers are concerned. It is an elaborate game in which each side seeks to advance its own interests, at the expense of the other, if need be. To be sure, the contest is not no-holds-barred. The conduct of the parties is governed by an elaborate set of rules. A lawyer's duty to the client is not absolute. It is tempered by obligations that are owed to the system. Balancing the two can be an ethically ticklish business. Yet, when all is said and done, within the rules, the object is to win.

In cases where winning outright is clearly beyond the realm of possibility, lawyers try to compromise. They seek to salvage what they can and to make the best of a bad situation. In hopeless cases, their task becomes one of damage control. Faced with an inevitable loss, they will attempt to get the best possible deal for the client. In civil matters, this means negotiating a reasonable settlement. In criminal cases, it requires making a plea bargain with the prosecution.
Although, generally speaking, lawyers are expected to fight tooth and nail for their clients within the constraints imposed by the system, there is one exception. Crown counsel and other lawyers who represent the interests of the state against individual citizens are bound by a superadded duty of fairness. The scales of justice are tipped in favour of the accused. For example, in criminal cases, discovery is one-sided. The crown is obliged to provide the defence with full particulars of its case, but there is no corresponding duty of disclosure on the part of the defence. Crown counsel are also far more willing to concede points that favour the defence case than vice versa. The code of conduct that governs the crown is merely a reflection of the overall philosophy that aims at protecting the rights of the individual. The values of this philosophy are enshrined in such doctrines as the presumption of innocence, the right to remain silent and the requirement that guilt be proved beyond a reasonable doubt. In civil cases of course, no such imbalance exists. The discovery process is two-sided and the burden of proof is on the balance of probabilities.

However, subject to the qualification that applies to lawyers who represent the state, the truth remains that winning is the name of the game. Generally speaking, therefore, what lawyers need from a KBS is information that will help them to win cases - or, at least, let them know that their case is not a winner so that they can settle early and cut their clients' losses rather than spending a lot of time and money fighting a lost cause. Which leads us to the next question. How do lawyers win cases?
2.2 The Tools of the Trade

2.2.1 Legal Argument

The most formidable weapon in a lawyer's arsenal is the ability to make a persuasive legal argument on behalf of a client. So what makes a legal argument different from any other kind of argument?

2.2.1.1 Precedent Governs

Basically, the distinguishing feature of legal argument - at least in the Anglo-American common law tradition - is that it is a backward-looking argument based on analogy. The human predilection for seeking answers to present problems in past experience manifests itself as the rule of precedent. The rule is the engine that drives our legal system. Simply stated, it is the principle that like cases should be decided alike. The rule is subject to the principle of stare decisis which states that a lower court is bound to follow the decisions of any court higher up in the hierarchy. While one court may find the decision of another court persuasive and decide to follow it anyway, strictly speaking, it is not obliged to do so unless it is outranked by the other court within its own jurisdictional hierarchy. However, the system is not as rigid as it might sound. Precedent is not a straitjacket which is impossible to wriggle out of. The inherent ambiguity of natural language allows a lot of scope for
interpretation. Thanks to this leeway, judges are able to exercise a considerable amount of discretion in the way that they apply the law.

2.2.1.2 Distinguishing One Case from Another

The way in which stare decisis works is fairly straightforward. Applying the rule of precedent is another matter. The idea that like cases should be decided alike is simple enough to grasp in principle, but putting it into practice is not always easy. The difficulty lies in determining whether an instant case is relevantly like a previous decision. Legal arguments revolve around the issue of relevance. Counsel seeking to have a favourable precedent applied will argue that it is similar in all relevant respects to the case before the court; or, to use the appropriate legal jargon, that the precedent is on point or on all fours with the instant case. Opposing counsel will seek to have the precedent distinguished on its facts by arguing that it differs in some relevant aspect from the case in issue. The comeback is to dismiss the distinction out of hand as a "distinction without a difference", to use a shopworn, lawyer's phrase. In effect, lawyers are hair-splitters driven to make finer and finer distinctions between competing, and sometimes equally plausible, interpretations of the facts. They are the spiritual heirs of the Mediaeval churchmen who squabbled interminably about how many angels could dance on the head of a pin.
While legal reasoning is essentially about factual similarities and differences and whether they are relevant, there is a little more to it than that. Even though the critical facts of the most closely matching precedent may be totally dissimilar on their face to those of the instant case, a skillful lawyer will attempt to bridge the gap by drawing analogies. It is at this point that truly creative legal thinking comes into its own. Analogies equate one situation with another by looking beyond their surface dissimilarities and seeing a connection between them at a deeper level.

Analogical thinking is difficult to formalize because it applies commonsense reasoning to a broad base of knowledge about the world. As one eminent scientist has suggested, it may be just as primordial as the innate human tendency to follow precedent posited earlier.

"This ability to order things into likes and unlikes is, I think, the foundation of human thought. And it is a human ability; we trace and to some extent inject the likeness, which is by no means planted there by nature. Our very example of Newton's apple shows this vividly. For Newton's insight, as he himself told it, was precisely to see the likeness which no one else had seen, between the fall of the apple and the swing of the moon in its orbit round the earth."¹

The distinctively human ability to draw analogies is an area in which AI is conspicuously deficient. An ambitious project aimed at mimicking this skill is currently underway in Austin, Texas.² The project is massively funded by a consortium of companies and has a 10-year life span. The rough idea behind it is to gather vast quantities of data that will enable a computer to simulate a
human being's knowledge of the world. The very magnitude of the undertaking attests to the complexity of the task.

2.2.1.3 Desperately Seeking Authority

It should be abundantly clear from what has been said above about the mechanics of legal argument that such arguments are useless unless supported by the weight of recognized authority.

The need for justification is the same regardless of whether the argument is being made in a domain of common law or statute law. The one difference is that, with respect to statute law, the first step is to apply the relevant provisions of the governing statute to the facts of the case. If the wording of the statute is clear enough in itself to resolve the issue, then that is the end of the matter. However, no matter how well-drafted a statute is, there will always be provisions that cannot be defined precisely enough in advance to avoid the need for having them judicially interpreted by cases which put a gloss on the statute, as lawyers say. Besides, any case that is straightforward enough that it can be settled on the plain wording of the statute is not likely to give rise to litigation. The difficulty in drawing the dividing line between hard and easy cases in a statutory context has been discussed at length by H.L.A. Hart, the eminent legal philosopher. It is sometimes called the "core/penumbra" problem. There is a body of law that deals specifically with the principles of statutory interpretation. However, apart from
those statute-specific guidelines, in the final analysis, when recourse to the cases becomes necessary to resolve a dispute, exactly the same techniques of legal argument are used in statute law as in common law.

What lawyers need above all for them to be able to put together a persuasive legal argument is the right set of cases. Give them the right ammunition and they are well on their way to winning the battle. Therefore, first and foremost, a KBS must be able to come up with those cases. How that trick can best be accomplished is the critical question that must be addressed when building a system.

2.2.1.4 Putting the Cart Before the Horse

The adversarial system is responsible for another feature of legal argument that needs to be clearly understood. Lawyers work backwards. Legal arguments are not only totally partisan, but also they are constructed in retrospect to justify a situation that the lawyer is confronted with as a fait accompli. A lawyer's goal is to win the case by finding some legal justification for the client's position. The problem-solving behaviour of lawyers is reminiscent of the backchaining control strategy employed by some inference engines. The system starts off with a defined goal that it seeks to satisfy by every possible means.
By the time lawyer comes into the picture, the events that created the problem have already occurred and the scenario to be dealt with is largely a set piece. Granted, there is some flexibility. The facts are not entirely immutable. Finding the facts that have gone into making up an event is by no means a simple process. There is a certain amount of leeway for tailoring the facts, depending on how favourably witnesses come across and how skillfully the rules of evidence are applied to either exclude or admit evidence. However, the subtleties of that process are a part of the lawyer's art that lies beyond the scope of this enquiry. So, although it is a slight oversimplification, by and large, it is accurate to say that lawyers are obliged to make the best of the facts they are faced with. Their job is to put a legal argument together after the fact that will cast the client's position in the most favourable light possible.

The back-to-front way in which legal arguments are crafted was brought home to me very early on in my practice. I was articled to a well-known trial lawyer who has since been appointed to the Supreme Court bench. After analyzing a client's predicament carefully and deciding what ideally the situation required, my principal would say, "Go and find me a case that says X". X would be a succinct description of the legal proposition that best suited the client's needs. My mission was to find a case that fitted the desired outcome, not to make an objective appraisal of the facts in order to determine what legal consequences inevitably flowed from them.
2.2.1.5 Choosing the Right Battlefield

The first step in constructing a legal argument is usually to find a favourable precedent in the applicable domain of law that fits the facts of the instant case as closely possible. On occasion, however, depending on how the facts are viewed, it may be possible to fit the case into more than one legal domain. Opting for one characterization of the facts over another will sometimes be the first major decision to be made in a case. This initial decision can have a profound effect on the outcome of the case. To use a military analogy, it is like choosing the terrain on which a battle will be fought. As any professional soldier knows, the choice of terrain can sometimes be decisive.

Most of the time, the facts will fall naturally into one particular domain of law. As a result, lawyers tend to pigeonhole cases instinctively without giving the matter much conscious thought. Nevertheless, occasionally it is not immediately obvious what the legal implications of a given set of facts are, even to experienced practitioners. When this happens, the preliminary step that needs to be taken is one of conceptualization. The lawyer must begin by characterizing the problem.

Indeed, unless the pertinent domain is patently obvious, a good work habit for lawyers to adopt when faced with a new set of facts is to consciously ask themselves the question: "What sort of problem do we have here?" This approach helps to ensure that
no plausible way of looking at the facts that might work to the advantage of the client gets overlooked.

An example will show that, depending on how the facts are conceptualized, it may be possible to fit a case into a number of different domains. The highly publicized Baby "M" Case involved a woman who agreed to act as a so-called surrogate mother. When the baby was born, she had second thoughts and tried to keep it herself. These facts can be viewed as giving rise to the following different types of cases.

(a) A simple action for specific performance to enforce a contract,
(b) An attempt to enforce a contract which is unenforceable because it is against public policy,
(c) An attempt to renege on an adoption agreement,
(d) A custody dispute involving a bastard child, or
(e) A custody dispute analogous to those which arise in the course of a divorce.

From a lawyer's point of view, the importance of the conceptualization process is that one alternative may be more favourable to the client's case than another. Indeed, once the court has decided to put the case in a particular legal pigeonhole, the outcome may be virtually a foregone conclusion. Thus, in the example cited above, characterizations (b) and (d) favoured the natural mother whereas (a), (c) and (e) tipped the
balance in favour of the father. The court ultimately chose option (e) with the predictable result that the father won.

The act of conceptualizing a fact situation in a number of different ways will not always yield as dramatic a range of possibilities as in the Baby "M" Case. In more mundane circumstances, the kinds of questions that tend to arise are such things as whether a contract is one for goods or for services, or whether a certain type of dishonest behaviour supports a charge of theft or fraud.\textsuperscript{6}

However, in principle, the importance from a lawyer's point of view is the same; namely, that the manner in which a fact pattern is characterized at the outset may profoundly influence the eventual outcome of the case to the benefit or detriment of one side or another. The conceptualization process therefore represents the first stage at which a lawyer can argue for one interpretation of the facts over another. Given what may be at stake, lawyers should be careful not to overlook any plausible interpretation.

The manner in which a case is conceptualized is vital because it determines which facts are relevant and which are not for the purposes of legal argument. Relevance to the issues at stake in a case is the acid test by which the facts are judged. Switching legal pigeonholes is a sideways leap into another mini-world where the yardstick for measuring relevance changes. Different criteria of relevance apply if a case is seen as falling into one
conceptual category rather than another; for instance, if a configuration of facts is treated as a tort rather than a contract.

Choosing the right conceptualization of the facts at the outset of a case is on a par in its importance with picking the right jury. Many lawyers believe that, in certain kinds of cases, the composition of the jury largely determines the outcome of the case. For example, having a convenience store owner as a juror on a robbery or a shoplifting case could be the kiss of death for the defence right from the start. Hence the importance that is attached to the jury selection process, especially in the U.S. where it has become an area of specialization in its own right.

2.2.1.6 Everything is Relative

It should be clear by now that legal arguments do not deal in absolutes. If they did, lawyers would have no room to argue in support of positions that they find themselves obliged to defend because, for the most part, they do not have the luxury of picking and choosing their clients.

The realities of practice foster a mindset that separates lawyers from the general population and sometimes infuriates the latter; namely, the willingness to argue in support of any point of view - provided that they can come up with a plausible argument. Failing that, their task becomes one of damage control. Without
such an outlook, lawyers would be unable to function effectively in their professional capacity because of the way the legal system operates.

Lawyers must be prepared to argue any side of an issue. This absence of personal commitment to the cause they are pleading goes against the grain for most laypeople. However, whether or not lawyers personally believe that they are on the "right side" is neither here nor there. A lawyer's role is to make the strongest arguments possible in favour of a client's position, not to be convinced of the justice of a client's cause.

Lawyers think differently from other people. There is a chicken-and-egg debate about how this happens. Do you need to be a certain kind of person to become a lawyer? To have the lawyer's equivalent of the Right Stuff? Or does the process of becoming a lawyer turn you into a certain kind of person? Even if a natural aptitude helps, legal education is designed to finish the job. It is often said jokingly that students undergo a remarkable transformation in law school. They go in as perfectly nice people and come out as insufferable lawyers who are prepared to argue about anything at the drop of a hat. There is a great deal of truth to that assertion. Law school is primarily a process of indoctrination into the legal way of thinking. The main thrust is not so much to impart specific information, but to inculcate a relativistic point of view. The object of the exercise is to disabuse would-be lawyers of the ingrained notion that there is necessarily a right answer to any question. Law students are
taught a reasoning technique that requires them to analyze hypothetical fact situations, spot the legal issues they raise and make arguments on both sides of each issue. In order to foster this outlook, the hypotheticals given in law school exams are carefully constructed so that there is no clear-cut answer to the issues they raise. Credit is given for the ability to spot issues and make arguments. Students who get hung up on the idea that there must be a right answer do not do well in school and ultimately make bad lawyers if they persist in this one-sided way of thinking. Of course, some arguments are better than others and the knack of recognizing this and ranking them according to relative merit is encouraged. However, in the final analysis, "thinking like a lawyer" (the ultimate accolade in legal circles) is the art of making persuasive arguments in support of whatever position the lawyer is obliged to take.

2.2.1.7 Knowing What Will Wash

No bones were made earlier about the lawyer's principal objective being to obtain the best deal possible for a client within the constraints imposed by the rules of the legal system.

Apart from the formal rules, there are other unstated but nonetheless real constraints on what a lawyer can get away with.

First of all, there are the values of the legal sub-culture and standards of professional behaviour that are inculcated starting
at law school and thereafter throughout a lawyer's career. Neophyte lawyers learn to adapt their thinking so that it fits into the framework of the law, and to talk and act like lawyers. Breaches of this unwritten code are sanctioned in ways that effectively marginalize transgressors and deprive them of the rewards the system has to offer the faithful. This process of indoctrination into the norms of the legal fraternity has been the subject of considerable discussion in a sociological vein, notably among the Critical Legal Studies ("Crits") school of thought.7

It is difficult to make a clean separation between the way lawyers look at legal issues and their outlook on the world as a whole. The ideas they absorb by a form of osmosis during their legal education create a value-laden matrix out of which the totality of their thinking arises. Once this set of values has become firmly rooted in the psyche, the peculiar cast of mind called "thinking like a lawyer" becomes second nature and spills over into all areas of their lives. These ingrained habits can be annoying. For example, lawyers' wives sometimes complain that their husbands cross-examine them as though they were on the witness stand or become impatient if they do not get to the point of a story quickly enough.

The largely unconscious prism through which lawyers see the world ensures that legal reasoning, while it may not be an exact science, is not arbitrary. If it were not, the system could not function as efficiently as it does. The logic of the law is by
no means as precise as formal logic, but it works reasonably well. Experienced members of the profession generally have a pretty good idea of how a particular legal issue will be decided. Their experience gives them an intuitive feel for what is appropriate in a given case. Were that not so, it would be impossible for lawyers to give clients any meaningful legal advice at all. Society could not operate from day to day unless, for the most part, the law were certain enough for actions to have predictable legal consequences. Good legal advice is obviously precise enough to be useful, otherwise it would not be such a valuable commodity. The law makes no larger claim than that the future can be predicted within defined limits of certainty. Since there are uncertainties, the predictions will sometimes be wrong.

This intuitive sense of what is appropriate in a given situation applies equally well to the business of making a legal argument. Experienced lawyers have a good feel for those arguments that are worth making and those that are fated to go nowhere. Knowing when an argument should be made, even though it may not necessarily succeed, and when it will be laughed out of court, is a judgment call that only experience can teach. There is a fine line between the imaginative and the fatuous that is difficult to draw. Overcaution is undesirable because it can result in potentially successful arguments being screened out. Sometimes no one is more surprised than the lawyer making an argument when it actually succeeds, despite the outward display of confidence put on for the benefit of the court. A good rule of thumb is
that a legal argument is worth advancing if an experienced lawyer is not ashamed to make it. That is to say, if the lawyer can stand up and make it with a straight face and without blushing.

Inexperienced lawyers have difficulty distinguishing between legal arguments that are worth making and those that are patently absurd. As a result, they tend to make an issue out of virtually everything, thereby diminishing the impact of a potentially good argument by burying it under a mass of superfluous rubbish. The shotgun approach that typifies beginners is rooted in their own insecurity and reinforced by their recent law school experience.

Since they lack confidence in their own judgment, just to be on the safe side, they trot out every argument imaginable. This undiscriminating approach is responsible for the spectacle of the articled student staggering into court to try a run-of-the-mill case weighted down by a huge stack of authorities. During the course of the trial, the student attempts to deluge the court with one elaborately constructed legal argument after another, many of them on issues that are either uncontentious or peripheral. The absurdity of the situation is frequently compounded by the pretentious, rhetorical style of argument that many students adopt in an attempt to cover their own nervousness. The reaction of the court to these earnest attempts to make a big deal out of everything under the sun ranges from extreme impatience to barely concealed amusement, depending on the level of tolerance of the judge. The period of uncertainty during which newly minted lawyers have difficulty seeing the wood for
the trees is an unavoidable rite of passage. Eventually, as they gain experience, they acquire the ability to tell a reasonable argument from a ludicrous one. Their increased self-confidence shows itself in a more natural, relaxed courtroom manner and a willingness to concede issues that are not worth fighting about.

The tendency of beginners to go overboard when making legal arguments is strongly influenced by the distorted view of the realities of practice that they get in law school. For one thing, the reported cases on which the case method of instruction is based are the tip of an iceberg. They constitute only a miniscule proportion of the total number of cases that lawyers handle, and not a representative sample at that. Most cases in the real world are relatively straightforward from a legal point of view. Many of them turn on issues of fact rather than law. Cases that find their way into the law reports because they raise significant legal issues are relatively few and far between. When a case does raise a legal issue, there is usually only one at stake, not dozens.

It takes a while for lawyers fresh out of law school to realize that important legal issues do not arise constantly. Because law school exams are designed to test the students' knowledge by covering as much ground as possible, they tend to be based on fanciful fact patterns that have been carefully dreamt up for the express purpose of generating a host of different legal issues. Doing a law exam is a bit like going on an Easter egg hunt. You know ahead of time that legal issues are buried all over the
place; you simply have to find them. Lawyers starting out in practice have been so conditioned to sift through fact situations looking for carefully camouflaged legal issues that they expect to find them lurking everywhere in the real world. Since, to a large extent, what we see is what we expect to see, it is not surprising that neophyte lawyers start off by seeing issues that raise legal arguments all over the place, where none actually exist.

2.2.1.8 The Law is Hardly Ever Hard

Underlying patterns of consistency in legal decision making are critical with respect to deciding the so-called "hard cases" mentioned earlier which, according to the well-known legal maxim, "make bad law". The existence of a consistent thread running through legal decision-making has important implications for building KBS's because it allows us to tease a coherent structure from a body of cases in a domain of common law. Once grasped, the guiding thread, like the one Ariadne gave Theseus to lead him safely out of the Cretan labyrinth, enables us to navigate through what would otherwise be a confusing maze of cases. The subject will be dealt with a length later on when explaining the methodology used to build Nervous Shock Advisor (NSA).

As far as legal reasoning is concerned, it is important to distinguish between simple cases and hard ones. Legal problems can range from the relatively simple to the complex. Most
everyday legal problems fall into the simple category. Hard cases are relatively rare. However, it is easy to get the mistaken impression that hard cases are much more prevalent than they actually are. The principal reason for this misapprehension is the amount of interest that difficult cases arouse. Unusual cases make it into the law reports, legal journals and the press because they are newsworthy; run-of-the-mill cases do not. When everything goes according to plan there is simply nothing to report. For exactly the same reason, the media do not tell us about planes that did not crash, volcanoes that failed to erupt or politicians who were not assassinated.

If a KBS is to provide complete coverage of a domain, it must be capable of handling both the simple and the hard cases. A system that could only deal with simple cases would be of limited practical use to lawyers. It is hard to conceive of one that would be capable of doing only the converse. Common sense suggests that systems acquire the ability to give answers of increasing complexity incrementally. Like people, they need to crawl before they can walk, so to speak. How could a system give answers to hard questions unless it were built on top of an infrastructure that enabled it to answer simple questions first? However, assuming, for argument's sake, that it were possible to build such an idiot savant system, it would also be of limited usefulness because it would give an incomplete and unbalanced picture of the domain.
2.2.1.9 Time is Always of the Essence

Whatever else it might be, law is a business. Everyone has heard the old adage that in business time is money. That fact is particularly true where law is concerned because the only thing lawyers really have to sell is the time they spend applying their expertise to a particular legal problem. The expenditure of time may be devoted to dispensing advice, drawing up documents or arguing a case in court. Regardless of how it is done, the point is that lawyers do not produce physical objects that are designed to be useful in and of themselves or to be carted home and admired for years to come like a piece of fine art. Legal documents may have a physical existence, yet it is strictly as a means of recording the results of a lawyer's mental labours. The value lies not so much in the thing itself as in the thought that it embodies. Notwithstanding the practice that exists of framing old legal documents (e.g. parchment debentures) and hanging them up as wall decorations, people are not usually in the habit of proudly displaying their mortgages or divorce decrees for their friends to admire. These documents exist primarily to provide evidence of a legally effective act accomplished through the application of a lawyer's expertise.

Since selling time is what the legal business is all about, keeping track of time is the number one priority in private law firms. Time that is expended and not recorded is tantamount to money thrown down the drain. The same urgency does not exist in legal enterprises that do not rely exclusively on selling their
services to the public. Examples in the private sector are the legal departments of large businesses that employ in-house counsel to deal with most of their own legal affairs. The same thing holds true for the many government agencies that have lawyers in their employ. Foremost amongst these are the federal Ministry of Justice and the Provincial Attorney-General's Department. Nonetheless, for the overwhelming majority of lawyers working in private firms, the most burdensome aspect of practice is the constant pressure of time and the imperative that they account for it painstakingly.

We shall see that KBS's have the potential for taking some of the pressure off lawyers by saving them a great deal of time. However, we shall also see that the use of these systems gives rise to other problems.

2.3 Pragmatics

The ability to make a good legal argument is the basic skill that an effective lawyer must possess. In addition, she must be able to manipulate the rules of procedure and evidence to the client's best advantage. However, apart from these core skills, there is a whole other dimension of knowledge that lawyers bring to bear on the handling of a case. This kind of knowledge is difficult to formalize. Perhaps it can best be grouped under the general heading of pragmatics. What it really amounts to is the application of common sense reasoning to a wide range of
practical knowledge that the lawyer possesses about the legal world. Pragmatics can have a decisive effect on the outcome of a case. Pragmatic knowledge is not only extremely diverse, but also its application is more of an art than a science. It is the legal equivalent of being streetsmart, or having the moves, as the saying goes.

A lot of pragmatic knowledge is domain-specific. A lawyer who specializes in certain kinds of cases will acquire a grab bag of knowledge that is not really legal in the strict sense of the word. For example, a criminal lawyer will get to know about such disparate things as the workings of the crown counsel office, police investigative procedures, forensic pathology, ballistics, fingerprint examination, breathalyzer operation, psychiatry, document examination techniques, the analysis of blood and semen, illicit drugs, and so on. Similarly, a lawyer who specializes in construction cases will learn a lot about architecture, the sequence of steps followed to erect a building, the roles of the various tradespeople, standard financing arrangements, and so on.

Another valuable source of pragmatic knowledge is familiarity with what goes on in the institutions that make up the local legal scene. The judiciary is an important component of this scenario. Although it is well known in legal circles that certain judges have their quirks, this rather delicate subject is rarely discussed openly. Taking criminal law as an example, one judge may have a strong aversion to a particular type of offence and therefore be likely to hammer the accused with an
inordinately stiff sentence, if convicted. Another may be inclined to go easy on certain types of offenders. The criminal bar has the habit of lumping judges into broad categories according to a rough consensus about their overall leanings. They are usually categorized as either being "prosecution-oriented", "defence-oriented" or "fair". Word of a judge's reputation spreads quickly through the grapevine because the legal world is so small.

Some judges exhibit more bizarre traits that go beyond leaning in one direction or another. All trial lawyers have a collection of war stories about their first-hand experiences of aberrant judicial behaviour. Swapping them is a favourite after-hours pastime. Word of these eccentricities does not usually leak out to the general public even though they are well-known within the legal community. Not surprisingly, there is a conspiracy of silence about judicial weirdness as far as outsiders are concerned. Lawyers remain tight-lipped for fear that being the one to point the finger will jeopardize their own careers. No one wants to be a martyr. Other judges are well aware of what is going on. Occasionally, when addressing lawyers, they will allude to the peculiarities of some of their brethren in guarded terms.

Since getting the right judge (or at least avoiding one who is a total disaster) can make a difference, a certain amount of judge shopping goes on. Its scope is limited because the system is set up in such a way as to make it difficult for lawyers to blatantly
opt for one judge over another. If that were possible, certain judges would be shunned altogether.

Knowing the idiosyncracies of individual judges and the ins and outs of the court administration system can be enormously helpful to lawyers. Of the two, having a fix on the judiciary is more important because the personality of the judge can have a direct bearing on the outcome of a case. Being able to work the court administration system only affects the outcome of a case to the extent that it may enable lawyers to get it set down in front of a particular judge.

A KBS that attempted to profile the prejudices of individual judges and predict how these might affect their decisions would hardly be worth the investment of time and effort needed to build it. In the first place, these biases would be hard to formalize. Secondly, they would only be triggered by particular kinds of cases. Thirdly, the total number of trials a lawyer would have in front of any one judge would be too few in number to justify the expense of acquiring such a system. Finally, if the judge in question were to retire or die, as regularly happens, the system would be rendered obsolete overnight. The only way to overcome these shortcomings would be to build and maintain a whole battery of systems designed to cover all the judges in a particular region. However, that would be a massive undertaking, the benefits of which would be marginal as compared to its cost.
An on-line database called "Trial Line" recently produced by Amicus Information Services of Emeryville, California, provides a reasonable compromise. The system lists every trial litigated in the state, together with the names of the presiding judge, the opposing attorneys, the expert witnesses called to testify and the verdicts that were eventually reached. The goal is to provide the attorneys with the track records of the lawyers they may find themselves arguing against, as well as the judges they may appear before. By listing the phone numbers and addresses of the expert witnesses, the program also helps attorneys contact the witnesses that would provide the most effective testimony for their case.

A KBS based on judicial bias that might be feasible would be one that dealt with a court of last resort, such as the Supreme Court of Canada or the U.S. Supreme Court. These courts decide matters of far-reaching importance for the entire country that extend beyond narrow questions of law into the realm of social policy. The impact of their decisions makes it worth attempting to predict how they will deal with important issues like abortion, police powers and individual rights. Viewed as single entities, these courts exhibit a distinct overall character that reflects the viewpoint of the majority of their members. The court's leaning shifts gradually as its composition changes. A notable example is the shift in the U.S. Supreme court from the liberalism of the Sixties and Seventies under Earl Warren to the conservatism of today. The recent controversial appointment of Clarence Thomas to the court was the end of a long conservatizing
trend. Since these changes do not occur overnight, it would be possible to modify a KBS to take them into account.

A KBS that profiled the biases of the highest court in the land would be a special case. As a rule, pragmatic knowledge must be of general application to a particular domain of law for it to be worth incorporating into a KBS. Otherwise, it would not be useful to a large enough group of users. IDA is an example of a KBS that includes real-world knowledge about the domain of impaired driving. The goal of the system is to probe for weaknesses in the prosecution's case and to suggest potential defences. NSA, on the other hand, deals with purely legal issues. KBS's that incorporate pragmatics can serve as useful teaching tools for those unfamiliar with how certain areas of law work in practice.


4 I am indebted to Professor J.C. Smith for this example.

5 525 ALR 2d 1128, 14 FLR 2007.

6 For example, see: R. v. Maurer (1975), 30 C.C.C. (2d) 94 (B.C.C.A)

7 For example, see: Duncan Kennedy, Legal Education and the Reproduction of Hierarchy. A Polemic Against the System. (Cambridge, Mass.: Afar Press, 1983).

Before turning to look at how a lawyer's practical needs might best be served by KBS's, one should begin by putting things in context and tracing the development of current thinking in the field of law and AI.

3.1 Opposites Complement One Another

As noted earlier, legal reasoning is a matter of seeing a relationship between the present situation and something that happened in the past. Its success depends on the lawyer's ability to draw analogies by applying commonsense reasoning to knowledge about the world. It is a central contention of this thesis that these are uniquely human abilities that computers have great difficulty mimicking.

In fact, there is an uncanny, across-the-board asymmetry between the capabilities of human beings and those of computers. Those tasks that human beings perform almost effortlessly, computers are incapable of mastering, except at the most rudimentary level.
Natural language, vision, and commonsense reasoning are prime examples. By the same token, those things that computers do with ridiculous ease are the very things that humans struggle with. Well-known examples are formal logic, complex mathematics, and storage and retrieval operations. Furthermore, computers do what they do well with unerring accuracy, total consistency and mind-boggling speed that are orders of magnitude beyond what the brain is able to achieve. They truly are the ultimate tool because of their ability to compensate for human shortcomings.

To anyone with a mystical bent, the way that capabilities of humans and those of computers dovetail with one another seems almost as though it were meant to be. The strange complementaritv smacks of the unfolding of a master plan designed to allow humans to reach beyond their innate, biological limitations. This is certainly the stuff that sci-fi movies are made of, like Stanley Kubrick's well-known adaptation of Arthur C. Clarke's 2001: A Space Odyssey. Perhaps computers will give human evolution the same sort of boost as the brain-stimulating vibrations from Kubrick's mysterious monolith.

3.2 Why the Field of Law and AI is Really Neat

If one accepts the proposition that the essence of legal reasoning falls into the category of things that computers are not good at, the challenge facing anyone wanting to use computers to assist lawyers is how to work around these inherent
limitations and adapt the machine's capabilities to the lawyer's needs. While that is the position taken by this thesis, not everyone would agree with it.

Roger Schank has divided the AI community into two camps: the "neats" and the "scruffies". For the neats, the computer, not man, is the measure of all things. They are primarily concerned with developing logically rigorous models that are computationally sound. However, their models are idealizations that abbreviate and distort reality. The scruffies, on the other hand, take the world as it is (or at least, as it appears to be) and attempt to grapple with its messiness. As any experienced lawyer will attest, legal reasoning is scruffy. Precise, formal logic of the kind that the neats love and computers readily respond to is not something that comes naturally to either lawyers or human beings in general. In everyday life, people get by remarkably well with informal (i.e. common sense) reasoning based on incomplete information and yielding approximate results — exactly the kind of thing that is anathema to strict logicians. Legal reasoning has evolved from this typically human way of thinking. Formal logic is more akin to mathematics and is not something that intuitively makes sense to most people.

The seductive power of the prevailing metaphor of mind as computer has led a number of people to turn things on their head and to try and make legal reasoning fit the computer rather than vice versa. This kind of thinking is an example of what Lotfi Zadeh, the father of fuzzy logic, has aptly called the Hammer
Principle.² If the only tool you have at your disposal is a hammer, then everything begins to look like a nail.

A back-to-front approach is enormously appealing. It characterizes the problem in such a way as to make it inherently solvable with the means at hand. Unfortunately, it also denies the reality of what lawyers do. Professor Ejan Mackaay, of the Faculty of Law at the University of Montreal, was one of the earliest Canadian commentators on the field of law and AI. In an article written in 1976, he underscored the inescapable fuzziness of legal concepts. He pointed out that this intrinsic characteristic makes legal decisions impossible to predict using the precise mathematical methods to which the behaviourist-oriented precursors of today's neats were committed. He went on to state, in no uncertain terms, that their adherence to inappropriate techniques seemed to betray a profound failure to grasp what law is all about.

"The use of these methods gives the lawyer the impression that they do not relate to anything that he knows about; that leads him to think that they do not know what they are doing by predicting legal decisions mathematically. Prediction presupposes comprehension, it should not replace it."³ [My translation from the original French text]

Professor Mackaay is leading proponent of the application of AI technology to law, but not in a one-dimensional, simplistic way that fails to do justice to the complexity of legal decision making.

Wishful thinking about what relatively simple techniques can accomplish leads to exaggerated expectations like those that
surrounded the highly touted machine translation programs of the mid 1960's. These were based on a naive, mechanical view of natural language. The proponents of the initiative were convinced that success could be achieved by simply bringing the enormous processing power of the computer to bear on the rules of grammar supplemented by huge dictionaries. The superficial appeal of this idea attracted massive amounts of government funding. Unfortunately, this misguided attempt to tailor the task to fit the tool was one of AI's most spectacular failures. If nothing else, the ill-fated research was a fertile source of hilarious stories about mis-translations, some of which are undoubtedly apocryphal. Some of the gems are "Invisible idiot" for "Out of sight, out of mind", "Water goat" for "Hydraulic ram", and "The vodka is strong, but the meat is rotten" for "The spirit is willing, but the flesh is weak".

Since its inception roughly a decade ago, the neats have dominated the burgeoning field of law and AI. Their hegemony is understandable, given that the initiative to apply AI techniques to law had to come from people with the technical know-how. Besides being notoriously technophobic, most working lawyers are too busy scrambling to keep on top of their workloads to be able to devote time to anything else. As a result, pioneers in law and AI from among the ranks of the neats have largely occupied the field and set the agenda.

In a recent paper, Robert N. Moles, a Senior Lecturer at the Australian National University's Faculty of Law, levels some
harsh criticism at a group of researchers firmly in the neat mainstream. His target is the Logic Programming Department of Imperial College, London, England. The group attempted to reduce the provisions of the British Nationality Act to a series of Horn Clauses in a Prolog program. Their underlying assumption was that an isomorphism exists between the statutory provisions and the logically formulated rules, and that meaning can somehow be conveyed in the translation. Moles argues that this approach is simple-minded because it shows no appreciation of the nature of legal interpretation. He points out that this is hardly surprising because the group did not include a single practising lawyer or member of a law faculty. He stresses the primary importance of creating a solid infrastructure of legal knowledge, using essentially the same metaphor that occurred to me.

"They suggest that if they were now to bring in an expert advisor, such a person might want to extend or modify the program. Whilst this is clearly a possibility, the more likely scenario is that such an expert would advise them to abandon it altogether. Their hope that "expertise" can be brought in to "further develop" what they are doing, presupposes that they have been on the right track so far. Who would attempt to build a house themselves - in order to avoid the cost of a bricklayer - in the hope that they could always call in the brickie later on to put things right? The point is, of course, that if the foundations are not laid properly, the only sound advice might be to clear the site and start again."4

The neats seem ideologically predisposed to using the computer's particular capabilities as a Procrustean bed into which they will force the law no matter how many parts of it they have to lop off to make it fit.
3.3 Where the Neats Are Coming From

The neats' outlook is understandable in light of the way in which AI developed. Although its roots can be traced back much earlier, a convenient date at which to fix the birth of AI is the 1956 Dartmouth Conference at which the founding fathers got together to talk about issues of mutual concern. It was then that one of them, John McCarthy, coined the name "Artificial Intelligence".

The fundamental idea that underlies most AI thinking is that human beings are information processing systems. A corollary of this point of view is a latter-day cartesian dualism. The mind and its embodiment, the brain, are seen as separable. The brain is equated with a piece of hardware running programs that collectively constitute the mind. If only the programs could be figured out, so the thinking goes, they could be duplicated and ported to another platform, the computer, that just happens to be silicon rather than carbon-based. According to this point of view, there is no reason in principle to distinguish between computers running software and a functioning human brain. Marvin Minsky, another of AI's founding fathers, conveyed this sentiment somewhat gruesomely by describing human beings as "meat machines". He expounds his idea of mind as program in a book, *The Society of Mind*. Minsky conjectures that the enormous complexity of the mind arises from the combination of a myriad individually simple operations performed by entities he calls "agencies". This, of course, maps the mind perfectly onto
computer programs which achieve complexity in a similar way. In effect, the mechanical model of the mind as an ingenious clockwork mechanism, run by the fleshy equivalent of an elaborate system of cogs and gears, has been updated to make it conform to state-of-the-art technology.

The dualistic underpinnings of the AI point of view are a clearly open to challenge. An equally plausible idea is that the human mind is a unique phenomenon that is inextricably intertwined with the biological composition of our species as it has evolved over many millions of years. If the mind cannot be separated from its physical basis, then the aspirations of the proponents of "strong" AI to duplicate the mind/brain's operation, with a machine that was first developed barely 50 years ago, seem ludicrously inflated. Granted, there is a spectrum of belief within AI. Some researchers with more modest aims are primarily concerned with simulation rather than duplication. However, the extent to which either one is possible is hotly debated. In either event, how success should be measured is yet another controversial topic which we shall consider a little later after sketching out briefly some major trends in the development of AI thinking.

Early AI programs were all about problem solving. The technique used centred on the idea of search through a problem space that presented alternatives at each step of the way. The basic idea was to begin at the start state and move systematically through the problem space until the goal state was reached. The program
navigated from node to node in the problem space seeking the goal. Transitions from one state to the another were accomplished by a particular sequence of actions. The goal state was clearly defined so that it could be identified unequivocally when reached. Different search strategies such as "depth first" and "breadth first" were employed to explore the network of nodes in the search space in an effort to reach the goal as quickly as possible. Heuristics were used to direct the search and prevent the program from chasing up blind alleys and/or falling victim to the combinatorial explosion.

The problem solving approach worked well when used to prove theorems, solve puzzles and play games. GPS (General Problem Solver), a well-known early program, was typical of this genre. However, as successful as these programs were, the tasks they tackled were artifacts of the human mind, not real-world situations. All of these applications related to narrowly bounded, artificial domains in which the range of possible actions could be exhaustively described by a set of well-defined rules. In short, they could not have been better chosen as a means of showing off the power of the computer. They capitalized on the machine's virtuosity at manipulating symbols according to the rules of a formal system. No wonder the success of those early AI programs raised high hopes for the future. However, the early optimism was based on the assumption that the same techniques could be applied with equal success to the world at large. As it happened, this assumption proved to be totally unfounded. It was discovered that experimental systems that
worked reasonably well within narrowly bounded microworlds could not be scaled-up to handle the complexity and messiness of the real world.

The emergence of expert systems constituted an acknowledgement that the methods of early AI would not work across the board. Borrowing the terminology of Thomas Kuhn's book, *The Structure of Scientific Revolutions*, Edward Feigenbaum, the former chairman of the computer science department at Stanford, and one of AI's leading lights, described this radical change of outlook in rather pretentious terms as a "paradigm shift" in AI. Essentially, it was a move from domain-independent to domain-dependent means of solving problems. Researchers came to the conclusion that general purpose methods were ineffectual when it came to dealing with specific real-world tasks. With his genius for quotable quotes, Feigenbaum summed up this insight with the pithy epithet: "It is more important to be knowledgeable than to be smart."

There is a great deal of truth to Feigenbaum's observation. No amount of intelligence can take the place of a thorough grasp of the knowledge in a domain. The hubris of the neats in the field of law and AI lies in their assumption that knowledge of the subject matter is almost incidental compared to their potent logic-based methodology. This outlook is a throwback to Mediaeval scholasticism in the Aristotelian tradition. It places inordinate emphasis on pure speculation and neglects careful fact-finding. Logic-based thinking needs hard facts to grind on
or it goes nowhere. Thinking in a vacuum is pointless. It needs to be balanced by empiricism of the sort that Francis Bacon introduced into Western thought when he began to observe what actually went on in the world.

The neats' attitude may be symptomatic of a larger social problem: the fragmentation of knowledge. Knowledge is increasingly being divided into narrow areas of specialization. People lose sight of the big picture. Each discipline becomes compartmentalized and isolated from the others. The conventional wisdom of a discipline is used as a frame of reference. Those that work within a field tend to see the rest of the world in its terms. They attach more importance to the priorities of their discipline than those of others. As a result, the significance of the discipline in the greater scheme of things can get blown out of proportion. Nowadays, the tongue-in-cheek definition of experts as people who know more and more about less and less has a lot of truth to it.

Interdisciplinary projects can help to provide a more balanced view of the world. Those working within a discipline should be given credit for knowing more about their subject than those on the outside looking in. While most lawyers may be technologically naive, they understand the law.
3.4 Who Thinks Computers Can Think?

The direction taken by early AI before the expert systems revolution is significant because it reveals certain underlying assumptions about the nature of intelligence. First and foremost, it treated intelligence as if it were some single, indivisible ability that could be used effectively to solve any problem in a one-size-fits-all fashion. Secondly, it betrayed a distinct bias in associating intelligence with the ability to solve logico-mathematical type problems. This, of course, reflects the high value that our society places on these skills. Hence the great expectations that were raised by the early successes of AI in this area. The big surprise was that computers were able to do these things with relative ease; whereas other abilities that human beings take for granted were discovered to be beyond them, as noted earlier. The things that were supposed to be hard turned out to be easy. Conversely, the things that were supposed to be a piece of cake turned out to be virtually impossible.

All this raises intriguing questions about the nature of intelligence and how it should be measured - in humans or machines. Artificial Intelligence has been defined by Marvin Minsky, a pioneer in the field, as behaviour on the part of machines that would be called intelligent if human beings exhibited it. However, this definition is not much help because it leaves unanswered the broader question of what human intelligence is all about. That is a whole subject in itself.
that is beyond the scope of this thesis. Suffice it to say that intelligence is usually linked to such things as the ability to learn, remember, adapt to new situations, innovate and use language effectively. Ideas about intelligence may vary from culture to culture, depending on social values and priorities. They may also change over time. For example, the kinds of mathematical operations that a $10 calculator can perform nowadays would have been deemed to require considerable human intelligence according to the standards of 30 years ago.

The oft-cited acid test for determining whether a machine should be considered intelligent is the so-called Turing Test proposed by A.M. Turing, the eccentric English mathematician, in his classic essay, *Computing Machinery and Intelligence*. Turing himself called it the "imitation game". The basic idea is simple enough. An interrogator isolated in a room is connected by teleprinter to two people in some other location. One of the "people" is a machine. If the interrogator cannot tell the real person from the machine by means of questions and answers, then the machine can be properly described as intelligent - or capable of thought, to put the question in the way that Turing looked at it. The machine, of course, has the right to lie and invent a background of human experience for itself, otherwise it could be exposed in a moment.

Turing raised a series of potential objections to the validity of the test that he proceeded to refute one by one. Curiously, the only objection he took seriously was the last one: "The Argument
from Extrasensory Perception". His willingness to entertain such a notion has been a source of embarrassment to true believers in the strong AI camp for whom Turing has achieved almost god-like status. It is precisely the sort of thinking they decry as wooly-minded mysticism. Thus, although the editors of a recent book that reprinted the essay were generous in their praise overall, they felt it necessary to disavow that part, even going so far as to suggest that it might have been written tongue in cheek.\textsuperscript{12}

A head-on challenge to the validity of the Turing Test recently came from John R. Searle, a professor of philosophy at the University of California at Berkeley.\textsuperscript{13} Simply stated, Searle asserted that, even if a computer were to pass the test in the future, it would not prove that the machine could think. Searle argued that intentionality, as it exists in humans and animals, results from causal features of the brain that no computer program is capable of reproducing. We may be machines, he said, but we are a very special kinds of machines of an entirely different order than computers.

3.5 Words, Words, Words

Lawyers make their living as professional persuaders who exploit the power of language for their own ends. They use it in the same way as a journeyman bricklayer uses bricks to build a wall. Their use of language may seem uninspired compared to the sparkle
of a literary work. Yet they wield it purposefully like an
effective tool. Lawyers are wordsmiths. Finding the words that
will get the job done is their prime concern. Aesthetics are
incidental.

The artful use of language with which lawyers skew reality is
nowhere more evident than in a court case. Once reality has been
sifted through the filter of the legal process, a gulf of varying
widths is opened up between the events as they actually occurred
and the way in which they are ultimately found to have happened
by the court. Make no mistake, we are talking here about
something much more marked than the normal differences in
perception that are to be expected when more than one person
experiences the same event. A face-to-face confrontation with
reality gaps of this kind is profoundly distressing to laypeople.
Unlike the professionals who have grown cynical through constant
exposure to the justice system, they are shocked to discover how
little resemblance the final characterization of an event that
they were a part of bears to what actually happened. On many
occasions, I have seen tears of frustration and disbelief in the
eyes of witnesses when faced with a court's finding as to what
the facts of a case were.

The first stage of the problem is that, in order to reduce cases
to manageable proportions, the laws of evidence are restrictive.
Unless some fact is both admissible and relevant to what the law
deems to be an issue in the case, the court does not want to hear
about it. That in itself ensures that what will be heard is a
drastically stripped-down version of the total event. Inexperienced witnesses are thrown off balance by being forced to abridge their stories so as not to offend these rules. After being interrupted a number of times and told that they cannot say things that seem to be a perfectly natural part of the story, like what somebody told them because it is hearsay, they tend to get gun-shy. Instead of flowing naturally, their testimony becomes halting and wooden.

The second level of distortion creeps in as a result of the lawyers' deliberate attempts to sandpaper testimony in ways that makes it as favourable as possible to their case. Since lawyers are constantly warring with words, their level of linguistic competence tends to be superior to that of the general population. A witness is often faced with an articulate lawyer suggesting a nuanced way of describing a particular event that is advantageous to the lawyer's client. Witnesses with more meagre means of expressing themselves may be persuaded to adopt the lawyer's terms of reference in cross-examination. If a witness's command of the language is not good enough to enable him or her to put a finger on exactly what there is about the lawyer's choice of words that conveys an inappropriate shade of meaning, it is difficult for the witness to take exception to the alternative description proposed by the lawyer. A witness may have an uneasy feeling that the lawyer is slipping something by her when suggesting another way of putting things, prefaced by the standard cross-examination phrase "Is it fair to say ...?"

However, a witness who is not articulate enough to give a
concrete reason for objecting to the wording being suggested may simply take the line of least resistance and agree. Many slight nudges of this sort have a cumulative effect on the overall picture that emerges at the end of a case. They open the door for argument about the interpretation that should be placed upon the evidence as a whole. Cross-examination is often described as the crucible in which testimony is tested and from which truth emerges. Maybe so. But it is also the crucible in which testimony is melted down and recast in a slightly different form which may be further away from the truth rather than closer to it.

Interesting examples of the effect of the language used to describe an event on the perceptions of witnesses in an experimental setting are given by the psychologist Elizabeth Loftus in the book Eyewitness Testimony. In one experiment, different groups of people were shown the same film of a staged motor vehicle accident. Estimates of the speed of the vehicle at fault varied according to the strength of the words used by the researchers to describe the accident. The phrase "smashed into" consistently drew higher estimates of speed than the more moderate expression "hit. Furthermore, while there was actually no broken glass at the scene, the test subjects were more likely to imagine that there had been when the expression "smashed into" was used. This result was attributed to the fact that broken glass is usually associated with accidents occurring at high speed. The language used to describe the event had influenced the test subjects' perception of it in more ways than one.
Being in the persuasion business, lawyers must construct convincing arguments. A great deal has already been said on the subject of how they go about doing this. However, presenting these arguments is an exercise in marketing. In this respect, an argument is like any other product, be it toothpaste, detergent, a candy bar, or what you will. Whether an argument sells has a great deal to do with how it is presented. Language is the packaging in which legal arguments are wrapped and, as such, it can make or break a sale to the consumer, be it judge or jury. We are all familiar with the extent to which attractive packaging is used to sell a meagre product. Who among us has not felt a little ripped off when comparing the skimpiness of some basic product in all its nakedness to the sumptuousness of the packaging it came in? Lawyers take legal arguments and wrap them up in attractive linguistic packaging. A great deal of care goes into choosing felicitous turns of phrase that will get listeners thinking about a case in a particular way. These verbal formulas work like slogans. To take a very simple example, during the course of a murder trial, the prosecution might refer throughout to the victim's death as "the killing" or "the murder", whereas the defence might consistently call it "the unfortunate accident" to implant the defence theory firmly in the minds of the jury. The timely impact of words or phrases can tip the balance one way or another. That is why it is considered a major tactical advantage in a trial to be the last party to address the jury. Which party has the right will depend on the circumstances of the case. However, the rationale behind this eagerly sought advantage is that the words that are left ringing in the jury's
ears when they retire to commence their deliberations are thought to have a greater impact than whatever they heard earlier.

Lawyers require other skills apart from a facility with language. Acting ability is a definite asset in advocacy. Lawyers often represent causes to which they have no particular personal commitment - apart from their usual desire to win, that is. In order for their arguments to be persuasive, however, they must feign a degree of conviction. Otherwise, their listeners are unlikely to take them seriously. Arguments made to a jury in a dry, matter-of-fact manner are not going to go over very well. If the lawyer does not seem to believe what he is saying, why should they? An element of acting is important, but overdoing it can backfire. It is really a matter of striking the right balance. Hamming it up too much can be equally disastrous. Lawyers who strut up and down before the jury box striking exaggerated poses and spouting high-flown rhetoric are asking for trouble. Histrionics will only succeed in getting the jurors' backs up. There is a saying amongst criminal lawyers about what aggravating the jury can lead to. The jury convicts the lawyer and the judge sends the client to gaol.

Appearing in front of a judge alone is a somewhat different proposition. Lawyers adopt a different approach. The proceedings tend to be brisker and more businesslike. Arguments are made forcefully, but without being decked out with the frills and curlicues that might impress a layperson. Having played the game themselves, judges are unmoved by the kinds of tactics that
might score points with a jury. They just want to get on with the case and deal with the issues.

In cases where an election as to the mode of trial is available, lawyers will base their decision to choose either a judge alone or a jury on the nature of the case. The rule of thumb is that a judge alone is preferable where cold reason unswayed by emotional considerations will be likely to produce the best result for the client. Cases involving highly technical defences, horrifying facts or unsavoury defendants are typically ones in which it is best opt for the dispassionate appraisal of a judge and stay away from a jury. On the other hand, where the converse is true and the client would be better off if emotion can be counted on to overcome reason, a jury is the best bet. Perhaps the best example of that situation in recent history is the Morgentaler abortion case. The climate of public opinion was such that it was fairly obvious that no jury was going to convict Dr. Morgentaler no matter what the letter of the law said. So, in the face of overwhelming evidence and a charge from the judge virtually directing them to convict, the jury gave what amounted to a perverse verdict and acquitted the doctor of performing illegal abortions.

In the final analysis, the element of acting in lawyering need not be regarded as something entirely separate from language. It shows a deftness that is part of language use in its broadest sense; namely, the ability to adapt the type of language used and the manner of its delivery to suit the forum. The timing and
delivery of punchlines is as important to lawyers as it is to comedians — and just as carefully contrived. If things are not done exactly right, jokes and felicitous phrases fall flat. Few experiences are more demoralizing than confronting a group of blank, unresponsive faces when what was supposed to be a verbal zinger has fizzled. An eminent lawyer with whom I once worked devoted a great deal of care to the wording of his jury addresses. He did not script them verbatim because there is nothing juries like less than listening to a lawyer reading from a prepared text. Nor did he need to. He was an accomplished extemporaneous speaker. Instead, he sketched out the general form of his address and sprinkled it throughout with particularly compelling phrases that he had worked hard to construct. When addressing the jury, his delivery was masterful. At key points, he would hesitate, appear to be groping for words, and then miraculously seem to pluck the perfect expression out of the air. The illusion of naturalness was as cleverly contrived as a Zen garden.

In summary, the important role that language itself plays in legal argument should neither be overlooked nor underestimated. A KBS may well be able to provide the raw material out of which a legal argument can be constructed. But a great deal more remains to be done thereafter. Not only does the argument have to be honed to fit the peculiar circumstances of the instant case, but also it must couched in language that will show it off to maximum advantage like the packaging that surrounds a commercial product.
Language is a uniquely human phenomenon. Language, intelligence and the way we perceive reality seem inseparable from one another. The preceding discussion has attempted to show how the levels of language usage span a spectrum that stretches from the involuntary productions of the unconscious mind through poetry, formal prose, all the way down to the banal utterances of everyday life. Language is brimming with connotations, nuances, allusions and metaphors. Its richness defies containment. The fact that language continues to operate below the threshold of consciousness suggests that it may be closely linked to the mystery of creativity, another phenomenon that many people have tried unsuccessfully to pin down and analyze, that also seems to bubble up from the unconscious depths in dreams and flashes of insight.

Language is the stuff that law is made of. Lawyers are steeped in it. They engineer language in the same way that knowledge engineers work with knowledge. They poke it, prod it, tease it and hammer it into shape so that its power and subtleties will work for them. At most, a KBS can provide a lawyer the cases with which to construct a barebones legal argument. But there is more to making a legal argument than presenting it starkly like a piece of unfinished furniture. Wrapping an argument up in artful language lends it a lustre that can make the difference between success and failure.
3.6 Playing By the Rules

As has already been pointed out, the powerful metaphor of mind as computer tends to colour the way in which those who have adopted it see the world. It breeds a readiness to draw parallels between the way in which computers and the human mind function. A case in point is the widespread notion that legal reasoning is rule-based.

A popular misconception about law is that it is neat and tidy. According to this simplistic, Reader's Digest view, legal reasoning is a mechanical process. You take a set of facts, apply the rules of law to them and they produce an outcome. All you need to know are the facts and the rules. Taken at face value, therefore, legal reasoning seems like a domain that is tailor-made for the computer because it appears to operate in the same rigorous, mechanical way as the machine. The almost irresistible attraction exerted by the assumption that this kind of isomorphism exists, underlies much of the work that has been done so far in law and AI. It would be marvellously convenient if things were really that simple; unfortunately, they are not, and no amount of wishful thinking will make it so.

The root of the problem is two-fold. It lies first in the informal, commonsense nature of legal reasoning. Secondly, in the inherent ambiguity and lack of precision of natural language, the medium used to express the concepts that make up the so-called rules of law. The problem of formalizing
commonsense reasoning has already been touched upon. Essentially, this kind of reasoning draws on a vast store of real-world knowledge that is somehow selectively applied in an appropriate fashion to the situation at hand. The difficulty presented by the vagueness of language can be reduced, but it cannot be eliminated altogether.

In an attempt to achieve the highest degree of linguistic precision possible, most researchers have steered clear of case law and opted instead to work with statutes. The provisions of statutes are formulated in a rule-like way that makes them seem particularly suitable for being re-written as logical rules. The process of translating the rules into a syntax intelligible to a computer while preserving their semantic content seems relatively straightforward. Statutes offer the additional benefit of providing domains with well-defined boundaries. In contrast, case law is messy. The myriad decisions that go into making up a body of case law are scattered here and there throughout different series of law reports. There is no pre-defined structure in place that can serve as a starting point, as with a statute. Whatever rules exist must be teased out of an amorphous body of cases that represent the accumulated results of hundreds of years of judicial decision-making. Common law domains are not bounded by the four corners of the statute, as the saying goes; therefore, domain boundaries are not always easy to define.

A number of statute-based KBS's have been built. The systems have capitalized on the linguistic precision and built-in
structure offered by statutes. They work well enough when it comes to simple cases. However, in more difficult cases, the words of the statute may be open to a number of different interpretations. At this point, the illusion of certainty breaks down and the issue cannot be decided without recourse to a precedent case, if one exists, or otherwise by educated guesswork. There is simply no way round this open-endedness. The law deliberately expresses itself in language which is left vague so that its provisions can be applied to situations that had not been specifically envisaged by the legislators.

One researcher attempted to come to grips with a common law domain in an imaginative way by taking advantage of the enormous effort that a group of eminent legal scholars had put into attempting to formalize it. Anne Gardner used the Second Restatement of the Law of Contracts as her knowledge source for a rule-based approach to tackling legal reasoning.\(^{16}\) This document is a scholarly work that attempts to codify the law of contract in a coherent, overall fashion by abstracting a whole series of rules and principles from the decisions in literally thousands of contract cases and stating them explicitly. The idea of using a prestigious, ready-made distillation of knowledge as a starting point seems like a clever way of coming up with a solid set of rules for an area of the common law - something that does not usually exist, as noted earlier. In effect, this strategy allowed Ms. Gardner to proceed in a similar manner to those people who had chosen statutes because they seemed more manageable. She had a similar set of rules to work with that a
group of legal luminaries had worked long and hard to formulate. Who could deny their validity as authoritative statements of the law? The goal of her system was to analyze fact patterns taken from first-year law school exams in order to determine whether a valid contract existed. It dealt with such legal concepts as offer, acceptance, rejection and counter-offer.

It was a nice shortcut to make use of the accumulated wisdom of the writers of the Second Restatement of Contracts as a jumping-off point. Unfortunately, the path led inexorably to the same dead-end that everyone reaches eventually if they attempt to build a KBS using rules expressed in natural language. Ms. Gardner was defeated by the inherently open-textured nature of legal concepts. Legal concepts are like the features of an impressionist painting; from a distance they appear fairly clear-cut; however, the more closely one examines them, the blurrier they get. Take the following fundamental rule of contract law that any law student can reel off by rote at the end of first year: If there is a contract, between two parties and one of them breaches it, the other can sue for damages. Although it seems definite enough, this high-level rule raises a whole series of questions. What is a contract? Well, it is an agreement between the parties involving consideration on both sides. What does agreement mean? What is consideration? What constitutes a breach? And so it goes, back and back, deeper and deeper into a question-begging regression that does not bottom out at any satisfactory level of description.
Ms. Gardner's program was an imaginative exercise in computer science that worked well enough on simples cases. However, it was unable to resolve hard cases because, to use her own words, "the rules ran out". The program does not meet the criteria of this thesis because it would not be of practical value to lawyers. No practising lawyer would find much use for a program that was incapable of resolving first-year contracts problems. The fundamental flaw in Ms. Gardner's approach was her underlying assumption that legal reasoning can be modelled using the conventional rules of legal discourse. Edwina Rissland, an admirer of Gardner's work, concedes its weakness.

"I see cases playing a much more central role than Gardner. However, using cases in a more central way and not just as annotations or existential embodiments of concepts would require deep changes in Gardner's program."

Gardner at least made a concerted effort to refine the rules so as to give them a precise meaning before discovering that they ran out. Some researchers have simply sidestepped the issue of open texture altogether. An example is LDS (Legal Decision-making System), a system that deals with how lawyers estimate the value of products liability and negligence cases. The system's developers wrote the rules at a level of abstraction that floated above the quagmire of open texture. The rules included terms like "unreasonably dangerous" and "foreseeability". These terms refer to broad legal concepts and are not broken down any further. They call for a non-trivial legal judgment about their applicability to be made by the person using the system. Entire systems could be built around discovering the meaning of those terms as they relate to particular domains of law. Indeed, NSA's
sole purpose is to determine exactly what "reasonably foreseeable" means in the context of nervous shock.

In fairness to the developers of LDS, it should be pointed out that they readily acknowledged the shortcomings of these vaguely worded rules. In a subsequent article, they wrote the following:

"Lack of a deep model. The legal area doesn't have a clear and well understood underlying (deep) model of many of the mechanisms involved in decision making. Some domains do have a fairly clear model that can be used to predict activity and explain reasoning. Deep knowledge of this sort is not easy to find in the legal area. ... This makes the task of developing competent explanation facilities for legal expert systems somewhat difficult. ..."

One might expect that the large body of legal rulings and regulations that have been accumulated and formalized in the legal domain would make expert system development easier. Unfortunately, this is not the case. Instead, *this characteristic of the domain, having rules that already exist, has led to trouble.*\(^{19}\) [Emphasis added].

The most tenacious commitment to rules at all costs was shown by the Logic Programming Department at Imperial College, London. They suggested writing conflicting rules as a means of getting around the open-texture of legal language.\(^{20}\) There is something incongruous about this diehard attempt to use rules to capture meaning that clearly does not lend itself to a rule-based formulation. If meaning could naturally be expressed in this way, why should it be necessary to write conflicting rules?
3.7 The Unbearable Vagueness of Legal Concepts

The problem of trying to use the traditional rules of law as a means of building a KBS is that the rules are made up of abstractions that have no hard edges. They are generalizations that are too vague to come to grips with in a way that allows them to be manipulated computationally in some useful fashion.

It is all very well to cite a rule of law to a court, but unless a physical embodiment of that rule can be found in the form of a precedent case that is factually similar to the one in issue, arguing from the rule itself will cut no ice. The rule is too abstract to have any real meaning in and of itself. In this regard, legal reasoning is the converse of mathematical reasoning because it moves in the opposite direction. Mathematics goes from the concrete to the abstract. The power of numbers is derived from treating them entirely as abstract concepts. They can be manipulated without associating them with particular physical objects. Mathematics really took off and began its meteoric rise with this simple insight. Thus the number 6 can stand for 6 of anything; oranges, three-toed sloths, nuclear submarines, or what you will. Manipulating the concept 6 mathematically always yields precisely (the word is used advisedly) the same results. What holds true for 6 of one thing holds true for six of another.

Mathematical abstractions like numbers can be reasoned with effectively because, unlike legal abstractions, they are based on
numerical rather than verbal descriptions and are defined sharply enough to yield precise results. There could be no better proof of this than the power of the digital computer. Computers are dependent on their ability to distinguish one thing from another. They are based squarely on the notion of either/or. The Law of the Excluded Middle applies without exceptions. Something must be either one thing or another; it cannot be situated in a gray area somewhere in between. When one literally gets right down to it, that is what computers are all about. At the very lowest level, that of machine language, the infrastructure on which the whole edifice of computer functionality is built, everything is reduced to the binary digits zero or a one. The need for clear distinctions persists as one moves upwards from binary code to the high level programming languages in which most software is written. A computer can only deal with discrete elements that are separated by a clearly drawn line of demarcation. No fudging is allowed. A definite step must separate each element that a computer manipulates from every other. There is no in-between state.

Legal language is a specialized subset of natural language that poses all the same problems as its superset, as far as computers are concerned. Furthermore, it must take precedent into account and be interpreted in the complex context of prevailing social norms. Even the most banal notions like "short" and "tall" that human beings use unthinkingly in everyday speech in a manner that seems to make sense most of the time are much too imprecise to have any real meaning to a computer. Professor Lotfi Zadeh was
one of the first people to attempt to bridge the gap between the capabilities of computers and those of humans. Basically, he has suggested that linguistic variables be calibrated in order to assign them precise numerical values that are "crisp" enough for computers to handle. The idea of establishing a range of numerical values for ambiguous, commonly used terms is a useful one, especially when dealing with intermediate values that lie along a scale between pairs of opposites like "short" and "tall". Legal concepts are examples of "fuzziness" par excellence. As will be seen when discussing the development of Nervous Shock Advisor (NSA), the general notion of calibration can be used as a means of measuring closeness to the boundary fact patterns that are valid instances of a legal concept.

3.8 The Tangled Web of Legal Logic

Rules and logic go hand in hand. Not surprisingly, the notion that the law is logical is as prevalent as the belief that it boils down to a question of applying a set of rules to the facts of a case in a fairly mechanical way. In fact, the law is logical. The stereotype of the dispassionate lawyer meticulously analyzing the facts and applying Mr. Spock-like logic in order to arrive at an outcome has about as much truth to it as any stereotype does. After all, it is generally known that an analytical mind and the ability to think logically are supposed to be the primary qualities that any would-be lawyer should possess. Given, then, that computers are essentially logic
machines, why not use them to mimic the logic that lawyers use? Of course, when contemplating building a KBS, one would be talking about mimicking the logic of judges rather than lawyers. However, in Canada at least, there is no real difference between the thinking patterns of the two. Judges are simply lawyers who have gone on to their reward and achieved a sort of professional apotheosis. One cannot be a judge without first having practised as a lawyer for a significant period of time. The minimum period for federally appointed judges is ten years. These judges sit in the superior courts, the source of the most authoritative cases.

As attractive as the notion of modelling legal logic might seem at first blush, for all practical purposes, it presents insurmountable problems. The crux of the problem is that delving into the underlying reasoning of a case can confront one with irreconcilable contradictions. Even at the trial level where only one judge is presiding, the reasoning behind a decision can be susceptible to a number of different, plausible interpretations. At the appellate level where the most authoritative decisions are rendered, the problem is compounded. Appeal courts sit as a bench of an uneven number of judges (usually 3, 5 or 7) so that deadlock is impossible. The decision of the majority determines the outcome of the case. Dissenting judgments from the minority can be disregarded. The reasoning behind a dissent is often adopted by a higher court as the basis for overturning a lower court decision. But until a case has been reversed on appeal, the dissent is only of academic interest. However, majority judgments themselves present a
problem because, more often than not, although the judges concur in the final result, they reach it by different routes of reasoning. In light of this situation, what proposition can a case containing conflicting lines of reasoning be said to stand for? There is no easy answer to this conundrum.

The question of how to determine the holding of a case (i.e. to extract the so-called *ratio decidendi* from it) has been the subject of considerable academic debate over the years. Entire books have been written on the subject. A case is usually said to stand for some broadly worded proposition. Where multiple judgments are involved, the ratio is formulated in such a way that the judgments are blended together and treated as a composite. Needless to say, a synthesis of this kind is invariably a distortion because it glosses over differences between the individual judgments and attempts to blend lines of reasoning that are logically inconsistent. At best, the general proposition is useful only as a means of giving a very rough idea of what the case decided. It can be reworked and reworded to make it wider or narrower depending on the facts that are selected as being significant and the terms that are used to describe them. The essential plasticity of these propositions that purport to describe the import of a case allows them to be moulded to suit specific purposes or restated with the benefit of hindsight so that they do not appear to conflict with later decisions. The bottom line is that what a case stands for is not well-defined and is open to a good deal of interpretation. This built-in ambiguity gives the law the flexibility it needs to
adapt to unexpected situations and changing social norms. The edifice of the law has to strike a balance between stability and flexibility. Like a building that is constructed to withstand earthquakes, it must not be too rigid or it will collapse under the stresses and strains imposed by changes in social conditions. It must be flexible enough to allow sufficient leeway to incorporate those changes.

Law students are taught to brief cases by breaking them down into three parts: facts, issue(s) and ratio. A collection of cases from an area of law that have been analyzed in this fashion is called "a can". Cans are what most law students use to study for exams. Such a method of synthesis produces a handy little verbal formula that can be trotted out as an authoritative one-liner at exam time. Canned and condensed wisdom of this kind is what students call "the berries". Professors who give students the berries are highly regarded because they make legal education as painless as possible. The law is learned as a kind of catechism of case holdings that are dutifully regurgitated to justify legal arguments given as answers to exam questions.

Practising lawyers are somewhat more sophisticated in their analysis of cases than law students. Their focus is on a single, real-world problem, not some imaginary scenario that has been dreamt up expressly to cover as much ground as possible as a means of testing the students' knowledge of a subject. Consequently, lawyers take a closer, in-depth look at a case if it seems that it could be of use to them. They begin by going
through the case with a fine-tooth comb and examining the judgment (or judgments if it is an appeal case) in detail. The object of the operation is to give the case a slant that best suits their purposes. Where a single judgment is involved, this usually means seizing on a particular passage that is worded in such a way that it can be given an interpretation that is favourable to the lawyer's position. Appellate level cases offer more room to manoeuver because there are a number of different judgements to choose from. The lawyer begins by selecting the judgment that is most compatible with the argument she is making and then zeroing-in on those parts that seem particularly propitious. The whole process is reminiscent of the theological debates of the Middle Ages. Lawyers seek support for their arguments in legal texts in the same way that Churchmen sought justification in the Scriptures. By exercising sufficient ingenuity, lawyers, like theologians, can usually find some authority, albeit tenuous, in the text of cases for the proposition they are advancing.

The smorgasbord of choices that lawyers are presented with when looking at the underlying logic of a case allows them a great deal of scope when constructing legal arguments. From a lawyer's point of view, that is no bad thing given that lawyers are always looking for room to manoeuver. However, from a KE's point of view, an attempt to build a KBS that sought to weave together the different strands of logic running through the cases into a single connecting thread would be a daunting task. That is not to say that using a computer to catalog legal arguments in some
way that would make them easily accessible to lawyers would not be a worthwhile enterprise; far from it. The difficulty would lie in linking the arguments to well-defined issues. Some interesting work in this area has been done recently by Professor Jerome Atrens of the University of British Columbia Law School. Professor Atrens has carefully dissected a series of criminal cases giving rise to issues under the Canadian Charter of Rights and Freedoms in the Supreme Court of Canada. Amongst other things, he has extracted and stored in a database the different issues at stake in each case and the rulings made on those issues by individual judges.\textsuperscript{25} The information potentially gives judicious users the same sort of predictive capacity that it was suggested earlier a KBS might have it could be designed to mimic judicial bias. However, Professor Atrens' database is a much more straightforward and cost-effective means of achieving that result.

3.9 Sticking to the Facts

In the 1950's TV series Dragnet, the main character, Sergeant Joe Friday, a dour Los Angeles detective, had a trademark phrase: "Just give me the facts, Ma'am". The series has long since passed into TV history. However, Sergeant Friday's line lingers on in popular language; although "Ma'am" has somehow been changed to "Man" with the passage of time. Sgt. Friday's exhortation would make an excellent motto for anyone who contemplates building a KBS in some domain of law. That is because sticking
to the facts seems to be the best way of grappling with the inherent problems of ambiguity confronting them.

By bypassing the nebulous concepts embodied in traditional rules of law and dealing with them indirectly through the facts of the cases that interpret them, the rules can be clothed with sufficient substance to make them, or rather what they imply, manipulable by a computer. Legal concepts are like Plato's ideal forms or Jung's archetypes. They are not known directly, but only through the shadows they cast or the patterns they make. Like truth, beauty and justice, they are abstractions that require existential embodiments to make them meaningful. A KBS needs concrete atomic elements to serve as its building blocks. Legal rules as such are not manageable entities because nailing down the concepts that comprise them at the right level of precision is an impossibility. The relevant facts of the cases that interpret the legal rules are the only units that are unambiguous enough to serve as the primitives of a knowledge representation scheme.

Facts per se may well be hard-edged enough for building legal KBS's. But without some means of deciding which facts should be winnowed out of the masses of facts in a given body of cases, the facts constitute a meaningless, undifferentiated jumble. How the relevant factual primitives should be selected, described and grouped into appropriate categories is, therefore, a key issue when building a KBS in a particular domain. Thus to Sgt.
Friday's no-nonsense injunction should be added the rider "the right facts".

Some teleological focus is clearly needed in order to give direction to the search. Without the builder of a KBS having some notion of the overall goal that the law is seeking to achieve in a given area, there is no nucleus around which the pertinent facts can coalesce. When one is dealing with an area of statute law like impaired driving, for example, the explicit nature of the statutory provisions will make the goal self-evident because statutes are invariably drafted with some clear-cut purpose in mind. In the case of the Criminal Code provisions dealing with impaired driving, the high-level goal is clearly to prevent that sort of conduct from taking place. It is fairly obvious how the specific provisions of the legislation are all aimed at accomplishing that end. Hence, in addition to driving, having the care or control of a stationary vehicle is also proscribed because there is always the risk that an impaired person who is in or around a vehicle may set it in motion. Similarly, impaired driving is not an offence that is limited in its ambit to public places; it can also be committed on private property, unlike many motor vehicle offences. The rationale for the lack of restriction is presumably that the mischief the statute is attempting to curb can equally well occur in private as in public. Furthermore, there is the risk that an impaired driver on private property may stray into a public place. The law should clearly be in a position to prevent this from happening by authorizing preemptive action.
The goals of a statute are subject to interpretation by the courts. Cases that interpret the provisions of a statute will often do so in terms of an "intention" they purport to ascribe to the legislature. The so-called "intention of the legislature" is widely regarded as a legal fiction rather than any serious attempt on the part of the courts to fathom what the lawmakers actually had in mind. Brandeis briefs tracing the step-by-step history of a piece of legislation to ascertain the motives behind it are not an accepted part of legal argument in Canada. The wording of a statute must be interpreted as it stands, applying accepted rules of construction such as *ejusdem generis*, for instance. This gives the courts a certain amount of leeway when it comes to statutory interpretation. However, protocol dictates that judges should pay lip service to the notion that they are merely divining the legislative intention when in fact they may be putting their own spin on the statute. Of course, there are limits to how idiosyncratic judges can be in the exercise of their discretion. Judicial interpretations cannot be strained to the point where they are totally implausible and at odds with broad goals the statute is seeking to achieve. Since the specific provisions of the statute all point towards a general purpose, there will invariably be a high level of consistency about the cases that interpret it.

Procedures designed to facilitate fulfillment of the aims of a statute are prescribed in detail. In the case of impaired driving, these procedures for the most part relate to the various explicit steps that must be taken by the police up to and
including the point at which breathalyzer tests are administered in order to ascertain whether a suspect is impaired. As they are implemented under real-world conditions, these statutory procedures are refined through usage and judicial interpretation. They also become embedded in a larger context of customary practice that grows up around them to cover eventualities that are not specifically provided for in the statute, much in the same way as "the custom of the trade" develops into an accepted extension of contract law. Thus, over time, the police have come up with a whole series of investigative procedures that are highly ritualized. Prime examples are the type of sobriety tests that suspects are asked to perform and the routine questions that are asked at roadside and later back at the police station as part of a standard-form questionnaire that the investigating officer fills out. In fact, the procedures that have evolved as an adjunct to those actually laid down in the statute have acquired almost the same legitimacy as the latter. This is evidenced by the fact that officers who deviate from these procedures tend to be closely questioned by judges and lawyers about why they did so. In short, the black letter law of impaired driving has been supplemented by a substantial amount of impaired driving lore. The way in which the two dovetail with one another must be understood in order for what goes on in practice to make any sense.

In contrast to statutory domains, the underlying goals of areas of the common law are not as clearly articulated. Furthermore, nor are the specific ways in which its goals are being
accomplished always that easy to discern. Nervous shock is a case in point. Strictly speaking, it is a head of damages that falls within the broader context of the law of negligence. In a very general sense, the law of negligence tries to perform a balancing act between those two polar, opposites freedom and security. It tries to maximize the freedom of the individual to act in pursuance of legitimate goals (i.e. "agency") while at the same time protecting others from being adversely affected by those actions. From a philosophical point of view, the law is essentially attempting to implement the ideals of classical Liberalism, as enunciated by its leading proponent, John Stuart Mill; namely, that the curtailment of individual freedom is only justified insofar as that freedom impinges upon the freedom of others.

The attempt to balance competing considerations permeates the fabric of the law. In criminal law, the area with which I am most familiar, the principles of sentencing law provide a typical example. The principles that the judge must consider are punishment, rehabilitation of the offender, deterrence of others, and protection of the public. It is obvious that, taken to extremes, the implementation of one can completely negate another. Locking someone up and throwing away the key is an extremely effective way of protecting the public and deterring others, but it achieves nothing in the way of rehabilitation. Yet in some cases there may be compelling reasons why one principle should give way to another. Where the emphasis should be placed in any given case will depend on the nature of the
offence and of the offender. Thus, violent crimes like armed robbery will almost invariably attract a gaol term, even for a first offence, because the courts have decided that protecting the public and deterring other would-be robbers should be the paramount consideration in these cases.

The bail provisions of the Criminal Code provide an even more dramatic illustration of the law's attempt to achieve a compromise between principle and practicality. The so-called golden thread that runs through the Ango-American criminal law tradition is the presumption of innocence. In law, an accused person is presumed to be innocent until convicted after a fair trial in a court of law. However, it would be dangerously naive not to acknowledge the reality that a sizeable proportion of those charged with crimes may have actually committed them. The law attempts to strike a balance by allowing pre-trial detention in custody only on the narrowly prescribed grounds set out in Section 457 (7) of the Code. The primary ground is that detention is necessary to ensure that the accused will show up for trial. The secondary ground sanctions detention in the public interest, or for the protection or safety of the public, particularly having regard to the likelihood that the accused will commit another offence while on bail or an interference with the administration of justice (e.g. Intimidation of witnesses, destruction of evidence, etc.). Significantly, the secondary ground cannot even be considered until it is shown that there is no basis for holding the accused on the primary ground.
The dynamic interplay of opposites is what gives law its vibrancy and flexibility. Law is an effort to come to grips with difficult questions that do not have any pat answers because they are a reflection of the complexities of the human situation. Subjective human judgment that is firmly in touch with the realities of life cannot be factored out of the equation and replaced by some mechanical procedure. The misguided efforts by those accustomed to the precision of science to reduce legal decision-making to a set of neat formulas are doomed to failure. They would immediately render the law fossilized and static, unable to respond with the flexibility that is its greatest strength to the constantly changing circumstances of life. Were their efforts to prevail, rather than introducing an element of rigour into the law, their success would herald the onset of rigor mortis. The law can adapt to changing circumstances because there is a little slack built into it.

The law's adaptability seems to mirror the adaptability that has enabled us to survive so well as a species. We have tried to anticipate the future by looking to past experience. Yet we have avoided getting trapped into slavishly following old patterns of behaviour once they have outlived their usefulness. Our reluctance to deviate from patterns of behaviour that have served us well is similar to the law's unwillingness to depart from precedent without good reason. The great strength of our species and the law it has developed is the ability to adapt to change when the need arises. We always leave ourselves room to manoeuvre. Organisms that fit too snugly into their ecological
niches are doomed if the environment changes, even slightly. Being too perfect can be fatal. That weakness is not something that either human beings or the law suffer from. The neats would like to force an unnatural perfection upon the law because they are affronted by its messiness and obsessed with mathematical precision.

The law of negligence, then, seeks to achieve a balance between freedom of action and accountability. The source from which the law flows is the celebrated "Neighbour Principle" enunciated by Lord Atkin in the seminal case of Donoghue v. Stevenson. Unfortunately, this landmark case (that brings an involuntary smile to the lips of readers because it involved a decomposing snail in a bottle of ginger beer) does not specify how the principles it lays down to place limits on liability should be translated into practice. Lord Atkin put it this way.

"[T]he lawyer's question, Who is my neighbour? receives a restricted reply. You must take reasonable care to avoid acts or omissions which you can reasonably foresee would be likely to injure your neighbour. Who, then, in law is my neighbour? The answer seems to be - persons who are so closely and directly affected by my act that I ought reasonably to have them in contemplation as being so affected when I am directing my mind to the acts or omissions which are called in question." [Emphasis added]

The test laid down above is clearly full of fudging. The talisman phrases that have been plucked from Lord Atkin's judgment and bandied about ever since are "reasonable care" and "reasonably foreseeable". These terms are hopelessly imprecise. In traditional legal discourse, the issues that the test gives rise to are usually broken down into three parts: Standard of
Care, Duty of Care, and Remoteness. Standard of Care means the level of care that a person must exercise when doing something that could cause harm to others. Duty of Care means the class of people (i.e. "neighbours") to whom a person owes a duty to take care. Finally, the issue of Remoteness deals with how far down the causal chain the law will go in awarding damages for negligently inflicted harm. Strict causality would be too draconian a standard to which to hold anybody. If that standard were what the law imposed, Mrs. Murphy would have been held liable for the entire cost of rebuilding Chicago because her cow kicked over the lantern that started the Great Fire and destroyed a considerable part of the city. The law of remoteness has to find a workable compromise. It does so by fixing a reasonable cut-off point somewhere along the causal chain. Beyond that point, a defendant's liability to compensate others for damage ceases, even though can be traced back to the original triggering act.

Strictly speaking, of course, the linear model of causality according to which discrete objects interact with one another and event A causes event B which causes event C and so on, ad infinitum, is passé. The notion of proximate cause that the law still uses dates back to Thomas Aquinas. Modern physics has shown that Newtonian mechanics breaks down in the realm of the very great and the very small. However, relativity and quantum effects do not noticeably impinge on people's daily lives. Although we are prepared to accept the weirdness of these new ideas at some level, we ignore their implications in the way we
conduct our affairs. At the human scale, they might just as well not exist. The law does the same. It seeks practical solutions to everyday problems. The mechanical world view is outmoded, but it does provide some rational basis for decision making that works well enough in practice. In fact, reliance on a narrowly bounded form of reasoning is the only feasible approach. An uncompromising attempt to fathom the infinite complexity underlying an event would not be containable. The search would unravel endlessly into a mind-numbing infinite regress.

The law's attempt to place limits on personal liability through the doctrine of remoteness is a realistic response to the vicissitudes of everyday life. Catastrophic events stemming from trivial first causes are more common than one might imagine. A perfect example of a potential disaster that was narrowly averted disaster occurred in Vancouver on July 7, 1991. Fire destroyed the coast guard dock in Kitsilano when the outboard engine of a small boat burst into flames and the panicky owner leapt overboard, allowing the vessel to drift into contact with the creosote-soaked pilings of the dock. At one point, the fuel barge adjacent to the dock was in imminent danger of catching fire. Had it done so, the resulting explosion would have devastated the surrounding area. Luckily, the fire was contained and only the dock itself was destroyed. However, things could just as easily have gone the other way. Assuming for the sake of argument, that an explosion had occurred and it was subsequently established that the boat owner's negligence caused the engine
fire, the courts would have had a classic remoteness problem on their hands.

Standard of Care, Duty of Care and Remoteness are familiar terms to lawyers. They are encountered over and over again both in pleadings and judgments. Unfortunately, the terminology is not always used in a consistent fashion. Duty language is used to talk about issues of remoteness and vice versa. Lord Atkin's famous dictum is a fine statement of principle. Judges dutifully reiterate it as window dressing when handing down their decisions. But it is too vague to have any predictive value. It acquires a concrete meaning only through the fact patterns of the cases that purport to apply it.

Unlike statute law, there is no a priori scheme in place to facilitate the attainment of the goals of the common law. The common law proceeds in dribs and drabs. Issues are decided as they come up, and not before. Judges are notorious for sidestepping decisions that they do not feel they absolutely have to make. "I find it unnecessary to decide that issue", is a phrase that reverberates through the law reports. The common law evolves by a process of endless re-definition, supposedly getting a little bit clearer with every new case that is added to its corpus.

The way in which to determine how common law goals are being achieved in a given domain is to look at the big picture. The cases should be gathered together and examined exhaustively in an
effort to assess their impact and explain the direction the law has taken. The rhetoric of justification the cases recite is useless when it comes to this exercise because it merely reiterates the vague principles they are trying to put into practice. Looking below the surface at the underlying reality is the only feasible means of figuring out what is going on. The facts of the cases must be analyzed in order to pinpoint patterns of similarity that appear to be consistent with the furtherance of the law's global goal in a given domain. Because the common law proceeds by fits and starts in a number of different, far-flung jurisdictions, a few anomalies and inconsistences are to be expected. However, remembering always that the law is seeking some concrete criteria for limiting the scope of recovery will act as a kind of compass for navigating through the multitude of cases and making some overall sense of them.

Notwithstanding the loose ends one sometimes finds dangling in the common law, an obsessive need to rationalize every aberrant case should not be allowed to stand in the way of discerning the unmistakable direction that the law in a particular domain is taking. A generally coherent overall picture of the current state of the law will emerge from a careful examination of all the cases. Using a predominantly top-down approach, a more detailed fact-based structure can be teased out of the broader perspective and used as the basis for building a KBS. To some extent, the process is a two-way street. What the cases say is the ultimate arbiter of the goodness of the model because they are the only authoritative source of common law. Consequently,
the initial model may need to be tweaked slightly from time to
time in light of what the cases reveal in order to bring it into
line with them. Not every single case is going to fit neatly
into some slot in the model. Cases that clearly run contrary to
the mainstream of authority must be characterized as wrongly
decided. However, the model should be able to account
satisfactorily for the outcomes of the vast majority of cases.
Once the structure is in place, rules can be formulated to
account for case outcomes. These rules will be fact-based and
quite distinct from the traditional rules of law.

The technique described in general terms above was used to build
NSA and has been dubbed "Deep-structure analysis" by Professor
J.C. Smith.29 The name is derived from the work of Noam Chomsky,
the pre-eminent linguist of our day. The name is intended to
convey the idea that there is an underlying consistency to be
discovered in legal-decision making because judges are acting in
accordance with a set of norms they have internalized at an
unconscious level. Chomsky used the original idea to explain how
native speakers use language in a rule-governed way without being
conscious of the rules they are following or even being able to
articulate them if pressed.30 The specifics of how NSA was built
will be described when the system itself is discussed in detail a
little later on.
3.10 Are You on the Level?

Every case recorded in the annals of the law can be viewed as a story because it centres around a particular event that became the subject of controversy. The controversy may arise between private parties, as is the case in civil law matters like nervous shock. It may also arise between the state and the individual, as is the case with criminal matters like impaired driving. However, for present purposes, the identity of the parties to the controversy is irrelevant. The point to note is that all legal controversies can be thought of as stories.

A great deal has already been said about the importance of finding the facts that were significant to the outcome of a particular legal story. Another vital consideration for those contemplating building a KBS is the business of selecting the right level at which the key facts should be described. The process of finding the facts and that of settling on an appropriate level of description seem to overlap to some extent. That is because language requires us to use facts to describe other facts. The recursive nature of the preceding statement gives it a disconcerting feel. It makes a reader want to exclaim: "Hey! Wait a minute! What on earth are you talking about? That sounds like nonesense to me." While the statement does seem suspiciously circular, nonetheless, it is true.

An example is called for to make this rather abstract notion more concrete. Take the apparently banal process of getting from
point A to point B. The matter can be disposed of by baldly asserting that a person simply "went" from A to B. For example, in the course of conversation, I might mention that yesterday I went to Stanley Park. That seems reasonable enough. It is unlikely that anyone would challenge me on the adequacy of the description. But how did I get there? Did I go on foot or by some form of transportation? If I went on foot, did I run or walk? If I walked, did I stroll there in a leisurely fashion or walk at a brisk pace? Suppose I went via a neighbourhood pub. Thereafter, did I stumble along in a glassy-eyed stupor, trudge listlessly with my eyes cast downward or lurch forward jerkily casting drunken, venomous looks at passersby? If I ran, which is reasonable given the venue, did I do so at an easy jog or whip around the seawall at the rate of 7 minutes a mile? If I went by some form of transportation, did I bike, drive my own car, take a taxi or ride the bus? The point is, a wide range of possibilities is encapsulated in the simple word "went". Furthermore, none of these would normally be of any concern to other people as long as "went" hit the right level of description in the circumstances.

But let us suppose that in the process of going to the park, like some character in an Alfred Hitchcock movie, I saw an apparently trivial incident that subsequently turned out to be a key piece of evidence in a murder case. Then my method of getting to the park would suddenly become highly significant because it would have a direct bearing on my ability to observe whatever it was that happened. For the sake of argument, let us say I went by bus and
was idly staring out of the window when I saw what I saw. If I had no independent recollection of the time, the police would want to know which bus I was on so that they could pinpoint the exact time of the event from the transit authority's timetable. This might mean that I would have to try and remember what the driver looked like. The police would certainly want to know whereabouts on the bus I was sitting because my point of observation would clearly affect my ability to see what was going on. Whether the bus was moving or stationary at the time would also be material. It would determine whether I got a fleeting glance of the event in question or whether I was able to give it a sustained look that lasted more than just a few seconds. In short, my fateful brush with the demi-monde of crime would have the effect of unzipping the single word "went" and exploding it into an elaborate factual description down to the finest level of detail. It would become necessary to embellish the central fact of my having gone to the park with a whole array of ancillary descriptive facts.

The whimsical example given above should make it clear that level of description chosen - or "grain size", to use the standard AI term - makes all the difference. Settling on the right level depends entirely on what one is trying to achieve. There are no hard-and-fast rules. The problem is a perennial one that confronts novelists, historians, journalists, knowledge engineers or anyone else who is trying to come to grips with some kind of story. What is appropriate? broad strokes, minute detail or something in between. If, for example, a novelist wants to
describe an event that occurred on a particular morning in a character's life, a mass of superfluous detail will be omitted. We can assume that the character will have woken up, idly thought about certain things, performed the usual ablutions in the bathroom and so on. But the reader will not hear about any of this. The scene will be set with a touch here and a touch there. Our character may be nursing a morning cup of coffee and staring reflectively out of the window one minute and riding a bus en route to the office the next. Deciding what to leave out is important. It draws attention to the important features that remain in the same way that the empty spaces dramatize the sparse content of a Zen painting. Anyone who doubts the importance of finding a level of description that is appropriate to the situation may be persuaded by drawing on personal experience. One has only to recall how painful it is to listen to someone telling a long-winded story that gets bogged down because the narrator goes into an excruciating level of detail. The urge to scream with frustration or rush from the room can be almost overwhelming. It takes an anomaly like this to make us aware of what goes on normally. Adjusting the level of description to suit the situation is something that we do unthinkingly, like responding appropriately to a social convention.

If we follow along with the idea that a case is essentially a story, a body of cases in a given domain of law can be regarded as a collection of stories. In order to develop a fact-based framework within which to structure the domain knowledge, we need to hit a level of description that is capable of encompassing all
the salient features that the stories have in common. If the domain is described in broad terms, it will inevitably include stories with a wide variety of different fact patterns. Such is the case with nervous shock because it is a subset of the vaguely defined law of negligence. In order for all of those stories to fit under the umbrella of the same structure, the descriptive level used throughout the structure needs to be fixed at a degree of generality that is high enough to incorporate all of them. Thus, leaving aside the specifics for a moment, the conceptual structure that describes the law of nervous shock is characterized by its broadly drawn categories. Each category covers an essential element of the cause of action. All the key elements must be present in order for a case to succeed. In a sense, it is like putting together a certain number of different atoms in order to make up a particular molecule.

However, the analogy to atoms and molecules is not quite right because only one type of atom can fill the bill when it comes to assembling a specific molecule. By contrast, with respect to nervous shock, each elemental category can be filled by any one of a number of different factual features from amongst all those that have been extracted from the cases. Perhaps a better analogy is to the menu in a typical Chinese restaurant. Putting together a cause of action in nervous shock is more like ordering a full-course Chinese meal. Let us assume that there are columns on the menu designated A, B, C, and D that correspond to element categories in nervous shock. We need only choose one dish from the selection offered under each column to get a complete meal.
The analogy needs to be varied slightly to make it completely accurate. In some cases, what is selected from one column will constrain what can be chosen from other columns to make up a complete meal. While all this may seem a little abstract right now, its significance will become clear when we come to deal with the specifics of nervous shock.

For ease of reference, a name is needed to describe this method of conceptually structuring a domain of law by dismembering cases with very different storylines and stuffing the various bits and pieces into component categories that are defined widely enough to hold them. It is a little like running a wrecker's yard that accepts a wide range of different vehicles so that they can be cannibalized for spare parts. The vehicles differ enormously in their outward appearance, but once they have been stripped down, their parts can be stored according to generic categories. The Elemental Method seems apt because a hodge-podge of elements, one from each category, needs to be stuck together Lego fashion to create a viable whole.

The Elemental Method brings to mind the AI community's longstanding preoccupation with defining the basic attributes of prototypical objects so that a computer is capable of recognizing them. However, the things selected for scrutiny by AI have been natural kinds that are all of a piece like chairs, birds, dogs, elephants and so on. The debate has revolved around the problem of dealing with exceptions to the norm. The participants have wondered how many attributes of a particular type of thing can be
removed before the thing ceases to be a valid instance of the class to which it belongs. The discussion at times has verged on the absurd. To highlight the problem, Marvin Minsky, one of AI's colourful personalities, is fond of posing questions like "Is a bird that cannot fly because its feet are encased in cement a valid instance of a bird?" How can it be, he asks, if it fails to satisfy a CAN-FLY predicate and it is not a member of the recognized subclass of flightless birds like penguins and ostriches? Weighty issues of this ilk have provoked considerable head scratching. Some people have craftily tried to avoid the problem by doing a little cheating. ARCH-LEARNER was an AI program designed to teach the computer to distinguish between arches and non-arches in a blocks world. By choosing objects that were essentially three-dimensional geometrical shapes, the researcher was able to create an idealized situation guaranteed to be free of the annoying anomalies that are found in the real world.

AI's preoccupation with defining prototypical objects was motivated primarily by mundane knowledge representation issues rather than any profound philosophical hankering after the essence of things. Prototypes are extremely appealing from a programming point of view. They make life easier by allowing all members of a class to inherit standard features by default. Theoretically, those core features only have to be defined once in the program. Then, as long as an object is identified as a member of the class, it will inherit all of them. It all sounds wonderful - too good to be true, in fact. Scads of AI systems
have tried to capitalize on the concept. They are usually built using frames or semantic nets, two architectures which facilitate the implementation of the idea. The systems are readily identifiable by their use of IS-A, HAS-A terminology, and its variants. However, dealing with exceptions, like the fanciful three-legged dogs and pink elephants that AI aficionados are so fond of dreaming up, poses problems. Robust systems need to be able to accommodate the sorts of aberrations that are wandering around in the real world. Human beings readily recognize them as members of the appropriate class in spite of the mishaps that may have cost them a body part or the fact that they exist only in the imagination of Walt Disney or the hallucinations of serious alcoholics. The difficulty is, as critics have pointed out, that adding mechanisms for handling exceptions on an ad hoc basis will eventually defeat the purpose of using prototypes in the first place. The exceptions will become almost as numerous as the rule.32

Some researchers in law and AI have been influenced by the prototypical way of looking at the world. McCarty and Sridrahan adopted a "prototype plus deformation" approach when building their TAXMAN II system.33 The basic idea was to define prototypical concepts and then attempt to determine the degree to which they could be deformed before they broke down completely. The present thesis, of course, takes a completely different tack and eschews concepts altogether as potential building blocks for a KBS for reasons that were made abundantly clear earlier on.
That being the case, contrasting the two approaches any further would be like comparing apples and oranges.

While the Elemental Method has something of the flavour of matching an instance against a prototype, it is not really the same thing. That is because of the substitution of pieces that is allowed in its basic categories. What ultimately gets put together is more of a mutant than an animal of a recognizable species. Take Clyde, the famous AI elephant, for instance, and his various body parts. If we adopt the Elemental Method, it is as though his trunk could be replaced by some other type of proboscis, like a pig's snout, or he could be given the pointy ears of a bat instead of his large floppy ones. The effect would be similar to the well-known children's party game in which a human figure is drawn in stages on a piece of paper. The first child draws the head, folds the paper so that it is concealed from view, except for the place where it joins the neck, and passes the piece of paper on to the next participant. The neck, arms, hands, torso, legs and feet are drawn in the same manner. The result is an odd mish-mash of body parts that usually makes the kids shriek with laughter.

Although legal arguments constructed according to the Elemental Method described above are mutants created by cannibalizing key facts from different precedents, unlike the children's game, they do not usually provoke outbursts of hilarity. If that were to happen, it would be disconcerting for the lawyer making the argument, to say the least. There is no denying that this sort
of thing occurs occasionally. Why else would we have the well-known expression "to get laughed out of court"? Luckily, most lawyers have the good sense not to bother advancing an argument that is patently preposterous. In any event, the pertinent facts that go into making these composites designed to match an instant case fill categories that correspond to the elements that comprise a particular cause of action.

Lawyers are accustomed to thinking about building a case by making sure that the requisite conceptual elements are satisfied in some factual way. After a while, it becomes second nature to them. Some may take a reductionist approach and consciously tick items off a mental checklist. Others may initially look at an instant case as more of a gestalt in determining whether it meets the requirements of precedent. They will have an intuitive feel for whether all the necessary ingredients are present or whether some crucial element seems to be either missing or of dubious validity. If there appears to be some defect in the case, the holistic approach gives way to the reductionist. The lawyer who senses that something about the case it not quite right will backtrack and try to pin down exactly what the problem is.

Building a case is like forging the links in a chain made up of key elements. As everyone knows, a chain is only as strong as its weakest link. The standard defence strategy, therefore, is to attack the weakest link so that the chain of elements will be torn asunder and the case will fail. In any given case, it is unlikely that the validity of every single element of the cause
of action will be called into question. The facts selected for
the purposes of argument will be limited to those that have a
direct bearing on the particular elements whose validity has been
challenged. The lawyer will rely on one or more of the precedent
cases as authority for each proposition that forms part of the
complete legal argument. The legal argument as a whole depends
for its justification on the combined effect of all these
authorities.

On a practical note, since legal arguments are usually built
around a number of different cases, it is customary for each
party to an action to bind photocopies of its precedents in a
small tabbed and indexed book. To make things even easier, some
exceptionally meticulous lawyers will mark key portions of the
text with a felt highlighter to make them easier to locate when
they are being quoted. Copies of the book of precedents are
provided to the opposing party and the judge.

It is unusual for a single precedent case to serve as the
foundation for a substantial argument in loosely defined domains
that encompass a wide diversity of cases (i.e. storylines). The
odds are pretty slim of a lawyer being able to march into court
armed with one persuasive precedent that, on its face, exactly
matches the instant case with respect to all the points in issue.
The existence of an authoritative precedent solidly in one side's
favour should prevent the case from ever getting to court in the
first place. If it did go that far, the lawyer on the opposing
side could expect to be raked over the coals for wasting the
court's time unless there was a compelling argument to be made for departing from the precedent. However, occasionally a legal argument can be built around a single case if an ingenious lawyer with nothing else to choose from in the way of favourable precedent is able to put a plausible new twist on an old case.

The Elemental Method of legal argument described above, that relies on sticking all the right pieces together from a set of basic elements, is a form of Case-based Reasoning (CBR), a phenomenon that is currently enjoying a vogue within AI. CBR is being used in a variety of different domains. However, it is nothing new to law. It is precisely what lawyers have been doing in their heads for hundreds of years. Lawyers are the human case-based reasoners par excellence. The CBR approach, therefore, is a good way of attempting to mimic the mechanics of legal argument in domains of law where the necessary ingredients of a case can be reduced to a set of basic elements. If this proviso holds, CBR maps very nicely onto legal reality.

At this point, a caveat is in order. There is a subtle difference between the shades of meaning that lawyers and AI people ascribe to the term Case-based Reasoning. The difference is more a question of perspective than anything else. However, it bears clarification because the growing dialogue between the two disciplines will inevitably lead to misunderstanding if each group assumes that the other is using the term in exactly the same way, when in reality that is not so.
Lawyers use the term Case-based Reasoning to mean reasoning based on precedent. The word "case" as it is used in the term is understood to mean a legal case or lawsuit. In other words, it is simply an alternative way of describing the type of reasoning that characterizes our common law system. The terms "case-based law" and "common law" are used interchangeably by lawyers to distinguish that type of law from statute law. However, as we have already seen, the distinction is an oversimplification. There is not really a clean separation between the two parallel streams of law. Even statutory provisions must ultimately be interpreted by cases where doubt arises as to their meaning, as invariably happens in all but the most cut-and-dried situations. When it comes right down to it, therefore, our whole system of legal reasoning is really case-based.

Although CBR is essentially the same backward-looking, precedent-driven method of reasoning as legal reasoning, within the legal domain, this technique is not just one of a number of possible ways of reasoning about a problem, it is the only way. As we have seen, no other kind of reasoning cuts any ice in the legal arena. A legal argument without a case to back it up has no persuasive force. The cases are the law. Other disciplines may have to start laboriously documenting cases and building up an adequate collection of them before they can do any useful CBR. But in law the job has already been done. Lawyers have access to vast, ready-made collections of cases in virtually every domain of law thanks to the different series of law reports, some of which go back several hundred years. Constructing a legal
argument is a bit like panning for gold. It boils down to sifting through a large number of cases, extracting valuable parts of them, and manipulating these little nuggets in ways that will provide justification for the client's position.

As indicated earlier, the major stumbling block in the way of simulating the mixing and matching process when doing CBR with a computer is figuring out how to chunk the cases up so that the right bits and pieces are being manipulated. The conclusions that a system is capable of reaching are limited by the set of pieces it is given to juggle. The primitives are like the axioms of a formal system; once they have been defined, all the patterns that can be derived from them are pre-ordained. Until systems are able to learn and dynamically alter their basic structure, thereby mimicking the swiftly changing texture of human thought, defining the primitives will be the single most crucial task in building KBS's. Everything else flows from that early decision about where the natural fault lines along which a body of knowledge should be split apart are located. The essential fluidity of human thought is irrepresentable in terms of the concrete units a computer needs to work with. Computers have none of the astounding facility of humans for shifting boundary lines and reshaping the knowledge they are working with.

The static character of existing systems has critical implications on the issue of maintenance. Given that modifications to a KBS can only be made externally, the structure that is created in the first place should be conceptually sound
enough to be able to accommodate changes in the law through extension or minor modification. Unless this can be done, the system will have to be scrapped altogether and rebuilt from scratch. That results in the loss of an enormous investment of time and energy. The risk can be minimized by choosing a relatively stable domain of law in the first place. But beyond that, everything depends on the integrity of the KBS's conceptual structure. Until systems acquired the ability to modify themselves dynamically, deciding which atomic pieces the computer should be given to work with will remain the design decision that has the most far-reaching implications of all.

When attempting to find the right set of primitives, one should not fall victim to the illusion that they have an independent existence of their own. They are not sitting out there somewhere waiting to be discovered like the elementary particles that physicists hope will turn out to be the basic building blocks of matter. Even in the physical world such a quest may be futile. Matter might simply be made up of pure energy which clumps together in different patterns for a while and eventually breaks down into energy again. Be that as it may, it is clear that the conceptual primitives we seek to serve as the building blocks of a KBS are arbitrary constructs of our minds. There is no right answer in absolute terms. The correct choice is whatever happens to work. Finding the proper primitives is a matter of groping towards an appropriate categorization scheme by trial and error. What emerges will be dictated largely by the nature of the domain knowledge.
In the AI community, unlike law, CBR is certainly not the only game in town when it comes to methods of reasoning. AI takes a comparative perspective. CBR is simply one of a number of possible options that is recognized as being a useful approach in certain domains. The term itself is used primarily in contradistinction to Rule-based Reasoning (RBR), the technique that has dominated the field of KBS's since its inception. Rather than applying a set of logically formulated rules to a situation to achieve an outcome, CBR bases its decisions on the closeness of match between the current circumstances and a similar set of circumstances that arose in the past. In other words, it uses past solutions to solve present problems, just like law does. The key question in CBR is whether the current facts are similar enough to the past facts to justify resolving the present problem in the same way. That is the equivalent of saying that like cases should be decided alike which, as we know, is the underlying principle of legal reasoning. As with law, the really difficult problem is deciding what features are relevant for the purposes of determining similarity and difference.

The most imaginative attempt so far to simulate CBR in a domain of law is a program called HYPO written by Kevin Ashley as part of his doctoral dissertation in computer science. The system operates in the domain of trade secrets misappropriation law and is designed to help lawyers develop legal arguments in favour of either the plaintiff or defendant. The assumption behind HYPO is that a right answer seldom exists to a legal question. The
system produces output that enables lawyers on either side of a case to make arguments in support of their respective positions.

The guts of HYPO is an indexing scheme for retrieving cases that share important features with the problem situation. The fact that a problem situation shares a certain cluster of important features with a precedent is deemed to justify coming to the same conclusion as the precedent. Selecting precedents is a matter of selecting cases with the greatest overlap of indexing features. In effect, it is a case-based pattern-matching system aimed at simulating analogical reasoning.

Legal-Case-Frames are the basic knowledge representation scheme in HYPO. There are two levels of frame. The top level represents information about the case, including its name, citation, identity of the plaintiff and defendant, and outcome. The underlying frame represents the facts of the case in terms of objects and relations that are important in the domain.

Cases are presented to the user in terms of their relevance to the current fact situation (cfs). This is done graphically by using a lattice structure in which the root node represents the cfs. The most on point cases (mopc's) for the plaintiff and defendant are located in nodes closest to the root. They are, of course, those cases most closely resembling the user's facts. The degree of resemblance between the cfs and the cases stored in HYPO's case knowledge base (CKB) is measured in terms of the number of dimensions which they share. A dimension is a legally
relevant aspect of a case. Dimensions are generalizations which are built up out of collections of facts. The presence or absence of a fact is determined by whether or not it satisfies a particular factual predicate. In order for a dimension to apply to a cfs, all its factual predicates must be satisfied. Each of the dimensions can be backed up by one or more cases where a court held in favour of a party in part because of the fact cluster associated with the dimension. The on-pointedness of the stored case is measured by the degree of overlap between its dimensions and those of the cfs. Incomplete matches are identified as near misses. Hypotheticals can be generated by modifying the cfs slightly to incorporate missing facts associated with near-miss dimensions.

HYPO has 33 cases in its CKB. It implements 13 dimensions and 30 factual predicates. Just to give a flavour of the system, here are 2 dimensions: Competitive-Advantage-Gained and Disclosures-Subject-to-Restriction. And here are a few predicates: exists-purported-agreement, exists-disclosures-infol, exists-restrictions-disclosures-infol.

The specifics of HYPO are incidental. Its significance lies in the importance it attaches to the role of cases in legal reasoning. The system is based entirely on indexing and retrieving key factual features of the cases. Furthermore, its underlying assumption that law is really all about coming up with arguments on either side of an issue rather than finding a right answer is thoroughly realistic.
As an exercise in computer science, HYPO was an unqualified success. However, judged by the practical criteria that drive this thesis, it has certain shortcomings.

To begin with, it is a custom-built system that calls for computer science know-how that no lawyer could easily acquire on a do-it-yourself basis. That in itself is not a criticism. It is simply that this thesis concerns itself with the kinds of systems that lawyers are potentially capable of building themselves with off-the-shelf software tools. More importantly, lawyers should be given all the cases that could possibly serve as the raw material for putting together a legal argument. The built-in parameter twiddling feature that enables HYPO's users to see the implications of different what-if's automatically is technically clever. However, nice as it is, it is an embellishment that could be dispensed with for practical purposes. Lawyers are well able to generate their own what-if's and to trace the implications of adding to or subtracting from the facts themselves. They do this kind of thing all the time in their heads when they are mulling over a case or brainstorming about it with others.

Secondly, the expertise that went into constructing HYPO's dimensions was culled exclusively from scholarly analyses and treatises rather than being extracted from an expert in the field. Arguably, that would diminish its value as a practical tool for lawyers. Lawyers are ticklish about what they will accept as a valid opinion on a question of law. Enough
resistance to computer-based sources of knowledge is likely to be encountered among lawyers as it is. A KBS that was known to be founded upon the knowledge of an acknowledged human expert would have a certain credibility in the eyes of the profession. Experts keep abreast of developments in their fields by reading scholarly works and taking the contents into account as part of an overall synthesis. On the other hand, given the impossibility of becoming an overnight expert, it seems unlikely that the output of a system based entirely on information compiled by a non-expert from scholarly sources would be accorded the same weight by the profession.

Thirdly, HYPO's case base contains only 33 cases, a relatively small number that is certainly not exhaustive. A KBS must have an exhaustive case base to provide reliable information to practising lawyers. Each new case that is added to a domain of law has the potential of causing a ripple effect and casting a new light on the way in which the earlier cases must be interpreted. If a case base is not large enough to give adequate coverage of the domain, the range of legal arguments that it could yield may be unwittingly diminished.

Finally, the cases in HYPO are characterized in only one way. Limiting the manner in which a case can be viewed is too one-dimensional (no pun intended). Many cases are susceptible to a number of different factual characterizations depending on the point of view (POV) that is taken of them. To ensure that no valid way in which a case could be used in argument gets
overlooked, every plausible factual interpretation of that case should be explicitly represented in the case base. The use of multiple POV's to characterize a case achieves the same purpose that motivated the conflicting rules proposed by the ICG. However, POV's do not create the dilemma of having to choose between conflicting alternative interpretations. A case will be retrieved in every set of circumstances to which it could conceivably apply. But the same case will never be opposed to itself in a particular instance like conflicting rules. Indexing cases is the very basis of CBR. A case-based reasoner can only be as good as its indexing scheme. Next to defining the primitives, it is the most important task there is.

None of the foregoing points are intended to detract in any way from Ashley's achievement. They simply highlight certain features that would be desirable in a KBS intended to be of practical use to lawyers in the real world of practice.

To reiterate, the Elemental Method works well in domains where the cases include many different story lines. The analysis of the domain floats above the cases at a level of abstraction that is general enough to embrace all their disparate features. Nervous shock is an example of a domain that lends itself readily to such an analysis because of the range of different shock-inducing events that can occur.

The other method of structuring legal knowledge used in this thesis provides a distinct contrast to the Elemental Method.
Rather than being broadly scoped like the latter, it is fine-tuned down to a very precise level of detail. This fundamental difference in grain size is made possible by the high degree of similarity one finds between the story lines of the cases in the domain. The similarity exists because the subject matter that the domain deals with is very narrowly focussed. If this were not the case, the stories would diverge too widely for the domain knowledge as a whole to be amenable to such a treatment. It would then be necessary for the analysis to rise to a higher level of generality and abstraction in order to squeeze all the knowledge under the umbrella of a single conceptual structure, as is done using the Elemental Method.

There is no ready-made blueprint for determining the specifics of how the knowledge in any given domain should be structured, regardless of whether it is narrow or far-ranging in terms of the story lines one sees in the cases. The way a body of knowledge decomposes into constituent elements is entirely a function of the peculiarities of the domain itself. The best one can do is to gather the knowledge together and start playing around with it to see what structure emerges, bearing in mind, of course, the underlying goal that the law is seeking to achieve in order to give some direction to the search.

However, having said that, it is possible to make some rough generalizations about the kinds of domains that will lend themselves to a finely tuned analysis. Typically, they will be areas of statute law because statutory provisions tend to be
fairly narrow in their focus. They are designed to isolate specific problems and provide detailed prescriptions for how these should be dealt with. Statutory provisions put a framework in place that precisely delimits the boundaries of a relatively narrow domain. That in itself is a necessary, but not a sufficient condition for the type of analysis we are talking about. It sets the stage, so to speak, yet a second step is required. The second requirement is that the provisions of the statute should have been frequently applied. Having statutory provisions sitting on the books is one thing. However, until they have actually been thoroughly tested no one can really be sure exactly how they will work out in practice. What is needed is a well-trodden area of statute law. The barebones of the statute in such a domain get fleshed out very quickly over time. The uncertainties about the statute's implications are resolved through trial and error. Eventually, the skeleton of the statute becomes encased in a thick overlay of well-established procedures that evolve from a blend of custom and caselaw. After the initial growth curve has tapered off, the situation in the domain stabilizes. Thereafter, the changes that take place tend to be restricted to relatively minor adjustments to matters of detail; unless, of course, the legislature decides to step in and make significant amendments to the statute.

The net result of the process outlined above is that the cases in the domain seem to have a certain sameness about them. The situations they describe are highly stereotyped. A central theme runs through them like a connecting thread. The differences
between cases amount to nothing more than variations on that theme. That being the case, the main story line lends itself readily to being used as the backbone of the conceptual structure that describes the domain knowledge. The variations on the story line can be hung off it like so many appendages. Impaired driving has been chosen as the domain of law to exemplify this way of structuring legal knowledge. Not only does it fit the bill nicely, but also it is an area of law in which I myself have had a great deal of experience. I have called the technique the Script-based Method because it essentially involves hammering out a main script and identifying the different subscripts that are subsumed by it. The inspiration for both the name and the method were derived from the work of Roger Schank. The genesis of Schank's ideas about scripts can be traced to Marvin Minsky's 1975 paper on using frames as data structures to represent stereotypical situations.

Since the cases in domains that can be analyzed in a Script-based way all bear a certain resemblance to one another, legal arguments in these domains tend to zero-in on a level of detail that is minute as compared to domains that incorporate cases with a wide variety of different story lines. In their perpetual search for room to manoeuvre, lawyers are forced by the narrowness of the domain to make arguments that draw finer and finer distinctions between cases. They pick over the same old ground again and again, like gleaners searching through the stubble of a wheatfield for grains of wheat that may have escaped the attention of the harvesters. The process is one of endless
refinement down to gradations of meaning that would strike the average layperson as being nitpicking to the point of absurdity.

This type of reasoning is still case-based in the sense that arguments need to be backed up by the authority of precedent in the final analysis. However, lawyers who habitually practice in these restricted areas become so steeped in the subject matter that they have the current state of the law at their fingertips. In other words, they have learned the script by heart. They do not have to rush off and research a problem to grasp its implications. A consensus exists amongst lawyers and judges about the state of the law in the domain at any given time. That makes life a great deal easier for all concerned. Lawyers are not required to strictly prove propositions of law that have gained general acceptance in the domain every time they come up in a case. A brief reference to the received interpretation is sufficient to draw a nod of acquiescence from both the judge and opposing counsel. Photocopies of cases are rarely tendered in court in these well-trodden domains because everyone is well aware of what the cases stand for unless they are hot off the press. Newcomers to the field tend to go overboard and attempt to prove every proposition they are advancing up to the hilt. Their lack of experience makes it impossible for them to discriminate between those propositions that are controversial and those that are commonplace. However, they learn very quickly: primarily, by watching experienced practitioners in action while they are waiting in court for their own cases to be called; to a lesser extent, by being admonished by the judge that they
are wasting the court's time by labouriously attempting to prove
what is generally accepted. When significant changes in the law
do occur, word spreads through the grapevine very rapidly. The
wrinkle that a new decision adds eventually becomes incorporated
into the script; unless, of course, it fails to hold up on
appeal, in which case it merely amounts to a momentary blip that
disappears rapidly without a trace.

Having set the scene, so to speak, it is now time to examine in
turn the two systems that exemplify the Elemental and Script-
based Methods of structuring legal knowledge; namely, Nervous
Shock Advisor (NSA) and Impaired Driving Advisor (IDA).

1 Stanley Kubrick, dir., 2001: A Space Odyssey, with Keir Dullea
and Gary Lockwood, MGM/UA, 1968.

2 Lotfi Zadeh, "Fuzzy Logic: Calculus of Fuzzy If-Then Rules,"

3 Ejan Mackaay, "La logique du flou en droit: une réflexion sur

4 Robert N. Moles, "Logic Programming - An assessment of its
Potential for Artificial Intelligence Applications," Journal of
161.

5 Marvin Minsky, The Society of Mind (New York: Simon & Schuster,
1986).

6 Allen Newell and Herbert A. Simon, Human Problem Solving (New

7 T. S. Kuhn, The Structure of Scientific Revolutions (Chicago:

8 Peter S. Sell, Expert Systems: A Practical Introduction (New

9 Supra, note 8, p. 3.


12 *Supra*, note 11, pp. 67-68.


23 For example, see: *Precedent in Law*, *Supra*, Ch. 1, note 2.


27 Supra, note 26, p. 580.


32 For an amusing discussion of the problem, see: Ronald J. Brachman, "'I Lied About the Trees' Or, Defaults and Definitions in Knowledge Representation," AI Magazine, 6, No. 3 (1985), pp. 80-93.


34 For a brief overview of the subject, see: Ralph Barletta, "An Introduction to Case-Based Reasoning," AI Expert, 6, No. 8 (1991), pp. 43-49.


CHAPTER 4

CONCEPTUALLY STRUCTURING
THE LAW OF NERVOUS SHOCK

4.1 The Starting Point

In the opening paragraph of a recent article entitled The Principles Governing the Recovery of Damages for Negligently Caused Nervous Shock\(^1\), the author underscores the difficulty of dealing with such cases in the following words:

"[I]t is difficult to say that the principles of law to be applied in such a case can be stated with absolute clarity and one tends rather to sympathise with the view of Comyn J. in Whitmore v. Euroways Express Coaches Ltd. (The Times, 4 May 1984) that 'no absolutely clear picture emerges and many of the judgments speak with different voices.'"

The words attributed to Comyn J. are an apt description of problems with attempting to rationalize the law on its face. However, they do not appear anywhere in the The Times report cited. Furthermore, the case itself was not a case of nervous shock. The judgment makes that crystal clear.

" The third defendant had argued that the second plaintiff could not recover damages for the shock she had suffered on account of her husband's plight because there had been no medical or psychiatric evidence adduced that she had suffered shock.
If psychiatric shock had been alleged, medical evidence would have been necessary, but the second plaintiff was claiming that she had suffered shock in its ordinary everyday meaning, not in a medical or psychiatric sense. Such 'ordinary shock' was not susceptible of further definition but was a concept which everyone understood. His Lordship was in as good a position as any psychiatrist or doctor to judge whether Mrs. Whitmore had suffered 'ordinary shock' (His Lordship eschewed the expression 'nervous shock').

Indeed, according to the first principle that the author of the article cited above derives from his analysis of the law, Whitmore's case does not qualify as a case of nervous shock. He states the following in the "Summary and conclusions" section.

"(1) In order to recover damages the plaintiff must establish, by medical evidence, that he is suffering from a recognized psychiatric illness .." (Emphasis added).

The principle cited above is quite correct. The essence of nervous shock is that it is a psychiatric illness caused by a shocking event. The name "nervous shock" was invented by lawyers and has no medically recognized significance. The condition falls under, but is not coextensive with, what the medical profession calls posttraumatic stress disorder (PTSD).

"Posttraumatic stress disorder (PTSD) is a syndrome which develops following a psychologically traumatic experience; the event which precipitates such a psychological reaction is one 'generally outside the range of usual human experience.'"

That Trindade's scholarly article intended to clarify the law of nervous shock should begin with a complete misapprehension is ironic. Yet the mysterious quote erroneously ascribed to Whitmore's case is curiously fitting. To paraphrase T.S. Eliot, it is a case of saying the right thing for the wrong reason. The words could not have been more appropriate if they had been
taken from a proper case of nervous shock. They were cited out of a desire to set the record straight and because they provide a perfect lead-in to stating the guiding principle used to analyze the law of nervous shock in this thesis. That principle was first stated elsewhere. Rather than attempt to paraphrase it, I shall restate it in exactly the form in which it was originally expressed.

"If a particular area of law is clear, the fundamental concepts unambiguous, the underlying principles do not conflict, and the cases merely refine, reflect, and develop the legal doctrine, then there is no reason why that doctrine cannot be incorporated directly into the knowledge base. If, on the other hand, the fundamental concepts and principles are the subject of alternative or conflicting judicial interpretation, as is often the case in case-based law, one should seek an alternative conceptual structure for the foundations of the rule-base. In constructing an expert system in an area of law which on the surface appears to have a high degree of indeterminacy, there is one cardinal rule that should be followed, and which we have complied with in constructing the Nervous Shock Advisor. That is Do not build into it either the doctrinal legal rules of the subject area, nor use the legal concepts found in the doctrine. One must use an analysis which is independent of the legal concepts where those concepts are ambiguous or have been the subject of conflicting judicial interpretation."6

The genesis of this approach, called "deep-structure analysis", is to be found in the work of the domain expert, Professor J.C. Smith. Perhaps its clearest statement in the legal literature appears in his book, Liability in Negligence, where he explains it in the following terms.

" Lord Justice Watkins clearly articulated what most judges feel when dealing with an issue of remoteness. He stated:

'A robust and sensible approach to this very important area of the study of remoteness will more often than not produce, I think, an instinctive feeling that the event or act being weighed in the balance is too remote to sound in damages for the plaintiff. I do
not pretend that in all cases the answer will come easily for the inquirer. But that the question must be asked and answered in all these cases I have no doubt."

"It probably is the instinctive feeling of judges which is the bottom line in remoteness cases. The fact that, as has been shown, the instinctive feeling of judges has a 90 per cent conformity would indicate that some basic moral principles about responsibility and blame are at work at an unconscious level. The intention has been to articulate that principle in the form of the following restatement of the foreseeability rule: Damages resulting from a negligent action are not too remote if they are reasonably foreseeable in the particular, or are one of the reasonably foreseeable class of injuries. . . ."

6. Nervous shock inflicted on a near family relative as a result of witnessing, coming upon the immediate aftermath, or being informed of an accident causing injury or death is not too remote."7

An earlier, less refined version of the test of foreseeability expounded above received judicial approval in the recent case of Wright Estate v. Davidson.8 The plaintiff's wife became depressed after sustaining a whiplash injury in a motor vehicle accident. Nine months after the accident, she committed suicide. The medical evidence established that the victim had developed post traumatic stress disorder as a result of the accident. The preliminary issue before the court in chambers was whether her subsequent suicide was a reasonably foreseeable consequence of the accident. The court found that it was. McKenzie J. stated:

"I cannot end without paying tribute to a revelatory article from the Canadian Bar Review, vol. 61 of 1983 [p.559] written by Professor C. Coval of the Department of Philosophy at the University of British Columbia, Professor J.C. Smith of the Faculty of Law of the same university and Joan L. Rush LL.B. It is entitled 'Out of the Maze: Towards a 'Clear Understanding' of the Test for Remoteness of Damages in Negligence'.

Their object was to articulate a restatement of the foreseeability rule. They did so as follows:
Damages resulting from a negligent action are not too remote if they are one of a reasonably foreseeable class of injuries.

To me this restatement fuses the essential concepts as previously articulated and modified.

The authors analyzed 312 negligence decisions, which have discussed the remoteness issue, from the latter part of the 19th century, up to the time of writing, from England, Canada, Australia and New Zealand. They found 90 per cent of them 'correctly decided' when tested by the rule as they restated it.9

The article referred to by McKenzie J. was the precursor of the book Liability in Negligence. The judge was apparently unaware that the ideas expounded in the article had been set forth at greater length in a subsequent book.

At the full trial of the case, Lysyk J., the presiding judge, held that the issue of foreseeability had already been decided in the plaintiff's favour by McKenzie J. in chambers and that he was bound by that determination.10 A last-ditch application by the defendant for leave to appeal that determination before the case came to trial had earlier been refused by Wallace J.A.11 Consequently, Lysyk J. gave judgment for the plaintiff and focussed primarily on assessing damages.

In the final chapter of Wright Estate v. Davidson, the B.C. Court of appeal unanimously reversed the lower court's finding that the suicide of the plaintiff's wife was a reasonably foreseeable consequence of the whiplash injury.12 Legg J. summed up the court's findings.

"What is determinative of liability in the case under appeal is that when Mrs. Wright took her life she made a conscious decision, there being no evidence of disabling mental illness to lead to the conclusion that
she had an incapacity in her faculty of volition. Accordingly, her suicide must be taken as a *novus actus interveniens* such that it cannot be said that her death was a reasonably foreseeable consequence of the wrongdoing. In my opinion, on the evidence before us, the taking of her life cannot reasonably be considered an incident within the purview of the risk created by the defendants when the motor vehicle accident occurred.\(^{13}\)

It was unfortunate to have a Supreme Court case that endorsed Professor Smith's foreseeability test in such glowing terms overruled when the thesis work was well underway. However, the reversal should not be taken as invalidating Professor Smith's analysis. The Court of Appeal's decision merely demonstrates an aspect of the law that will be discussed later on: namely, that when the negative repercussions of a particular case are far-reaching enough, overriding policy considerations can take precedence over any foreseeability test one can formulate.

*Wright Estate* was a case in point. The overwhelming majority of minor personal injury cases that the courts have to deal with are whiplash claims. Most personal injury cases stem from motor vehicle accidents, and the most common injury sustained in this kind of accident is a whiplash. It has been estimated that whiplash claims make up 80% of the total caseload of personal injury claims that come before the courts. The courts would have been opening the floodgates wide if, in relatively trivial personal injury cases like these, they had burdened defendants with responsibility extending all the way to eventual death by suicide. The Chief Justice himself, who concurred in the judgment, has publicly expressed his grave concern at how clogged the court system has become. He even went so far as to present a
brief to the Provincial Justice Reform Commission in 1989 in which he argued forcefully that drastic measures were needed to clear the logjam. As part of his administrative duties, he, of course, has the responsibility for assigning the benches of judges to sit on particular cases. The trial decision in Wright Estate threatened to exacerbate an already desperate situation. The Court of Appeal found that Mrs. Wright's suicide was an intervening act that broke the chain of causality and let the defendant off the hook.

The Court of Appeal's finding that Mrs. Wright's volition was unimpaired while she was in the grip of a crippling depression is understandable from a legal point of view, even though the reality of depression is that it can completely overpower the afflicted person's will. In Professor Smith's opinion, reading between the lines, the Court of Appeal chose, as a matter of policy, to overturn a decision that would have opened the door to claims where depression triggered by a relatively minor accident led to suicide.

Policy decisions by their very nature abrogate principle. Professor Smith's ideas about foreseeability that found such favour with McKenzie J. at the Supreme Court level were not even alluded to by the Court of Appeal. The court's failure to expressly disapprove of them is an indication that it found nothing with which it could take exception. Had that not been so, the court would presumably have made its disagreement known. That being the case, the Court of Appeal's decision in Wright
Estate need not necessarily be interpreted as impugning the
general validity of those ideas.

In any event, Professor Smith's view of how his forseeability
test translated into specific criteria that applied to nervous
shock was the starting point from which we embarked on an attempt
to impose a comprehensive conceptual structure on the law that
could serve as the blueprint for building a KBS. The end result
of the exercise was to clarify his ideas, modify them somewhat,
and translate them into a more explicit form. What follows is a
step-by-step description of that process.

4.2 The Evolution of the Law of Nervous Shock

The law of nervous shock has a history that stretches back over
one hundred years to the late eighteen hundreds. Taking a broad
perspective, it is possible to discern a number of major
milestones in its development. As will become evident, the trend
that the law followed throughout most of its evolution was
gradually to relax the restrictions that barred a plaintiff from
succeeding. However, in the last few years the tide appears to
have turned. Having reached a high-water mark, the law seems to
be receding in the direction of adopting a more restrictive
attitude towards allowing recovery for nervous shock.

Now, each major stage along the path of the law of nervous
shock's evolution will be identified and stated in terms of a
constraint (C) that the plaintiff must satisfy in order to succeed in an action.

C1. The plaintiff must suffer some sort of physical impact which acts as a trigger.

The story begins with the case of Victorian Railway Commissioners v. Coultas. A crossing keeper employed by the defendant railway company allowed a buggy in which a pregnant woman was riding to cross the track in the path of an oncoming train. The train narrowly missed the buggy and the lady suffered nervous shock which caused a miscarriage. The court denied recovery.

"Damages arising from mere sudden terror unaccompanied by any actual physical injury, but occasioning a nervous or mental shock, cannot under such circumstances, their Lordships think, be considered a consequence which, in the ordinary course of things, would flow from the negligence of the gatekeeper."16

The court's attitude in Coultas reflects the skepticism that prevailed at the time about the reality of psychological phenomena.

C2. A physical impact is not necessary. The plaintiff's reasonable apprehension of such an impact is sufficient, whether or not it occurs.

A mere two years later, the ambit of recovery was widened significantly by Bell v. Great Northern Railway Co. of Ireland.17
The plaintiff was a passenger in a railway carriage which started running backwards down an incline. Although she suffered no actual physical harm, the terror of the situation induced nervous shock. Murphy J. obliterated the short-lived distinction that had been drawn between physical and mental harm. He said it was:

"[I]mmaterial whether the injuries may be called nervous shock, brain disturbance, mental shock, or bodily injury."^{18}

C3. The apprehended physical impact must be to the plaintiff, not a third party.

Just over a decade later, the class of persons who could recover was clearly defined in *Dulieu v. White & Sons*.^{19} The plaintiff was working behind the bar of her husband's public house when a horse-drawn van was negligently driven into the premises. Although she was not physically harmed, the plaintiff suffered nervous shock as a result of which she gave birth prematurely to a mentally defective child. Kennedy J. said:

"If impact be not necessary, and if, as must be assumed here, the fear is proved to have naturally and directly produced physical effects, so that the ill results of the negligence which caused the fear are as measurable in damages as the same results would be if they arose from an actual impact, why should not an action for those damages lie just as well as it lies where there has been an actual impact? It is not, however, to be taken that in my view every nervous shock occasioned by negligence and producing physical injury to the sufferer gives a cause of action. There is, I am inclined to think, at least one limitation. The shock, where it operates through the mind, must be a shock which arises from a reasonable fear of immediate personal injury to oneself."^{20} [Emphasis added]
Almost a quarter of century later, in *Hambrook v. Stokes Brothers*\(^1\), the courts broadened the basis of recovery significantly. The defendant's employee left a truck parked with its engine running at the top of a steep and narrow street. The unattended truck rolled away down the incline because it had not been properly secured. The truck appeared from round a bend in the road above the plaintiff's wife where she had just left her children and hurtled past her. The woman suffered nervous shock because of her fear for the safety of the children. She was several months pregnant at the time. The shock caused hemorrhaging. She had to undergo an operation and died shortly afterwards. The husband sued, alleging that the death of his wife was caused by the negligence of the defendants. At trial the judge had instructed the jury that they must find that the shock to the wife was caused by her fear of injury to herself. If they found that it arose from her fear for her children, the husband could not recover. The jury verdict was in favour of the defendants. A new trial was ordered. The court held that in principle the nervous shock suffered by the wife out of concern for her children, as a result of what she had actually seen, as opposed to what she had been told by bystanders, could provide a basis for recovery.

Atkin L.J. had this to say about the difficulty of limiting the application of the case.
"The question appears to be as to the extent of the duty, and not as to remoteness of damage. If it were necessary, however, I should accept the view that the duty extended to the duty to take care to avoid threatening personal injury to a child in such circumstances as to cause damage by shock to a parent or guardian then present, and that the duty was owed to the parent or guardian; but I confess that upon this view of the case I should find it difficult to explain why the duty was confined to the case of parent or guardian and child, and did not extend to other relations of life also involving intimate associations; and why it did not eventually extend to bystanders."\(^{22}\) [Emphasis added]

Jumping ahead in time, the case of *Dooley v. Cammell Laird & Co. Ltd.*\(^{23}\) provides an interesting contrast. Mrs. Hambrook's fear for her children arose after the fact. *Dooley's* case is a before-the-fact mirror image. The plaintiff in that case saw some cargo fall from a crane into the hold of a ship in which some fellow employees were working. The accident was caused by a defective sling. He recovered damages for nervous shock suffered as a result of his apprehension for the safety of his fellow workers. In terms of proximity in time and space to the shock-inducing event, the vantage points of the plaintiffs in each case were equidistant, but in different directions. The *Dooley* case is of dubious reliability in another respect. The relationship of workmate that existed between the plaintiff and the endangered third parties was a tenuous one, to say the least. But that aspect of the case is another matter.
C5. The plaintiff's immediate apprehension of a physical impact to a stranger will not suffice.

In Hay (or Bourhill) v. Young, the plaintiff suffered nervous shock as a result of coming across the aftermath of a fatal accident in which a motorcyclist had collided with a tram. The plaintiff saw the damaged motorcyle and the victim's blood on the roadway, but not the dead body. The claim was dismissed because (a) the plaintiff had never been in danger herself, and (b) the victim was a complete stranger. The case is authority for the proposition that a mere bystanders cannot recover for something that happens to a stranger unless they themselves are within the "danger zone". The two-pronged test of proximity to the victim and to the event must be satisfied. The court coined the expression "customary phlegm" to describe the fortitude that the law expects of bystanders in such circumstances. Lord Porter concluded his speech by holding that a valid claim can be based on:

"shock occasioned by reasonable apprehension of injury to oneself or others, at any rate, if those others are closely connected with the claimant" (Emphasis added)

C6. The plaintiff need not be at or near the scene of the incident when it occurs. A plaintiff who is in the vicinity and attends the scene immediately afterwards can recover.

In King v. Phillips, a taxi driver backed into a small boy on a tricycle and knocked him down. The boy's mother, who was inside
a house some distance away, heard his screams and looked out of the window. She saw the tricycle under the taxi, but no sign of the boy. Although the boy's injuries were only minor, the mother suffered nervous shock because of her apprehension for his safety. The claim was denied on the basis that the injury to the mother was not reasonably foreseeable.

King v. Phillips did not follow the new direction in which Hambrook v. Stokes\(^2\) had pointed, perhaps because the boy's injuries were trivial. The decision was a throwback to the older authorities like Chester v. Waverley Municipal Council.\(^2\) In the latter case, the plaintiff's 7-year-old son went out to play and did not return. After a search lasting several hours, the boy's body was found in a water-filled ditch. The mother was present when the discovery was made and suffered nervous shock as a result. Recovery was denied.

However, the hiatus in the overall trend represented by King v. Phillips was relatively short-lived. Before long, the courts' more expansive attitude towards allowing plaintiffs to recover reasserted itself. In Boardman v. Sanderson,\(^2\) the defendant negligently backed his car out of a garage and onto a young boy's foot. The boy's foot was trapped under the wheel of the car and slightly injured. The boy began screaming and kicking at the car with his free foot. His father, who, to the defendant's knowledge, was in the vicinity, heard the boy's screams and ran to his son's assistance. The plaintiff father recovered damages for nervous shock. Ormrod L.J. said:
"I think I need say no more than that if the facts of this particular case are fitted to the concept of negligence, it is clear that a duty was owed by the defendant not only to the infant but also to the near relatives of the infant who were, as he knew, on the premises, within earshot, and likely to come upon the scene if any injury or ill befell the infant."\(^{30}\) [Emphasis added]

The following year, a similar decision was rendered an Australian case in which a parent was nearby the scene of an incident. In *Storm v. Geeves*,\(^{31}\) the plaintiff mother's three children, two daughters and a son, were waiting for a schoolbus outside their home, when one of the girls was hit by a truck and killed. The other two children saw the accident, but were not injured. The mother ran outside and saw her daughter pinned beneath the truck. The mother, brother and surviving sister sued for the nervous shock. The mother and brother recovered. Recovery was denied the sister because of lack of proof of nervous shock. The court found that she had suffered normal emotional upset.

The trend continued with *Benson v. Lee*.\(^{32}\) In that case, the plaintiff mother was at home when her son was hit by a vehicle driven by the defendant. She did not see the accident, but the victim's brother ran home and told her about it minutes later. She immediately ran to the scene and found her other son lying injured and unconscious on the roadway. She accompanied him to the hospital in the ambulance where he was pronounced dead. The plaintiff recovered for nervous shock.

Canadian courts followed suit. In *Marshall v. Lionel Enterprises Inc.*,\(^{33}\) the plaintiff's husband suffered severe injuries in an accident caused when the clutch on his snowmobile broke. The
wife found him badly injured shortly afterwards. She recovered damages for nervous shock. The court had no difficulty with the plaintiff's proximity to the shocking event. However, Haines J. did pause to ponder the question of how close the plaintiff's relationship with the victim needed to be to support a successful claim. The answer he gave is thoroughly in keeping with the pragmatic spirit of the common law.

"Close relatives no doubt pose little problem, but what of sweethearts, fiancées or perhaps even close friends? And too, what about the unrelated bystander who merely witnesses the carnage? In answer to these nagging worries, I can do little better than quote the statement of Lord Wright in Bourhill v. Young: 'The lawyer likes to draw fixed and definite lines and is apt to ask where the thing will stop. I should reply it should stop where in the particular case the good sense of the jury or the judge decides.' The 'good sense' of the judge or jury must, of course, take into account the knowledge of the time. It is this type of inquiry which has kept the common law a vibrant and vital force for many centuries."34

C7. The plaintiff need not be in the immediate vicinity of the incident nor attend the scene afterwards. The plaintiff need only be exposed in some direct way to the shocking effects of the incident within a few hours after it has occurred.

Apart from the issue of relationship to the victim that exercised Haines J. in Marshall v. Lionel Enterprises, the law's other primary concern was to draw a line defining the limits of proximity to the event itself. A plaintiff would have to fall within those limits in space and time in order to recover. Being present at the scene while the event was unfolding or during its immediate aftermath was clearly good enough. However, beyond
that degree of involvement, where did the boundary lie? Merely receiving news of the event without being otherwise exposed to it in some way put a plaintiff beyond the pale. In Abramzik v. Brenner,\textsuperscript{35} the plaintiff mother suffered nervous shock as a result of being told that her two children had been killed in a motor vehicle accident. She did not attend the scene of the mishap. The shock was caused by the sad news. Recovery was denied.

But where on the continuum between direct involvement in a shocking event and simply receiving news about it did the cut-off point fall? The House of Lords had to deal with this issue in McLoughlin v. O'Brian.\textsuperscript{36} The plaintiff was at home when her husband and three children were involved in a motor vehicle accident several miles away. She heard the news of the accident in which her daughter had been killed from a neighbour an hour or so later. She was driven to the hospital where she actually saw her husband and surviving two children before their injuries had been treated. Their clothing was torn and bloody and they were begrimed with dirt and oil. She recovered damages for nervous shock.

\textit{McLoughlin v. O'Brian} narrowed down the outer limits of liability. The plaintiff need not be present at the scene of the incident. Exposure to its distressing effects shortly afterwards was enough to support a claim.
4.3 The Implications in a Nutshell

What emerged from tracing the evolution of the law of nervous shock were two primary constraints on recovery.

(a) The plaintiff must have a close relationship with the victim of the shocking event.

(b) The plaintiff must be exposed to the unfolding event itself or its shocking effects shortly afterwards.

These two constraints could be lumped together under the overarching concept of proximity. The basic idea could be captured by the following equation:

\[ (Proximity(\text{relationship to the victim}) + Proximity(\text{time and space to the event})) = \text{Recovery}. \]

For the sake of convenience, these two aspects of proximity will be referred to from now on as proximity of relationship \((P(R))\) and proximity of exposure \((P(E))\). The simple equation given above represents the first cut at deriving a deep-structure rule from the totality of the cases.

In light of our review of the cases, Professor Smith decided to revise his original statement of how reasonable foreseeability applies in practice to nervous shock cases. For ease of reference, I shall restate the rule he formulated originally.
"6. Nervous shock inflicted on a near family relative as a result of witnessing, coming upon the immediate aftermath, or being informed of an accident or death is not too remote."³⁷ [Emphasis added].

Professor Smith concluded that merely receiving news of the event would not suffice. In other words, he resiled from his earlier position that Abramzik v. Brenner³⁸ had been wrongly decided. An overview of the cases made it clear that the courts' application of the two-pronged test of proximity set out above was being used as a device to place limits on liability. Allowing news of the shocking event into the equation would cast the net of liability far too wide in this age of virtually instantaneous communication.

Using \( P(R) \) and \( P(E) \) as the two central pillars, the next stage of the analysis of nervous shock was to build a complete conceptual structure onto which the outcomes of all the cases could be mapped.

### 4.4 Further Elaboration

Given the nature of case law, what the cases said had to be considered as determinative of the issue in the event of any fundamental conflict between the cases and Smith's theoretical perspective. NSA would be of no use to lawyers if the advice it gave represented the idiosyncratic view of an expert rather than the existing state of the law. As has been made abundantly clear throughout this thesis, a legal opinion that cannot be justified in terms of case authority has no persuasive force. While the
conceptual framework of NSA was being built, therefore, I undertook exhaustive legal research to ensure that all the reported cases on nervous shock had been considered before the design was finalized. A total of 97 reported cases were gathered from among all the Commonwealth jurisdictions governed by the same law. These included cases from Canada, Great Britain, Australia and New Zealand.

Once the cases had been gathered, each one was reduced to a terse factual summary. No attempt was made to formalize the reasoning the courts used to justify case outcomes. The focus was placed squarely on the facts of the case and the end result. The entire body of digested cases was then reviewed jointly by Smith and myself. Obviously, Smith approached the task with certain preconceived notions. He had, after all, been steeped in the domain for many years. Disabusing himself of the views he had formed and treating the subject matter as a blank slate would have been humanly impossible. I, on the other hand, had minimal previous exposure to the law of nervous shock. I had a hazy recollection of having dealt with it briefly in a torts course during my undergraduate days at law school. But the only details I could remember were of the paradigmatic case of a mother who sees her child run down and killed by a careless driver and suffers shock as a result. Apart from that, my ignorance of the area was boundless.

The knowledge structuring process we embarked upon might best be described as a concurrent top-down/bottom-up approach (i.e.
"Hypothetico-deductive"). The process of attempting to formalize Professor Smith's expert knowledge turned out to be a useful exercise in clarification for him. He was surprised to discover that he was by no means as certain about some things as he had imagined, even though he had been dealing with the area for years. At one of our first meetings where we discussed the idea of building a KBS in the domain of nervous shock, Smith had plucked his book, *Liability in Negligence*, from the shelf behind him and brandished it at me saying, "It's all here!" We were naive enough to think that, with the aid of the book, building NSA would be like painting by numbers. Of course, things turned out to be not quite so simple. We were to laugh a lot later about our unbridled optimism. In fact, on a number of occasions Smith had to rethink his ideas when faced with deciding what the outcome should be in some hypothetical case. We found the "what-if" method of creating hypothetical cases a good way of focussing our discussions and resolving ambiguities.

The exercise of painstakingly mapping out the entire area encompassed by the law of nervous shock provided us with an interesting example of the human tendency to think in watertight compartments once we have organized our knowledge into categories and these categories have hardened like cement. As mentioned earlier, the textbook case of nervous shock involves a situation where the plaintiff suffers shock as a result of something terrible that happens to somebody else. However, it is also possible for plaintiffs to recover damages for nervous shock in circumstances where they themselves are the victims of the
terrible event. Smith realized this at one level, yet he had conceptualized those cases as belonging to another area of the law commonly referred to as the "thin skull" cases. "Thin skull refers to a situation where the victim suffers a degree of harm out of all proportion to the seriousness of the negligent act because of a peculiar susceptibility on the victim's part. In effect, the law says that that is simply too bad for the wrongdoer. The oft-quoted legal maxim that captures this idea is, "You take your victim as you find him". The concept applies across the board in all areas of law. Thus in criminal law, a punch in the face that would usually produce nothing more than a bloody nose and render the assailant liable to being charged with common assault escalates to manslaughter if a particularly feeble victim happens to die. Smith had not thought of thin skull cases where the plaintiffs were the direct victims of a shocking event as falling within the domain of nervous shock. This conceptual blind spot was discovered while sifting through the cases we had amassed during the course of our research. The most surprising thing about the oversight was that it seemed so obvious in retrospect.

After pushing and prodding the cases around, we eventually came up with a set of material elements broad enough to encompass any case of nervous shock. Elements are the conceptual building blocks out of which cases are built. In a domain like nervous shock that includes cases with a lot of different story lines, the elements are a related set of abstractions which must be satisfied in some way by any given fact situation in order for a
case to succeed. The elemental method of putting a case together applies across different domains of law. In a theft case, for example, the elements that the prosecution must prove in order to make out a case against the accused are as follows:

a. "Property" - something capable of being stolen
b. "Ownership" - belonging to somebody else
c. "Intent"/ "Lack of consent" - was unlawfully
d. "Deprivation" - taken
e. "Identity" - by the accused
f. "Jurisdiction" - at a certain time and place

If, one of those elements is missing, the case falls apart. The elements can be thought of as the links in a chain. Like a chain, a case is only as strong as its weakest link. In any given case, the facts that will satisfy a particular element will be different; however, each element must be proved in some way for the case to succeed.

The elements of theft are readily ascertainable because they are systematically laid out in the Criminal Code. The common law is a different matter. No structure is put in place right from the start, as happens with a statute. Whatever structure there is needs to be teased out of the corpus of cases that has accumulated over time. The constituent elements of the whole domain of nervous shock have never been clearly mapped out. The law's starting point is the nebulous test of "reasonable foreseeability". A review of the law's evolution has shown that
the twin requirements of proximity mentioned earlier (i.e., $P(R)$ and $P(E)$) are of paramount importance. Indeed, the House of Lords acknowledged as much in the leading case of McLoughlin v. O'Brien. The Law Lords cited with approval a checklist prepared by Tobriner J. of the California Supreme Court in the case of Dillon v. Legg. The list placed heavy emphasis on the dual aspects of the concept of proximity. However, the House of Lords took pains to point out that these were simply "factors" to be taken into consideration. Lord Scarman summed the situation up in the following words.

"Space, time, distance, the nature of the injuries sustained and the relationship of the plaintiff to the immediate victim of the accident are factors to be weighed, but not legal limitations, when the test of reasonable foreseeability is to be applied." 

The court left its options open by re-affirming the primacy of the traditional test in all its vagueness. To further complicate the issue, the judges were sharply divided on whether the test to be applied was one of pure foreseeability or whether it was subject to overriding policy considerations. The court split 3:2 in favour of adopting the two-stage approach of Anns v. Merton London Borough Council, in which public policy is the ultimate arbiter of the limits of liability for negligence. In effect, even if something is reasonably foreseeable, the courts can pull the rug out from under a plaintiff by invoking public policy.

As if all this were not bad enough, there are two conflicting lines of authority on the degree of foreseeability required. One line of cases holds that the damage suffered by the victim of the negligent act must be foreseeable as "probable". The other line
of equally persuasive cases states that the damage need only be foreseeable as "possible", a standard which clearly extends the ambit of liability much further. Ironically, this divergence of judicial opinion arose out of the same incident in which a dockside fire broke out when some floating oil was accidentally ignited. No useful purpose would be served here by going into the details of these cases. Their net effect is summed up by Professor Smith as follows.

"The situation now seems to be this. If a court wishes for whatever reason to find a particular loss or damage too remote, it will find the damage not to be reasonably foreseeable and cite Wagon Mound (No. 1). If the court wishes to find the damage not too remote, it will cite Wagon Mound (No. 2) and apply the foreseeable as possible version of the test of remoteness. No one will be disturbed very much by the fact that the two tests are inconsistent with one another."42

The foregoing discussion makes it abundantly clear that, in borderline cases that could reasonably be decided one way or the other without raising any eyebrows, where the line gets drawn depends entirely on the "good sense" of the judge, as Lord Wright so candidly admitted in Hay (or Bourhill) v. Young.43 The reasoning process in those cases is completely circular. Reasonable foreseeability is whatever the courts say it is after the fact. Professor Fleming, an eminent authority on the law of torts, put it bluntly.

"Evidently, the foresight test, whatever lip service may be paid to it, is incapable of providing either an adequate explanation of past decisions or a basis of reasonable prediction for the future."44

On a visit to UBC law school in July, 1989, Professor Fleming wholeheartedly endorsed the efforts that Professor Smith and I
were making to rationalize the cases and inject an element of predictability into the law of nervous shock.

The mental gymnastics that the courts indulge in to justify their decisions means that a deep-structure rule inferred from the facts of the cases is the only solid ground on which a KBS can be built. Whatever judges may say to avoid painting themselves into a corner, it is clear that \( P(R) \) and \( P(E) \) are the guts of a nervous shock case. These are the core elements around which a complete structure must be built describing the domain at a level of detail that can serve as the blueprint for building a KBS. To put it another way, they are the beginnings of a deep-structure rule. The conceptual structure that was developed by Professor Smith and me to represent the law of nervous shock is shown in Figure 1. Let us now work through each of its constituent elements in turn.

a. "Intent"

The conceptual structure presupposes that fault exists. The first thing to be ascertained is whether the act was negligent or deliberate. In the latter case, no issue of remoteness arises. A person is held legally responsible for the consequences of a deliberate act, including nervous shock. No further enquiry need be made if the culpable act turns out to have been deliberate. Liability is established right off the bat. All that remains to be done is to point to the supporting cases.
OVERALL STRUCTURE OF NERVOUS SHOCK ADVISOR
The leading case is the vintage decision in *Wilkinson v. Downton*. The defendant had the intention of playing a practical joke on the plaintiff and he told her that he had been sent to inform her that her husband had just been hit in an accident and suffered two broken legs. The defendant instructed the plaintiff to fetch pillows and go to the accident site to retrieve her husband. The statements were false; however the plaintiff acted on the words spoken by the defendant. As a result of the news, the plaintiff suffered nervous shock to her system, displaying symptoms of vomiting and other effects on her reason. The court held that there is liability for the intentional infliction of nervous shock where there is an element of wilfulness on the part of the defendant and the plaintiff's illness is a direct consequence of the defendant's conduct. The court found the defendant's intent to play a practical joke in making the statements sufficient to constitute the element of wilful infliction of nervous shock.

*Wilkinson v. Downton* was applied by the English Court of Appeal in a case that arose during WW I. In *Janvier v. Sweeney*, the plaintiff had a German fiancé who was interned. The plaintiff worked as a live-in maid. The defendant, a detective, wished to retrieve some letters in the possession of the plaintiff's employer and posed as a detective inspector from Scotland Yard. He falsely told her that he represented the military authorities and that she was being sought for corresponding with a German spy. As a result, the plaintiff became extremely frightened and suffered nervous shock. The symptoms of her illness included
neurasthenia, shingles and other ailments. The court held that the defendant was liable to the plaintiff for the deliberately false statements calculated to cause physical injury to the person. Furthermore, the illness suffered by the plaintiff was directly attributable to the effect of the utterance of the statements. The court stated that this case was even stronger for imposing liability than Wilkinson v. Downton because in the present case, there was an intention to terrify the plaintiff to effect an unlawful purpose whereas in Wilkinson v. Downton, the defendant only intended to play a practical joke.

Bielitzi v. Obadisk (Obadiak), was the first Canadian case to follow the line of cases that began with Wilkinson v. Downton. The defendant told a person that the plaintiff's son, who was at that time absent from home, had hanged himself from a telephone pole. The recipient of the news asked the defendant whether it was true, to which the defendant replied, "yes". The recipient of the information told a third person who told a fourth person who told a fifth person. Ultimately, the plaintiff received the news and, believing it to be true, suffered nervous shock which resulted in a physical illness. The story started by the defendant was wholly false. The court held the defendant liable for inflicting intentional nervous shock upon the plaintiff. The failure of the defendant to deny originating the false story or to explain it persuaded the court to impute intention on the part of the defendant.
Timmermans v. Buelow is the latest Canadian case in the line that stretches all the way back Wilkinson v. Downton. In this relatively recent case, the plaintiff, a tenant of an apartment owned by the defendants, was given notice of eviction, and consulted his solicitors, who advised him to remain in occupation. When the plaintiff refused to leave on the appointed day, the defendant B advised him by telephone that unless he was out by 5 p.m., B would "bring some guys over" and the plaintiff would "be in the hospital." There was a confrontation, designed by B to intimidate the plaintiff into vacating the premises speedily. In particular there was more ominous talk of hospitalization. Since adolescence, the plaintiff had been prone to acute panic attacks, attended by blackouts, vomiting and other physical symptoms. For these disorders he had latterly been receiving psychiatric care and medication. The defendant S did not know of this, but B did, having on occasion discussed the plaintiff's medical problem with him. On this occasion, the immediate confrontation was resolved by the arrival of the plaintiff's lawyer and the police. The plaintiff brought an action for damages in tort, as well as for unlawful breach of the lease, and recovered. The behaviour of the defendant B, done with intent to effect the unlawful eviction of the plaintiff, was tortious. It was not necessary to consider the trespassory action of assault, for the facts brought the situation squarely within the rule in Wilkinson v. Downton governing the intentional infliction of nervous shock.
As the law developed, it became clear that cases of nervous shock caused by a deliberate act could be grouped into two distinct categories: those of intentionally induced nervous shock, and those where the nervous shock resulted from a intentional wrongful act.

*Stevenson v. Basham* is an early case in which nervous shock was caused by an intentional wrongful act. The defendant visited the home of the plaintiff and demanded that possession of the premises be given to him. The defendant stated to the plaintiff's husband that the place must be vacated within 24 hours or else they would be burned out. The plaintiff was in bed when this statement was uttered and did not see the defendant but was within earshot. The plaintiff was three months pregnant at the time. As a consequence of overhearing the threat, she became hysterical. The next day she was ill with a high temperature and was taken to the hospital when the possibility of a miscarriage was detected by a doctor. She did in fact have a miscarriage. The court found as a fact that the defendant was aware of the plaintiff's presence in the home when he issued his threat. The court held that though he was ignorant of her state of pregnancy, he knew, or should have known, that his boisterous and threatening behaviour was calculated to frighten a person. The miscarriage was found to have resulted from the shock and fear sustained by the plaintiff.

*Purdy v. Woznesensky* is the earliest Canadian case that dealt with an intentional wrongful act causing nervous shock. The
plaintiff's husband was assaulted without provocation by the defendant. The husband was knocked down and rendered temporarily unconscious. The plaintiff, witnessing the incident, began to scream and then collapsed to the floor. The plaintiff sued for nervous shock which rendered her nervous and bedridden for a long period. The court awarded damages for the plaintiff's nervous shock.

*Edmonds v. Armstrong Funeral Home Ltd.*\(^5\) is the most anomalous Canadian case in which a plaintiff succeeded in recovery damages for nervous shock caused by an intentional wrongful act. The immediate victim in that case was a corpse. The defendants permitted an autopsy to be performed on the body without the consent of the plaintiff, the husband of the deceased. As a result of the unauthorized autopsy, the plaintiff suffered mental anguish and recovered damages. However, the court did not base its reasoning on *Wilkinson v. Downton.*\(^5\) It pointed out that the defendants, by their actions, had committed the Criminal Code offence of improperly interfering with or offering an indignity to a dead body. That fact established that their act was clearly wrongful. Although the court allowed recovery in the particular case, it was quick to point out that the commission of a criminal act *per se* will not give rise to civil liability.

The most plausible way of explaining *Edmonds v. Armstrong Funeral Home Ltd.* is that it reflects the importance that society attaches to the dignified treatment of human remains. This interpretation is borne out by the result in another case
involving an affront to a dead body, *Owens v. Liverpool Corporation*. Although that case involved negligence rather than a deliberate act, the distinction is not really material. The distress caused to the plaintiffs by the mishandling of a loved one's corpse was the crux of the matter. A negligently driven tramcar collided with a hearse breaking its glass side, overturning the coffin inside and putting it in imminent danger of being ejected onto the road. The plaintiffs were a group of relatives who were following the hearse in a carriage. The plaintiff uncle of the deceased witnessed the collision and the other plaintiffs, the deceased's mother, cousin and cousin's husband, saw the effects immediately after the accident. As a result of the accident the mother of the deceased collapsed. All sued for nervous shock. The court permitted recovery for nervous shock sustained as a result of seeing the damage done to the hearse and the displacement of the coffin containing the body of a near relative.

In spite of the dicta in *Edmonds v. Armstrong Funeral Home Ltd.*, to the effect that the commission of a crime will not automatically provide the basis for a civil suit, it is unlikely that the courts will hesitate to award damages for nervous shock where the intentional wrongful act is also a criminal offence. *Radovskis v. Tomm* was a case stemming from a serious crime in which the plaintiff did indeed fail to recover. However, there were good reasons why that happened. The defendant was convicted of the rape of the plaintiff's 5-year-old daughter. The plaintiff found the young girl lying in mud in the lane behind
her home with a scarf knotted around her neck, crying. The child was visibly bruised and scratched. The plaintiff sought to recover damages for nervous shock that she had allegedly suffered as a result of the crime perpetrated on her daughter. The plaintiff's claim was dismissed for lack of proof that she had suffered shock. As it happened, the court could hardly have done otherwise. No medical evidence was presented and the plaintiff's mother did not even testify on her own behalf. The extent of the evidence offered in support of her claim was her husband's testimony that she had not had good nerves before the incident and that since they had been bad. That piece of evidence was so equivocal that it amounted to no evidence at all. If in fact there was any further evidence that could have been called, then the case was badly bungled. Given the particularly despicable nature of the crime, any court would have bent over backwards to give recovery to the plaintiff, had there been some reasonable basis for doing so. But since there was not a shred of evidence to substantiate the plaintiff's claim, the court had no option but to dismiss the claim. All that Radovkis v. Tomn shows is that it is pointless for a plaintiff to allege that she has suffered nervous shock without calling any credible evidence to support the allegation.

b. "Victim"

The next aspect of the case that the conceptual structure deals with is victim of the shocking act. Establishing the identity of
the immediate victim before moving on to anything else is imperative because different considerations apply to subsequent elements (i.e., c, d and e), depending on whether the victim was the plaintiff, a third party or both. Nothing more need to be said on this subject because discovering the identity of the victim is a straightforward matter, even though this piece of information is crucial.

c. "Harm"

The harm suffered by the victim(s) has to be serious enough to support a valid claim. The degree of harm that needs to be proved depends on who the victim is.

In cases where the plaintiff herself was the immediate victim, the key issues of P(R) and P(E) obviously do not arise. Furthermore, plaintiff victims will almost invariably recover, either if they were at risk of serious injury or they suffered harm that was relatively slight, but which could easily have been a great deal worse. Those two possibilities are shown in Figure 1 as leaves of the harm element and labelled "risk of injury" and "minor injury - lucky escape" respectively.

We have already encountered the landmark case of Dulieu v. White & Sons55 in which the publican's wife brought a successful suit for nervous shock after she was terrified by a runaway horse-drawn van that burst into the bar, but did not actually hit her.
A line of Canadian cases are authority for the same proposition; namely, that a risk of physical injury to the plaintiff is enough to support a claim.

In *Taylor v. Weston Bakeries Ltd.*, the plaintiff suffered nervous shock as a result of opening a package of bread in which several slices were blue with mould and two slices had pieces of metal embedded in them. The plaintiff did not actually eat the bread and suffered no physical injury. However, upon seeing the bread, she became very upset and felt ill. She suffered nausea and was unable to eat bread any more after this incident. While the plaintiff suffered from pre-existing nervousness and emotional depression, the shock intensified her existing mental ill-health. She was awarded damages for nervous shock attributable to the defendant's negligence.

In *Duwyn v. Kaprielian (Infant)*, the defendant negligently backed his car into a parked car in which the plaintiff infant and grandmother were seated. The defendant dented the parked car and shattered glass fell into the vehicle's interior. The plaintiff sustained no physical injuries as a result of the accident, but subsequently displayed a personality change marked by a refusal to eat, inability to sleep properly, anxiety and hyperkinesis. The court allowed the infant plaintiff's claim for mental anxiety.

As mentioned above, where the plaintiff is both the immediate victim of the shock-producing incident and also the person who
suffers nervous shock, a very slight degree of actual physical harm will support a claim — provided, that is, that a risk of greater harm was created. In the absence of such a risk, the claim will fail. Thus a trifling injury like a minor cut that did not potentially expose the victim to the risk of a more serious injury will not suffice, even if a faint-hearted plaintiff freaks out and displays genuine symptoms of nervous shock. However, just how trivial the actual injury need be if a real risk of serious harm is created is well illustrated by the case of Negro v. Pietro's Bread Co.\textsuperscript{58} The plaintiff purchased bread from the defendant company and, while eating the bread, discovered pieces of broken glass in it. Luckily, the plaintiff was able to remove the glass from within his mouth with no damage save a slight scratch of the throat. However, the plaintiff suffered extreme shock and excitement over the possible serious consequences and, from then on, he became nauseous whenever he attempted to eat bread. The plaintiff's claim for nervous shock was allowed.

While Negro v. Pietro's Bread shows that a minor injury accompanied by a real risk of something worse happening will suffice, the immediate impact of the event on the mind of the victim must be what triggers the onset of nervous shock. Where such is not the case, even a serious injury will not be enough to support an action. Taylor v. British Columbia Electric Railway Co.\textsuperscript{59} illustrates the point. The plaintiff was a passenger on the defendant's train when he was seriously injured as a result of a collision. The impact of the collision came so suddenly and
unexpectedly that there was no time for the plaintiff to feel terror or fright prior to the injury. The plaintiff lost consciousness immediately and remained unconscious for several days. The symptoms of nervous shock did not manifest themselves until several weeks following the accident. The plaintiff's claim for nervous shock as a head of damages was denied. The plaintiff's shock was brought on later by dwelling on what had happened to him. It was not contemporaneous with the incident itself. The case indicates that the onset of shock, at least, must be concurrent with the harmful event. A plaintiff cannot recover for nervous shock that is experienced retrospectively.

In addition to the cases discussed above in which the plaintiff is the sole victim, there are a multitude of cases in which the plaintiff who suffers nervous shock and third-parties are both immediate victims of the shocking event. For the sake of brevity, we shall refer to these as multiple victim cases. In such cases, it may be extremely difficult to determine to what extent the plaintiff's shock was attributable to concern for herself as opposed to concern for others involved in the incident. We have already seen that in cases where only the plaintiff was harmed or at risk, the courts will readily give recovery. For all practical purposes, therefore, in multiple victim cases, a case will succeed, if the plaintiff suffers nothing more than the degree of harm that would support a claim if the plaintiff were the only victim. That standard is so low that it is not hard to meet. However, the involvement of other victims will usually bolster the plaintiff's already strong
chances of recovery. Success in an action becomes virtually a foregone conclusion in multiple victim cases where a close relationship exists between the plaintiff and the third-party victim(s). In a sense, the existence of the third-party victims is superfluous where the plaintiff has the advantage of a fallback position that allows her to rely on what happened to her as an immediate victim to support a claim. The involvement of third-party victims is the icing on the cake, so to speak. They make an already strong case ironclad. More significantly still, the involvement of third-party victims will invariably add to the seriousness of the incident and ensure that the quantum of damages will be higher.

Not suprisingly, there is a whole slew of multiple victim cases in which plaintiff and third-party victims suffered various combinations and permutations of harm. Laboriously plodding through all of them in the course of this discussion would clearly serve no useful purpose. Therefore, rather than canvassing these cases exhaustively, a representative sample will be selected from amongst the more prominent ones to illustrate the more common multiple victim scenarios.

However, before embarking upon the discussion, a caveat is in order. Although only a handful of the more important cases will be discussed in the body of the thesis, it is essential that the casebase itself of a KBS in a domain of law should contain all the cases. To paraphrase the poet John Donne, "No case is an island, but of the whole". Each new decision that the courts
hand down in an area of law has a potential ripple effect. It can cast the pre-existing cases in a new light and affect the way in which they can be interpreted. For this reason, it is crucial that the user of a KBS in a domain of law should have access to all the cases. Otherwise, the scope for developing legal arguments based on the way different cases interact with one another will be reduced and potential arguments may get overlooked. As was made plain in the earlier part the thesis, the primary purpose of a KBS is to give lawyers the ammunition they need to make legal arguments. The more ammunition a KBS can provide, the more useful it will be. Having added that caveat, let us now turn to look at some multiple victim cases involving different types of harm.

The following cases are typical of those in which both the plaintiff and a third-party suffer physical harm.

In Montgomery v. Murphy,\textsuperscript{60} the plaintiff and his wife were walking along the roadside when they were negligently struck by the defendant's vehicle. As a result, the plaintiff's wife was killed and the plaintiff was thrown to the ground and suffered some serious injuries to his lower back. The plaintiff also suffered severe depression and sought to recover damages for his mental injuries. The court held that the plaintiff was entitled to recover for any losses caused by depression attributable to his own physical injuries as well as to his shock at actually witnessing his wife being killed.
In Vana v. Tosta, the plaintiff, his wife and children were involved in a motor vehicle collision caused by the defendant's negligence. The wife was thrown out of the vehicle and died as a result. The plaintiff suffered severe injuries and his children sustained minor injuries. After the collision, the plaintiff saw his wife lying outside the car bleeding profusely. As a result of seeing his wife's injuries the plaintiff suffered nervous shock and recovered.

The next case is similar. But it is somewhat problematical because the result is arguably difficult to reconcile with that in Taylor v. British Columbia Electric Railway Co. cited earlier. You will recall that that was the case in which the plaintiff was unexpectedly knocked out and shock did not set in until he regained consciousness and realized what had happened to him. In Schneider v. Eisovitch, the case we shall now consider, the plaintiff and her husband were passengers in a motor vehicle driven negligently by the defendant. The car struck a tree and the plaintiff's husband was thrown out and killed instantly. The plaintiff was injured and rendered unconscious as a result of the collision. She was taken to the hospital where she recovered consciousness and was informed that her husband had been killed. She suffered nervous shock attributable both to her own injuries, that were relatively minor, and to being informed of her husband's death. Predictably, the defence argued that her initial lack of awareness of what had happened plus the period of time that had elapsed before she was informed of her husband's death should bar
her claim. The court disagreed and awarded damages for shock brought about by the husband's death as well as her own injuries. *Taylor v. British Columbia Electric Railway Co.* is distinguishable on its facts because in that case the plaintiff did not regain consciousness until several days after the accident. On the other hand, Mrs. Schneider was only unconscious for a short period of time before finding out what happened. However, realistically speaking, the involvement of a fatally injured third-party victim in the event probably did more to tip the balance in her favour than anything else.

The suggestion that a third-party victim's involvement makes all the difference to recovery where a lapse of time occurs before the plaintiff finds out what happened is supported by the decision in *Kohn v. State Government Insurance Commission*.64 That was a case in which the court specifically followed *Schneider v. Eisovitch*. The teenage plaintiff and her male friend, whom she had hoped to marry, were involved in an accident when the motorcycle they were riding was struck by a car. The plaintiff suffered physical injuries that included severe permanent brain damage. Her friend was killed. When the plaintiff was informed of the death some time later, she suffered nervous shock. It is unclear from the brief case report just how much time did elapse before the plaintiff found out what had transpired. However, one can infer from the severity of the plaintiff's injuries that it would have been at least a matter of days before she was *compos mentis*. In awarding damages, the court very sensibly made no attempt to sever that part of the
consequences caused by the report of her friend's death from that caused by her own physical injuries.

The following cases are illustrative of those in which the plaintiff narrowly escapes being injured, while the third-party actually suffers harm.

In *Howes v. Crosby*, the plaintiff mother was walking along the shoulder of a road holding her young daughter's hand when the girl was struck from behind by a car driven negligently by the defendant. The brother and sister of the victim were also walking with their mother and witnessed the accident. The father came to the scene immediately afterwards and attempted to give mouth-to-mouth resuscitation to his child. Unfortunately, the young girl died. The entire family sued and recovered damages for nervous shock.

The case of *Behrens v. Bertram Mills Circus Ltd.*, is memorable because of the bizarre setting in which the events occurred. The plaintiff and his wife were midgets on display at a funfair adjacent to a circus when, owing to the negligence of the defendant, a number of the circus elephants were startled by a dog and ran loose, knocking over the booth in which the plaintiff and his wife were situated. The plaintiff's wife was seriously injured by the falling parts of the booth. The plaintiff himself was uninjured. However, he suffered nervous shock as a result of his narrow escape and seeing his wife injured, and was awarded damages.
Finally, in *Walker et al v. Broadfoot*, one of the plaintiffs, Mrs. Lamb, was driving a car in which her husband was a passenger. Owing to the negligence of the defendant, the plaintiff's car was hit from behind, pushed onto the railroad track and struck by a passing train. The plaintiff's husband was killed in the accident and two other occupants of the vehicle were injured. Although the plaintiff herself was not injured, she suffered nervous shock as a result of witnessing her husband's death. She lapsed into a severe depression and had to be admitted to a mental hospital. Just over a year after the accident, the plaintiff committed suicide. Her estate's claim for damages for nervous shock was sustained.

This case makes an interesting contrast with *Wright Estate v. Davidson* discussed earlier. In the latter, nervous shock leading to suicide was held not to be a foreseeable consequence of a motor vehicle accident in which the plaintiff was the sole victim and suffered a whiplash injury. The explanation for the discrepancy is clearly to be found in policy, not principle. Both claims are similar in that they arose out of motor vehicle accidents. Furthermore, Mrs. Lamb whose estate sued successfully was not physically injured, whereas the unfortunate victim in *Wright Estate* was, albeit slightly. But the reality is that whiplash cases are a dime a dozen, while fatal accidents in which someone sees a spouse killed are relatively rare. Not surprisingly, the law is prepared to find a plaintiff's suicide foreseeable in the latter case, but not the former. For policy
reasons, the seriousness of the incident has to be used as a means of drawing the line.

The seriousness of the incident alone is not sufficient to ensure that a plaintiff will recover damages for nervous shock. The plaintiff must prove that the shock she suffered was caused by her own injuries or witnessing (and in some cases hearing about) those sustained by a third-party victim. In Rowe v. McCartney, the plaintiff was the owner of a car that she reluctantly permitted her friend to drive. The friend lost control of the car and it ran off the road and hit a telephone pole. As a result of the accident, her friend was rendered a quadriplegic and the plaintiff suffered less serious physical injuries. The accident was caused solely by the negligence of the plaintiff's friend. Nevertheless, the plaintiff blamed herself. Her feelings of guilt for having permitted her friend to drive the car developed into depressive neurosis. Her claim for nervous shock was dismissed because her symptoms were caused by holding herself responsible for the accident, not by the psychological impact of her own injuries or those of her friend.

In cases with multiple victims it is extremely difficult for the court to decide to what extent the nervous shock was caused by the plaintiff's own injuries and to what extent it was caused by those of the third-party victim(s). However, a precise apportionment is not critical where what happened to the plaintiff would in and of itself support a claim. By the same token, the element of $P(R)$ is not an essential ingredient of the
cause of action in circumstances where the plaintiff is a *bona fide* immediate victim. Of course, without it, a third-party victim's injuries cannot be taken into consideration as an aggravating factor that will increase damages.

Where the plaintiff is not an immediate victim of the shocking event, making out a case of nervous shock becomes more difficult. Satisfying the elements of $P(R)$ and $P(E)$ becomes of primary importance. Before moving along to consider how these elements are established in the bulk of nervous shock cases where the plaintiff is not also a victim, we shall first look at a rather anomalous aspect of the law of nervous shock that sits like a small eddy outside the mainstream.

The aspect in question is shown in Figure 1 as the far right-hand leaf of the "harm" element labelled "false news". As we shall see shortly, the current status of this particular area of the law of nervous shock is a trifle dubious. Nevertheless, let us review the law as it developed and see where it stands now.

The first case in which a court found that the facts were capable of supporting a claim for nervous shock caused by receiving false news was *Barnes v. Commonwealth of Australia*. An employee of the defendant government agency negligently wrote a letter to the plaintiff erroneously stating that her husband had been admitted to a mental asylum. Upon receiving the letter, the plaintiff suffered nervous shock. The defendant attempted to have the statement of claim struck for failing to disclose a cause of
action. The court held that the alleged facts did constitute a valid cause of action and refused to strike out the statement of claim. The persuasive force of this case is limited because it was a ruling on a preliminary motion, not a final decision on the merits.

The court in *Barnes v. Commonwealth of Australia* relied heavily on the reasoning in the then recent case of *Bunyan v. Jordan*,\(^7\) in which a claim for nervous shock caused by a false statement had been denied. In the latter case, the defendant employer was intoxicated and threatened to kill himself or shoot someone. The plaintiff employee overheard this remark that was made inside the defendant's office to another person. The plaintiff also saw the defendant handling a loaded revolver. The person to whom the remark had been made repeated it to the plaintiff. Shortly afterwards, the defendant left his office and the plaintiff heard a gunshot. The shot appeared to come from the adjoining building to which the defendant had gone. Although her employer emerged unharmed and no injuries were suffered by anyone else the plaintiff suffered nervous shock as a result of the defendant's behaviour. The plaintiff alleged symptoms of shakiness and nervousness for six months. The court found no evidence that the plaintiff, at any time, apprehended any personal injury to herself. Her claim for recovery was denied.

In arriving at its decision, the court made much of the fact that the defendant was not charged with the duty of conveying information to the plaintiff. Had that been the case, then a
duty to ensure its veracity would have existed. The court in *Barnes* seized upon this distinction which put the civil servant's letter containing false information on an entirely different footing.

Another basis for drawing a distinction between the two cases is that the defendant's threat to shoot himself in the case under consideration was not made directly to the plaintiff. Had it been, of course, that would have taken the case out of the realm of negligence and made it a deliberate act. Whether or not that would have made a difference to the plaintiff's chances of success is doubtful, though. We have already examined several cases in which the courts found that deliberately telling a false story that caused nervous shock was enough to warrant an award of damages. However, those cases are distinguishable because the supposed harm described in the stories affected the plaintiffs themselves or their loved ones. Here the defendant himself was the object of the suicide threat. Furthermore, the personal connection of employer/employee that existed between him and the plaintiff was not a close one.

Even if a close connection had existed between the plaintiff and defendant, that would probably have made no difference. People involved in stormy personal relationships not infrequently tell their nearest and dearest that they intend to kill themselves, especially when they have been drinking and are wallowing in self-pity. The police are routinely called by people to whom the threats have been made to intervene and prevent the threat from
being carried out. Many years ago, when I was an RCMP officer, I responded to such a call and walked into a house after getting no response to my repeated knocking. I thought that the occupant had made good on a suicide threat that he had telephoned to his estranged common law wife who had reported the matter. I entered the premises to find a man cradling a loaded .303 calibre rifle that was pointed directly at me. Luckily, he was in such an advanced state of intoxication and I was able to remove the weapon from his grasp before he had time to react to my sudden appearance. Usually, these threats of suicide are made as attention-getting ploys. Sometimes, however, they are for real and, presumably because they feel they have nothing to lose, the would-be suicides take other people with them - like police officers who are trying to help, for instance.

Occasionally, people will go one better than making a threat and fake their own suicides. They do this so that they can run away from a situation that has become intolerable to them and make a fresh start. They usually leave a suicide note and set things up to make it look as though they have killed themselves. A favourite way of doing this is by leaving clothing and personal effects at the edge of the ocean or a deep lake because the bodies of drowning victims are often never found. Sometimes these people are discovered years later living new lives under an assumed name, much to the consternation of their former families.

Threatened and simulated suicide are obviously very distressing to the loved ones of the desperate person. That they will suffer
nervous shock certainly is a likely result. However, common sense dictates that the courts are not going to award damages where the plaintiff will profit from the misdeeds of a loved one who was the supposed victim. Although a loved one must clearly be the object of the phoney suicide threat, they must also be blameless. The false story about the suicide must be either deliberately fabricated or negligently disseminated by a third-party. We have already seen from the case of Bielitzki v. Obadisk\textsuperscript{72} that a false report of a supposed suicide is enough to support a claim for nervous shock. Whether a false report of a suicide threat alone would suffice is debatable.

The only Canadian case in which damages have been awarded for nervous shock caused by a negligently made false statement is Daley Estate v. Daley Brothers Ltd.\textsuperscript{73} In that case, the plaintiff was negligently and erroneously informed by the defendant that she no longer owned a piece of land. As a result of the news she received, she suffered nervous shock and recovered damages.

The Daley Estate case is of questionable force and effect because of the Supreme Court of Canada's earlier decision in Guay v. Sun Publishing Co.\textsuperscript{74} The latter case casts doubt on whether a cause action for nervous shock based on a false report actually exists. The defendant newspaper negligently published an erroneous story that the plaintiff's family had been killed in an accident. The plaintiff read the story and suffered nervous shock as a result. The court split right down the middle in its decision. Kerwin J.
and Locke J. held that no cause of action would lie for a negligent statement resulting in nervous shock. Cartwright J. and Rinfret C.J.C. held that a cause of action would so lie and found the defendant in this case in breach of its duty to take care. Estey J. sidestepped the issue entirely. He found it unnecessary to decide whether or not a duty of care would lie regarding negligently made statements resulting in nervous shock, as the plaintiff failed to prove damages. Estey J.'s judgment was the tie-breaker that led to the plaintiff's claim being dismissed. However, although that effectively disposed of the case before the court, it left open the question of whether or not a cause of action lies for negligently disseminated false news. That issue has yet to be definitively resolved. As things stand, the best one can say is that a claim for nervous shock based on a false report may have no better than a fifty-fifty chance of success.

Thus far we have looked at shock-producing incidents involving plaintiff victims and multiple victims. We have also examined the rather odd group of cases concerned with false reports. Now it is time to look at the most common kinds of nervous shock cases; namely, those in which third-parties are the only immediate victims of the incident and plaintiffs either witness it or are in some way exposed to its after effects. In these more mainstream cases, the crucial elements of \( P(R) \) and \( P(E) \) must be satisfied for the plaintiff to recover.
However, we cannot leave the element of harm and move on before noting that the extent of the harm suffered by a third-party victim affects what needs to be established to satisfy $P(E)$. This interdependence between the two elements is probably best dealt with right away under this heading. Although this means getting ahead of ourselves briefly and then backtracking, it is less clumsy than putting the issue in abeyance and coming back to it later in the context of $P(E)$ after we have worked our way through the intervening element of $P(R)$.

Some incidents are shocking to witness, but they do not leave residual effects that are also shocking. That being the case, a plaintiff who does not actually see the incident happen will not satisfy the element of $P(E)$. Duwyn v. Kaprielian (Mother)\textsuperscript{75} is a case in point. The defendant negligently backed his car into a parked car in which the plaintiff's infant son and grandmother were seated. The defendant dented the parked car and shattered glass fell into the interior. No physical injuries were sustained as a result of the accident. The plaintiff mother of the infant was in a nearby building at the time of the accident. Upon hearing the commotion, she came out to see people gathered around the vehicle and hear her baby screaming. The child was hysterical and the mother was unable to comfort him. She suffered nervous shock, but her claim was dismissed.

The rationale for denying the mother's claim in Duwyn v. Kaprielian is essentially the same as in the Saskatchewan case of Abramzik v. Brenner\textsuperscript{76} where, you will recall, the traumatized
plaintiff simply received news of her children's death. The basic proposition is that a plaintiff who has insufficient exposure to a shocking event, for whatever reason, will not recover. The result will be the same whether the plaintiff does attend the scene, but the event causes a risk that leaves no particularly shocking traces, or whether the event is more serious than that but the plaintiff merely hears about it. Either way, the law demands that the plaintiff have some acceptably shock-inducing exposure to the event or its gruesome aftermath.

Abramzik v. Brenner has been consistently followed by courts right across Canada. The leading B.C. case to do so is Dietalbach v. Public Trustee. The plaintiff's husband was the sole occupant of a car which was involved in an accident caused by the negligence of the defendant. He sustained serious injuries that caused a marked personality change. The plaintiff suffered nervous shock upon learning of her husband's injuries. In dismissing the claim, Kirke Smith J. cited Abramzik v. Brenner as the basis of his decision.

If the infant in Duwyn v. Kaprielan had been injured in some way, even slightly, when the mother came upon the scene, the outcome of the case would have been different. The English case of Boardman v. Sanderson that was cited above supports this contention. That was the case in which the young boy's foot was trapped under the wheel of a car that had backed over it. The victim was only slightly injured by the mishap. However, perhaps
more significantly, his foot was still trapped beneath the wheel when the father rushed to the scene in response to his son's screams. The event was still ongoing, therefore, when the plaintiff, who suffered nervous shock as a result of the incident, attended the scene. The plaintiff's claim was allowed.

A comparable conclusion had been reached earlier by a Canadian court in Pollard v. Makarchuk. The plaintiff mother suffered nervous shock when she saw her daughter thrown out of her car when it was involved in an accident. The daughter's body came to rest very close to the wheel of another vehicle and the mother mistakenly believed that her daughter had died. As it happened, the daughter had only suffered superficial injuries. Nevertheless, the mother recovered damages for nervous shock caused by having witnessed the incident.

Looking at the harm element in Figure 1, the cases we have just analyzed make it clear that where the immediate victim of an incident falls into the categories of "risk of injury" or "minor injury - lucky escape", the element of $P(E)$ can only be satisfied by the plaintiff's presence at the scene at the event is unfolding.

The time has now come to turn our attention to the key element of $P(R)$. 
d. "Relationship"

The element of \( P(R) \) is shown in figure 1 as "relationship of plaintiff to victim" so that the diagram will be comprehensible at a glance. However, for the sake of convenience, when referring to this element, we shall continue to use the terser expression.

In cases where the plaintiff is not also an immediate victim of the shocking event, the law requires that a close relationship exist between them and the third-party victim before damages will be awarded for nervous shock. Apart from a public policy exception the law makes to encourage rescuers, plaintiffs cannot successfully sue for nervous shock they have suffered as a result of something unfortunate that befalls a stranger. People are expected to display the "customary phlegm" when it comes to the misfortunes of those who are not near and dear to them, to use the rather antiquated British expression that was first coined in *Hay (or Bourhill) v. Young* by Lord Porter and has been repeated frequently in subsequent cases. The passage from which the words are taken is one in which His Lordship summed up the situation with respect to strangers as follows.

"The driver of a car or vehicle even though careless is entitled to assume that the ordinary frequenter of the streets has sufficient fortitude to endure such incidents as may from time to time be expected to occur in them, including the noise of a collision and the sight of injury to others, and is not to be considered negligent towards one who does not possess the customary phlegm."\(^{80}\)
Not only do these sentiments smack of the stiff-upper-lip attitude that the British are renowned for, but also they are clearly dictated by a policy that aims at drawing a line beyond which damages will be deemed to be too remote. The policy does not reflect reality. Perfectly normal people are quite likely to suffer nervous shock because of something awful that happens to a total stranger. The rescuer exception that the law allows constitutes a tacit recognition of this fact. The likelihood of nervous shock setting in is undoubtedly far greater when a loved one is the victim of an accident. Nevertheless, even though for its own purposes the law may consider such a reaction an unacceptable frailty when it comes to strangers, that is simply a convenient legal fiction.

Since rescuers are a clear policy exception to the general requirement of $P(R)$, it is probably just as well to get them out of the way first. The leading case on the subject of rescuers is *Chadwick v. British Railways Board*. Following a train collision near his home, the plaintiff voluntarily took an active part in rescue operations at the scene. The accident claimed ninety lives. Many other people were seriously injured and trapped in the wreckage. The horror of the plaintiff's experience of dealing with the mayhem brought on a prolonged and disabling anxiety neurosis which required hospital treatment. His claim for the nervous shock he had suffered while participating in the rescue efforts was allowed.
The later Australian case of Mount Isa Mines Ltd. v. Pusey\textsuperscript{82} can also be construed as a rescuer case, but it is a far less clear-cut example. The plaintiff was an employee of the defendant company. Owing to the employer's negligence, two electricians were horribly burned by an intense electrical arc caused by a short circuit in a powerhouse switchboard that they were testing. The plaintiff, who was working in the vicinity of the accident, heard a loud noise and hastened to the area. He saw the victims, blackened and naked, and assisted one of them to the ambulance. The man the plaintiff helped died nine days later. The plaintiff initially seemed unaffected by the tragedy and was able to continue to work normally for some time. However, about a month later, symptoms of nervous shock began to appear. Eventually, the plaintiff developed a schizophrenic condition. The court permitted recovery because the plaintiff had suffered shock as the result of coming to the assistance of a fellow worker.

The Mount Isa Mines case is open to different interpretations. One way of looking at it is to classify it as a rescuer case. On its face, it does seem to fit into that category. Therefore, it should certainly be categorized in that fashion in the casebase of the KBS. You will recall that a central precept of this thesis is that every plausible interpretation of a case in a domain should be specifically represented so that no possibility gets overlooked and thereby limits the use that can be made of the case when making legal arguments.

However, when one analyzes the case more carefully, a more plausible interpretation suggests itself. Although the plaintiff
acted commendably by rendering assistance to his injured workmate, to call what he did a rescue would be stretching the meaning of the word unduly. The extent of the assistance rendered by the plaintiff was to put his arm around the victim and help him walk down a flight of stairs to an ambulance. If that is a rescue, it is a pretty minimal one. Significantly, the court did not use the word "rescue" anywhere in its judgment. Instead, it consistently referred to the plaintiff's actions as "assistance". Judges weigh their words carefully. If they had thought what the plaintiff did amounted to a rescue, they would certainly not have hesitated to call it such. The only reasonable conclusion to draw from this omission is that it was deliberate. They steered clear of using the word because they felt that it was inappropriate.

The court's failure to mention Chadwick v. British Railways Board bolsters the argument. The English case was decided three years before Mount Isa Mines, yet the court made no reference to it. To suggest that the High Court of Australia was unaware of the leading Commonwealth authority on rescuers would be ridiculous as well as insulting. If the court did not mention Chadwick, presumably it did not do so because it did not feel that the case applied to the facts before them.

The inescapable conclusion to be drawn from all of this is that the key factor in the court's decision was the relationship of workmate that existed between the plaintiff and the victim. As far as the court was concerned, it was foreseeable that a fellow
worker would come to the assistance of an injured colleague and suffer nervous shock as a result of being exposed to the victim's injuries. In other words, the court placed the emphasis on the relationship rather than the assistance that was given. That takes the case out of the category of rescuer. The whole point about rescuer cases is that the courts waive the relationship requirement on public policy grounds so that strangers can recover damages for nervous shock. In Mount Isa Mines the relationship of co-worker played a major part in the outcome of the case. In effect, it had to, given tenuous basis for characterizing the plaintiff's role as that of a rescuer. The court would have been on much shakier ground if it had based its decision solely on the plaintiff's behaviour in assisting the plaintiff and the relationship of co-worker had been ignored.

In light of the foregoing, the Mount Isa Mines case should also be explicitly represented in the casebase of the KBS as one in which the relationship of workmate was the decisive factor. Australian men are well-known for the importance they attach to their relationships with their "mates". Indeed, these often seem to take precedence over the other relationships in their lives, often to the annoyance of Australian women. The case may represent an Australian cultural bias that accords unusual importance to relationships that develop in the workplace; call it a "mateship principle", if you like.

Another Australian case that we have already discussed in another context viewed Mount Isa Mines as being primarily concerned with
the issue of relationship. In Kohn v. State Government Insurance Commission, Bray C.J. made this quite clear when he said the following.

"It is not necessary that the plaintiff should have been the spouse, child or parent of the deceased: Mount Isa Mines Ltd. v. Pusey, per Windeyer J. at pp. 95-96. That was a case where the shock was caused as a result of the plaintiff seeing the dead bodies of his workmates. But once the extension has been made outside the family in such a case, I see no reason why a corresponding extension should not be made to cover reported deaths caused in the same accident, now that such an extension has been allowed in the cases of spouses and children." [Emphasis added].

Bray C.J. misstated the facts of Mount Isa Mines. The victims were not dead when the plaintiff came to their assistance; they were seriously injured. Nevertheless, the point is still valid. The plaintiff's shock was caused by seeing the condition "of his workmates". Whether they were dead or hideously injured is neither here nor there.

One rather obscure English case with a curious twist to it deals obliquely with the workmate relationship. In Galt v. British Railways Board, the plaintiff was a train driver who had a heart attack from nervous shock when he nearly hit two fellow railwaymen. The train was rounding a bend when the plaintiff saw the men on the track only 30 yards away. It was too late to stop the train and the plaintiff thought that he had killed both men. Fortunately, they managed to get out of the way in time and were uninjured. The court attributed the men's presence in harm's way to the employer's negligence and allowed the plaintiff's claim for damages.
If the men on the track had been trespassing members of the public rather than fellow employees of the plaintiff's, the defendant would presumably have been blameless in the circumstances. The defendant could only be expected to exercise control over its own employees. By allowing them to be at that dangerous location on the track, it was reasonable to expect that another railway employee driving a train might come along and nearly hit them. The expectation is as reasonable as the one in *Mount Isa Mines*; namely, that other employees will come to the aid of an injured co-worker.

Curiously enough, in *Galt v. British Railways Board*, at the time of the incident, the plaintiff had no way of knowing who the people he thought he had killed were. For all he knew, they could have been anybody. The shock he suffered had nothing to do with their being fellow workers. He only found that out later. However, regardless of the plaintiff's subjective state of mind, the objective fact that the men were fellow employees made all the difference to the outcome of the case. The *Mount Isa Mines* case suggests that no personal relationship need actually exist between the workers. The relationship, such as it is, is really a matter of common status. The plaintiff in that case was not even acquainted with the man he rushed to help.

Another way of thinking about the workmate relationship is as a shared activity. The class of persons engaged in that common activity have a relationship that does not rely for its legal validity on the bonds of affection that usually exist in
relationships. *Dooley v. Cammell Laird & Co.*, the case we saw earlier in which a load of cargo fell from a defective sling into the hold of a ship, fits nicely into the analysis. We analyzed the case initially in terms of the plaintiff's proximity in time and space to the shocking event. However, it is also a case in which the plaintiff suffered shock because of his apprehension for the safety of his fellow workers. In order to make shock-inducing accidents that occur in the workplace fit into the rest of our conceptual framework, it is more convenient to think of them in terms of $P(R)$. However, they are relationships that will only satisfy that key element if the accident happens in the course of work. A plaintiff who saw a workmate injured in an accident outside the workplace would not have a valid claim for nervous shock.

Another English railway case seems to muddy the waters even further. The case is primarily a rescuer case. However, on another possible reading, it arguably widens the ambit of recovery to include non-workers as legally related victims as long as it is the work activity that causes them injury. In *Wigg v. British Railways Board*, the case in question, the victim was a member of the public who got killed by a train. The victim attempted to board the train as it moved off by entering through a carriage door that had been negligently left open. He hung onto the door handle and was dragged along the platform for some distance before falling between it and the moving train. The train was brought to a stop by its emergency brakes after it had travelled only a few carriage lengths. The train driver
plaintiff got off the train and searched the track to see what was amiss. He discovered the fatally injured victim lying beneath the train. Mistakenly believing that the victim was still alive, the driver remained beside him for at least ten minutes comforting him until emergency assistance arrived. Nervous shock set in while the plaintiff was still at the scene. According to a witness, he began to tremble visibly. A North American lawyer with a black sense of humour might be tempted to say that Mr. Wigg wigged out.

The court held the defendants vicariously liable for negligence because their employee, the guard, should have noticed that the carriage door was open and secured it before giving the engine driver the signal to pull away. The court specifically stated that the plaintiff could be described as a rescuer and would be entitled to recover on that basis. However, it went on to add that the nervous shock that the plaintiff suffered was reasonably foreseeable in any event. That little afterthought opens the case up to a second possible interpretation.

First and foremost, of course, Wigg v. British Railways Board is a rescuer case. Yet even that primary characterization is worth examining more closely because it raises an interesting question; namely, how much does a person actually have to do to qualify as a rescuer? Mr. Wigg's rescue efforts did not go beyond offering words of comfort to a victim who was already dead at the time, although the plaintiff did not realize that. Nevertheless, the court specifically found that the plaintiff's presence would have
been of great support to the victim, had he remained alive. If what Mr. Wigg did was enough to put him in the rescuer category, we may have to re-think our earlier skeptical view of the Mount Isa Mines case's qualifications as a rescuer case. The law's desire to encourage rescuers seems to dispose the courts to accept the most minimal efforts on a would-be rescuer's part. By assisting the burn victim to an ambulance, the plaintiff in Mount Isa Mines did substantially more than Mr. Wigg did. Arguably, then, a person need only go to the scene of a serious accident and attempt to render whatever assistance they are capable of giving in order to qualify as a rescuer.

The second possible interpretation of Wigg v. British Railways Board is that anyone upon whom the work activity impinges so as to cause them negligently inflicted injury will be deemed to be within the range of $P(R)$. Of course, that more expansive interpretation is unnecessary to explain the outcome in the particular case. But it does raise some interesting possibilities. For instance, what if the people on the track in Galt v. British Railways Board had been members of the public instead of fellow employees of the driver and their presence in the danger zone was somehow attributable to the negligence of the railway? There would be no justification for allowing the plaintiff train driver to recover damages in one case and not the other, given that he did not find out the identity of the near victims until after he had already suffered shock.
Our discussion of rescuers has led us to conclude that Mount Isa Mines may not be a rescuer case at all. An in-depth analysis points to the workmate relationship as having been the decisive factor in the case. We saw that the court in Kohn v. State Government Insurance Commission took a similar view of the case. We also found support for this interpretation by going further afield and looking at several other cases in which the workmate relationship played a decisive role.

Putting the Mount Isa Mines case under a microscope took us on a slight detour into the realm of the workmate relationship. As we have seen, that kind of relationship is exceptional because its legal efficacy is inextricably tied to the activity that gives rise to it. Whether Canadian courts would recognize its validity is doubtful. For that reason, it is not shown as an acceptable type of relationship under the P(R) portion of the diagram depicted in Figure 1. Since the workmate relationship lies on the fringes of legitimacy, it is probably appropriate to have disposed of it as a sidelight before getting into the more substantial types of relationships.

Now let us get back on the main track and wrap up our discussion of rescuers by identifying one type of rescuer who will almost certainly not succeed in recovering damages for nervous shock: the professional rescuer. Members of the emergency services - police, firemen and ambulance attendants - are expected to engage in rescue efforts as part of their duties. They are constantly being confronted with the gruesome results of accidents of one
kind or another. Most become hardened through experience. Occasionally, a particularly hideous incident, such as a large plane crash in which dozens of victims are either dismembered or burned beyond recognition will be too much for even a seasoned veteran to handle. However, even if they do suffer nervous shock, the best they can hope for is some form of worker's compensation payment because their injury was work-related. To allow this special class of people recourse against the negligent party would be contrary to public policy. These people do not need the encouragement of the law to become rescuers as laypersons do. That is what they are paid to do, in part, at least.

We have seen that, as a rule, plaintiffs cannot recover damages for nervous shock induced by harm inflicted upon a stranger. The notable exception that the law allows on policy grounds is in cases where the plaintiff was acting as a rescuer. Otherwise, the element of \( P(R) \) must be satisfied in some fashion. The iffy workmate cases have been touched on in passing. The way is now clear to get into the nitty-gritty \( P(R) \) cases.

The most solid \( P(R) \) cases are those which fall under the "close relative" category shown in Figure 1. Of those, the strongest bond is undoubtedly the parent/child relationship. Next in strength comes the husband/wife relationship. All those relationships are shown as leaves of the "close relative" branch of the tree diagram. The husband/wife relationship has been rolled up into the single category of "spouse". Although the
parent/child relationship outranks the husband/wife relationship in closeness, that makes no practical difference. The extra closeness is overkill. Spouses are equally certain to recover damages for nervous shock, all other things being equal. There is absolutely no point in citing any more cases to prove the validity of these core relationships. They have figured prominently in the cases we have already discussed for other reasons.

The brother/sister relationship shown under the generic heading of "sibling" is weaker than the others in the "close relative" category. However, the courts have recognized it as being close enough. We saw in Howes v. Crosby that when the young girl walking along the shoulder of a road was struck from behind by a car and killed, not only the parents, but also the brother and sister of the victim recovered damages for nervous shock.

The leading British Columbia case on the adequacy of the sibling relationship is Cameron v. Marcaccini. The plaintiff, her sister and her young niece were riding in a motor vehicle which was negligently struck by the defendant. The plaintiff witnessed her sister bleeding profusely while pinned in the wreckage of the car. The plaintiff sustained her own injuries but was able to accompany her sister to the hospital and attend to her in the ambulance. The plaintiff was informed that her sister had died shortly after treatment in the hospital. The plaintiff recovered damages for the nervous shock sustained by witnessing the condition of her injured sister at the accident scene,
accompanying her in the ambulance, and being informed of her death at the hospital.

That covers the "close relative" branch of the relationship tree. The adjacent branches that remain to be considered are "live-in" and "fiancé(e)". Both are leafless terminal nodes. The "live-in" category is intended to encompass those intimate relationships in which the parties cohabit. The term "common law" is often used to describe such relationships. However, its use here has been avoided because it invariably connotes a heterosexual relationship. The more neutral term "live-in" has been chosen because it is broad enough to include homosexual relationships. If the degree of intimacy is comparable, in principle there is no reason to discriminate between the two of them.

We shall begin with the fiancé(e) relationship because there are no cases that deal with a live-in situation. The logic for including the live-in category is simple. If the courts allow fiancé(e)s to recover damages for nervous shock, then a fortiori they should allow live-ins to recover because the latter relationship is the more intimate of the two. What will now be said about fiancé(e)s can therefore be generalized to apply equally to live-ins.

The most venerable authority that deals with the fiancé(e) relationship is the old Scottish case of Currie v. Wardrop. The plaintiff and her fiancé were walking arm-in-arm along the
side of a road. The fiancé was closest to the edge of the road. An omnibus came up behind the couple and struck the fiancé, knocking him to the ground and seriously injuring him. The plaintiff was apparently not struck directly by the bus. However, she fell to the ground as well, probably because her injured fiancé was pushed into her by the force of the impact. She received some minor bruises and suffered nervous shock. The plaintiff recovered damages for nervous shock caused both by her apprehension for her own safety and witnessing her fiancé's injuries.

The nearest modern equivalent to *Currie v. Wardrop* is *Kohn v. State Government Insurance Commission*, an Australian case we have already mentioned several times in different contexts. In the latter case, the plaintiff was deeply attached to the other victim who was killed in the accident and hoped to marry him. In effect, they were informally engaged. Had they been going out together 50 years earlier in the more straitlaced era when *Currie v. Wardrop* arose, chances are that their arrangement would have been formalized — especially if they had lived in the stifling atmosphere of Calvinist propriety that prevailed Scotland. Nowadays a lot of people do not even bother to get formally engaged. However, if a *de facto* engagement can be said to exist, that should be enough on the authority of these two cases to establish the necessary element of $P(R)$.

In romantic relationships, the big issue is this: If marriage is not in the offing, just how close does the relationship have to
be for \( P(R) \) to be satisfied? At this point, things start to get murky.

The most pertinent case on the issue is Rowe v. McCartney. It was cited earlier in support of the proposition that the seriousness of the third-party's injuries alone is no guarantee of recovery. The plaintiff must satisfy the court that the nervous shock was caused by witnessing those injuries. The court concluded that the shock was brought on by irrational guilt feelings that the plaintiff experienced for allowing her friend to drive the car, not by being exposed to his injuries. That was the reasoning used to deny the claim. However, reading between the lines, another interpretation is possible.

The alternative interpretation of Rowe v. McCartney is that the underlying reason why the court dismissed the claim was that the relationship between the plaintiff and the third-party victim was not close enough. Let us begin by looking at a brief summary of the facts as presented by Glass J.A.

"At about 2.30am, on 10th September, 1971, a group of six persons, including the plaintiff and the defendant set out from the Drummoyne Rowing Club. The plaintiff was the owner of the vehicle. The defendant asked the plaintiff to be allowed to drive. The car was a powerful one with which he was unfamiliar, and she hesitated before giving permission. She had doubts whether the defendant was capable of controlling the car in the adverse weather conditions that then existed. She gave permission upon his undertaking that he would drive carefully. Shortly thereafter the vehicle skidded across the road and struck a telephone pole. As a result of his injuries, the defendant became a quadriplegic."
That short statement of facts is more revealing than the reasoning that the court used to justify its decision. First, look at the time of day. The accident happened in the early hours of the morning. A group of people had spent time together at a rowing club. They were obviously not rowing at that hour. If the rowing club bears any resemblance to the one on Coal Harbour at the entrance to Vancouver's Stanley Park, these people were socializing, having a good time, partying, call it what you like. Sporting clubs the world over have bars in them and people who frequent them are not noted for their abstemiousness. It would be naive to suppose that the group was not drinking. The lateness of their departure suggests that they may have lingered until closing time and shut the bar down.

Judges may render their decisions in the formal language of the law, but they are as human as anyone else. When assessing a set of facts, in addition to the evidence before them, they rely on their own life experience to assist them in drawing conclusions about what really happened. Although the court is silent on the issue, the judges probably suspected that the accident was at least partially alcohol-related. However, the lack of formal proof on that issue would have precluded them from coming right out and saying so in their judgements. Nevertheless, their gut feeling about what really happened would have been weighed in the balance and affected the way in which they ultimately disposed of the case. Judges will discuss their gut feelings about a case frankly with colleagues and trusted advisors in the privacy of their chambers. People who deny that this sort of behind-the-
scenes evaluation process goes on are kidding themselves and being very naive about how the justice system works. Of course, in cases where private assessments of what went on affect the outcome, judges have to rationalize their decision some other way. Judgments are for public consumption and must not transgress the rules of evidence. However, judges are perfectly capable of making their decisions appeal proof by steering clear of factors that may have swayed their decisions, but cannot be officially acknowledged.

A likely scenario in *Rowe v. McCartney* is easy to imagine. The female plaintiff had a hot car that her male friend wanted to take for a spin. She protested because he had been drinking. The thought of him driving in that condition made her understandably nervous. He was pressing and persistent as people are wont to be when they have had a few drinks. Reluctantly, she gave in, but made him promise to be careful. He promised, probably in the perfunctory and slightly irritated manner of people who are obliged to make a concession to get their way. He wanted to impress her with his skill at the wheel. Unfortunately, his faculties were impaired by the alcohol he had consumed. He pushed his luck, lost control of the vehicle and wound up in a wheelchair for the rest of his life. The story has a familiar ring to it. With depressing regularity, we hear similar stories that end tragically.

Nowhere in the judgment do we find any mention of the plaintiff's relationship with the defendant. We know from the recitation of
facts that it was a male/female relationship that existed in a social setting. We can surmise that it was a relatively casual one. There may have been some romantic element to it, we simply do not know. Had the relationship been closer, that fact would have been the subject of comment in the judgment, given the importance of $P(R)$ in these cases. The court's failure to mention the relationship at all allows us to infer that it was not strong enough be worthy of serious consideration. However, that is not to say that the absence of a legally significant relationship did not play a negative role in the outcome of the case by militating against recovery. If a stronger bond had existed between the plaintiff and the defendant, the court might have viewed the plaintiff's psychological reaction to the accident in an entirely different light. Instead of characterizing her response as illogical and neurotic, the court might have found it to be perfectly natural if she had been more intimately involved with the defendant. Therefore, on an analysis of the facts, Rowe v. McCartney can properly be categorized as a case in which the absence of a close relationship between the plaintiff and the third-party victim was a key factor in determining the outcome.

So where should the line be drawn when it comes to relationships? What about the other relationships that people develop that are based neither on family nor romantic ties? These can vary in intensity from close friendships to casual acquaintanceships. In absolute terms, these other relationships by far outnumber the family and romantic kind. The simple answer seems to be that
they are not considered close enough to satisfy the $P(R)$ element that the law demands. For that reason, these relationships are not shown as a valid category under the relationship module depicted in Figure 1.

The leading Canadian authority on relationships based on friendship is the British Columbia case of Beaulieu v. Sutherland. The decision is disappointing because, after spending a lot of time assessing the extent of the plaintiff's friendship with the victim, the court cops out in the end and declines to make a ruling on whether the relationship was close enough to bring it within the scope of $P(R)$. Legg J. found that it was unnecessary to decide that issue because he was not satisfied that the plaintiff had proved that she had suffered a recognized mental illness (i.e., nervous shock/post-traumatic stress disorder). The judge clearly chose the neatest way of disposing of the case. However, as will become apparent shortly, when we examine the decision closely, the finding goes against the weight of the evidence and borders on being perverse.

First let us summarize the facts. The plaintiff and her two friends were walking three-abreast along the edge of a road at nighttime. A vehicle driven by the 16-year-old defendant approached them from behind and struck and killed the member of the group who was furthest from the side of the road. The defendant panicked and drove on without stopping. The plaintiff did not actually see the impact. She heard a loud bang, the sound of breaking glass and then noticed the victim's body lying
in the roadway. As her other friend was hysterical, the plaintiff took her to a nearby house and phoned for help. When she returned to the scene shortly afterwards, she saw the victim's body lying in a pool of blood.

The plaintiff claimed damages for nervous shock suffered as a result of witnessing the accident that killed her friend. As indicated above, the claim was dismissed. The court relied on the proposition that grief, sorrow or emotional distress not amounting to a recognized psychiatric illness are not compensable. It held that the plaintiff's case fell into that category. We shall be looking at that particular aspect of the law of nervous shock in detail later when we reach the "damage suffered" module shown in Figure 1. For the time being, suffice it to say that the court's statement of the law was correct, but, on the evidence, its finding that the plaintiff did not suffer nervous shock was highly questionable. Looking at the judgment carefully, one cannot help feeling that the judge chose this finding as the most convenient peg to hang his hat on after deciding in his own mind that the plaintiff's relationship to the victim was not close enough to satisfy the element of P(R). The courts have consistently gone this route and used lack of proof of damages (i.e., no recognizable psychiatric illness) as a justification for denying claims.

Before delving into the question of why the court's finding that no psychiatric illness was proved is suspect, let us consider the plaintiff's relationship to the victim. Dealing with the issues
in this order makes sense given that a prior unvoiced decision on the one appears to have preordained the outcome of the other.

The plaintiff herself regarded the victim as a good friend. The two had met nine months before the accident while both were working evenings as waitresses at a branch of the Royal Canadian Legion. Although the two women were workmates, that relationship was not significant in itself because the accident did not happen in the course of their employment. Had it done so, the case would have been treated very differently, as we have seen from our examination of other cases involving accidents in the workplace. In any event, after work the plaintiff and victim regularly went for coffee together. They also socialized occasionally in addition to that.

The court attached considerable importance to the differences in their ages and family situations. The victim, who was seventeen at the time of the accident, was seven years younger than the plaintiff. She was also single whereas the plaintiff was married with children. The court concluded from these differences in circumstances, and the short duration of the friendship, that the relationship "was not close".

Having come that far, it would have been helpful if the court had bitten the bullet and ruled on whether "not close" meant not close enough for the purposes of $P(R)$. Given the judge's choice of words, that certainly seemed to be the direction in which things were heading. However, at that point, Legg J. baulked.
He let the issue drop and turned instead to consider whether the plaintiff had suffered post-traumatic stress disorder. After a lengthy review of the evidence, he decided that she had not. He returned briefly to the issue of relationship only to decide not to decide it in these tantalizing words.

"In view of my finding that the plaintiff did not suffer a recognized mental illness, it is unnecessary for me to consider whether there was a sufficiently close relationship between the plaintiff and the deceased to give rise to a duty of care being owed to her by the defendant. I therefore refrain from considering the applicability of the pronouncements of the House of Lords in McLoughlin v. O'Brian, supra, and particularly the reasons of Lord Wilberforce at p. 304 on whether existing law recognizes the claim of a person in the position of the plaintiff who stood in the relationship of a good friend to the deceased. I think the matter must be left open whether it be viewed as a matter of foreseeability or whether it be viewed as a matter of policy. In reaching this conclusion I refer to the observation of Mr. Justice Haines in Marshall v. Lionel Enterprises Inc., [1972] 2 O.R. 177, 25 D.L.R. (3d) 141 at 151 (Ont. H.C.). He noted that the position of the close friend in law is left open."95

Legg J. had a chance to make some new law on the issue of friendship, but he steered clear of it. Interestingly enough, in the above quote he begins by calling the issue one of "duty of care". Then he goes on to say that, in light of McLoughlin v. O'Brian, whether the issue is one of foreseeability or policy is unclear. This flip-flopping back and forth between describing issues in terms of duty of care in one breath and foreseeability in another is fairly typical of the judgments in the domain.

The preponderance of evidence suggested that the plaintiff had indeed suffered post-traumatic stress disorder. A general practitioner and a psychiatrist both testified to this effect.
Another psychiatrist called by the defence disagreed. The court chose to accept the evidence of the defence psychiatrist over that of the other two physicians. The decision to do so was puzzling because the crux of the defence psychiatrist's testimony shows a complete misunderstanding of what can cause post-traumatic stress disorder. The court summed up the essence of the defence psychiatrist's evidence as follows.

"He considered that the hallmark of the post-traumatic stress disorder was that the person complaining of it had to suffer a threat to her own person. He considered that the plaintiff's description of the accident was not the kind of stressor that would produce a post-traumatic stress disorder."96

That, of course, is absolute nonsense. The facts describe a classic textbook case. We have already examined numerous cases in which fear for the safety of others was the stressor that induced the nervous shock, not a threat to the plaintiff's own person. Furthermore, we have already encountered the scenario in which a group of people are walking along the edge of the road and one of them is struck by a passing vehicle. The others routinely recover damages for nervous shock suffered as a result of what happened to the victim. Howes v. Crosby97 and Currie v. Wardrop98 are two cases in point.

Curiously, in this case, nothing was made of the fact that the plaintiff herself narrowly missed getting struck by the vehicle that killed the victim. She and the victim were literally walking side by side. The evidence on this point is quite clear and unchallenged. Legg J. described the relative positions of the members of the group as follows.
"At first the plaintiff was nearest to the traffic and Lisa [the victim] was between the plaintiff and Gloria. But shortly before the accident the plaintiff and Lisa changed positions so that Lisa was nearest to the paved surface of the roadway." [Clarification added.]

On this evidence, the plaintiff would fall squarely into the "risk of injury" category of the "harm" module shown in Figure 1. We have already seen how difficult it is for the courts to determine to what extent nervous shock is caused by fear for the plaintiff's own safety as compared to fear for the safety of some third party in circumstances where the plaintiff is also harmed or endangered. The difficulty of disentangling one factor from the other has led the courts to do the only sensible thing and lump them both together. The bare facts of the case make it seem like a sure-fire winner because of the plaintiff's apparent victim status.

The court ultimately found that the plaintiff did not react as though her own safety had been threatened. However, that possibility does not seem to have been fully explored as part of the plaintiff's case. Courts can only deal with the evidence that is placed before them. It is up to the lawyers to leave no stone unturned in the preparation of a case. With a little probing, it might have been possible to show that the plaintiff could well have suffered nervous shock partially as a result of the threat to her own safety. However, the main thrust of the plaintiff's case was directed towards establishing the plaintiff's reaction to what happened to her friend. Experts cannot be blamed for not focussing on aspects of a case that they are not specifically asked to consider by counsel. Whether or
not those aspects happened to occur to the experts themselves is immaterial. Lawyers must exercise initiative when they are attempting to build a case. Yet the plaintiff's reaction to the threat to her own safety seems to have got completely overlooked. Given the many precedents that show that nervous shock is a plaintiff's typical reaction in roadside collision cases where a third party is the principal victim, the failure of plaintiff's counsel to pursue this possibility more vigorously is puzzling. The oversight may have cost the plaintiff the case. If the shock had been capable of being ascribed in part, at least, to the plaintiff's fears for her own well-being, the element of $P(R)$ would have ceased to be absolutely crucial to the outcome of the case. As it was, as far as the plaintiff's case was concerned, all the eggs were in one basket.

Legg J. summed up his reasons for preferring the defence psychiatrist's evidence in these words.

"After considering the opinions of Dr. Whitman and Dr. Vallance I had concluded that Dr. Vallance's opinion is to be preferred for the following reasons.

The degree of control shown by the plaintiff in reacting to the accident immediately following its occurrence showed that the distress she suffered was not very severe. The period of time during which she experienced nightmares was not prolonged. She did not appear to react as though her own safety was threatened."\(^{100}\)

All these reasons are thoroughly unconvincing. The plaintiff's failure to react immediately means nothing. Delayed reactions to traumatic events are extremely common. Nervous shock often takes a while to set in. The suggestion that the period that the plaintiff suffered nightmares was not prolonged is puzzling.
They lasted for approximately two months. That seems long enough. In fact, the following description of the plaintiff's symptoms taken from the judgment is classic.

"She testified that she was so upset that she did not wish to return to the accident scene and crouched down in the seat of the car to avoid seeing it when her mother drove her home along 96th Avenue later that evening. When she arrived at home she could not eat or sleep on the night of the accident. She testified that she suffered nightmares, lacked energy and could not concentrate. She cried a great deal and suffered depression. She said that she cried on and off all day during the 10-day period immediately following. Her crying spells gradually diminished. She said she did not have total recall. The nightmares persisted for approximately 2 months. She was disturbed whenever she heard the sound of a car motor revving. During the first 2 months following the accident she was unable to perform her household duties. She was unable to return to her work as a waitress."101

The court's one-line summary of the plaintiff's symptoms that only mentions her nightmares (and minimizes them, at that) hardly does justice to what the plaintiff suffered.

Finally, so what if the plaintiff did not react as though her own safety was threatened? The notion that such a reaction is the hallmark of true post-traumatic stress disorder is absolutely fatuous.

In short, the entire judgment seems to be a poorly reasoned rationalization for dismissing the claim on other grounds when the real reason was the lack of a sufficiently close relationship between the plaintiff and the victim. However, rather than break new ground, the court took the easy way out and used the old dodge of making a finding that damages had not been proved.
The analysis outlined above would probably be arrived at by any competent lawyer who dissected the case and gave it some careful thought. However, there is an imponderable in the case that may have affected its outcome; namely, the very different reputations of the two lawyers involved.

J.M. ("Joe") Prodor, counsel for the plaintiff, has a tarnished reputation among members of the bench and bar in the Fraser Valley where this case arose. A lawyer's reputation is his most valuable asset. Once blemished, it is almost impossible to restore.

In marked contrast, senior counsel for the defendant was a highly regarded lawyer and former Provincial Court Judge who left the bench to return to private practice. The case report shows him as "L.J. Bruhaug", but the first initial is in error. It should be an "I" rather than an "L". I.J. ("Ivar") Bruhaug is the only Bruhaug listed as practising in B.C. by the Canadian Bar Association B.C. Lawyers Directory. Besides, I know him personally.

Sometimes the reception a case gets from the presiding judge can be affected by who is presenting it. In other words, it is the singer not the song that can make a difference. If ever there was a case in which, for this reason, the court would be more favourably disposed to the evidence and arguments of the defendant rather than the plaintiff, Beaulieu v. Sutherland is it. A court's tendency to attach more credence to a case because
of the person who is arguing it may operate at an unconscious level. Furthermore, this factor will usually only come into play in exceptional circumstances like those that have been described above.

In ordinary circumstances, personalities play a minor role. Judges may be somewhat more attentive to the arguments of senior counsel whose formidable reputations precede them than to those of relative unknowns, but that is as far as things go. There is nothing sinister about that. It is human nature to lend a receptive ear to someone with a good track record. When all is said and done, cases are evaluated on their respective merits. The heavy hitters are merely guaranteed a responsive audience on the reasonable assumption that what they say will be worth listening to.

In light of all that has been said about Beaulieu v. Sutherland, how should the case be represented conceptually within the casebase of a KBS? The only reasonable solution is to represent it both as a case that fails to satisfy the element of $P(R)$ and also a case that fails because of lack of proof of damages. Ironically, although on the face of the judgement the damages issue supposedly played the decisive role, the case is virtually useless as an authority on that score. The reason is, of course, that, when one looks at the judgment carefully, one can find ample proof that the plaintiff suffered a recognizable psychiatric illness. Many cases have succeeded where the symptoms were far less severe. The real usefulness of the case
lies in its treatment of the friendship issue. Even though the court avoided tackling that issue head-on, we can infer from the way in which it was discussed that the tenousness of the plaintiff's relationship to the victim was the underlying reason for the outcome of the case.

We have also seen from looking at the facts that, objectively speaking, the plaintiff was at risk of injury. In other cases that degree of exposure to danger has been sufficient to qualify the plaintiff as a victim in her own right. However, this case is rather odd in that respect. The court found as a fact that the plaintiff did not react out of fear for her own safety. I have suggested that the court might have found otherwise had the case been presented differently. Be that as it may, the finding that was made must be accepted because it is not open to challenge. That determination leaves no proper basis for categorizing the case as one in which the plaintiff was also a victim who was at risk of injury, for the case could not be used as authority for that proposition.

Without a doubt, the invidious comparison between the reputations of counsel on opposing sides of the case must have tipped the balance in favour of the defence. However, as we decided earlier in the thesis, building personality traits into a KBS is just not a viable proposition.

As a matter of policy, the law clearly favours traditional social relationships that are well-established and easy to define. That
is hardly surprising, given that the law's prime concern is where to draw the line beyond which \( P(R) \) will not extend. Using ready-made, socially sanctioned categories of relationship makes boundaries easy to define. Convenient as that may be, however, the law is typically lagging behind existing social reality. We can hardly pick up a newspaper these days without reading about how society is in turmoil, and how many of its ills are attributable to the breakdown of the nuclear family, and the dissolution of the old bonds of family and community. No one is really sure what is emerging to replace the crumbling relationship structures of the past. But everyone knows that informal and unconventional relationships can be every bit as close as the old institutionalized ones. In the same way, people realize that formal relationships that one might expect to be close can often be stiff and distant. Some parents are not particularly close to their children for a variety of reasons. In some instances, there may even be outright hostility or total alienation. Some spouses barely tolerate one another. They stay married not out of affection, but for reasons of expediency, like the children or joint financial interests that would be a nightmare to unravel.

Fellow workers and rescuers are in a different category because these relationships do not depend on feelings of affection. Nevertheless, they are legally manageable because they are easy to define.
The problem with unconventional relationships is that they are difficult to categorize. When assessing $P(R)$, the courts would have to attempt to measure the actual degree of closeness on a case-by-case basis. The law tends to shy away from having to treat things as special cases. Whenever possible, it likes to group them into reasonably well-defined categories as a means of imposing some order on the world. Otherwise, there would be even less certainty in legal affairs than there is at present. In judgments, one often reads the judicial pronouncement that every case depends on its own peculiar circumstances. Taken at face value, that maxim is misleading. It is trotted out over and again as a justification for distinguishing one case from another. But it definitely does not mean that everything is up for grabs every time a new case comes to trial. We have already seen that precedent is the pillar of our legal system. The law is flexible when it has to be, but at the same time it tends to be innately conservative and resistant to change. Unless the law is confronted with an inescapable need to change, its conservatism predominates. That is why the law is always playing catch-up with social reality.

Chances are that it will be a while before the law abandons its commitment to the established categories of social relationship and comes to grips with the new reality. The current approach should work well enough when it comes to screening out spurious claims by people in conventional relationships who are not really that close to one another. Presumably those people will be unable to show that they suffered genuine symptoms of nervous
shock. Their lack of real closeness should leave them unmoved by the plight of the unfortunate family member who is the accident victim. However, this argument may be flawed if the "customary phlegm" that an unrelated bystander is supposed to possess is nothing but a convenient legal fiction as a number of judges have not hesitated to suggest quite candidly. If that is indeed the case, then a squeamish plaintiff who happens to fall within an accepted category of relationship will recover damages in cases where the relationship to the victim did not really play a part, and the plaintiff would have reacted the same way if the victim had been a complete stranger. But the law can afford to let such cases slip by because there will not be that many of them. The law's main concern is to be able to draw the line in a reasonably well-defined fashion. Unconventional relationships make that difficult.

Figure 2 wraps up our discussion of $P(R)$ by giving a graphic picture of the existing situation. The diagram is a self-explanatory visual synopsis.

e. "Exposure"

The time has come to look at the element of $P(E)$. In tracing the evolution of the law of nervous shock, we covered this element in some detail. There is no point in going over the same ground again. We shall simply expand on what has already been said and attempt to pinpoint where the outer limits lie. The basic proposition that we derived from our review of the cases is that
Figure 2
Circles of Relational Proximity of the Nervous Shock Plaintiff to the Primary Victim of the Shock-Producing Event
the plaintiff must be exposed in some way to the shocking event or its distressing after effects. Later on, when we came to discuss the "harm" module depicted in Figure 1, we also saw that the extent of exposure required varies depending on the seriousness of the harm. Now let us fill in the gaps to complete the picture.

In Figure 1, the $P(E)$ element is labelled "exposure of plaintiff to incident". However, once again we shall use the terser form to avoid being long-winded. Now let us examine the various leaf nodes.

Nothing further need be said about the "eyewitness" and "nearby and attended" categories. We have already looked at several cases dealing with those situations. The law is quite clear: eyewitnesses and those who rush to the scene right after the accident are on rock solid ground when it comes to $P(E)$. The only qualification that need be added, is that there must be some shocking after-effects for the plaintiff to be confronted with. So, in cases where the immediate victim was only endangered and not actually harmed, attending the scene right afterwards will be of no avail to plaintiffs because there will be no shocking aftermath for them to see.

The core categories of $P(E)$ are "eyewitness" and "nearby and attended". As one moves further afield from there, the element of exposure gets weaker. Imagine that the shock-producing event is a pebble falling into a calm pond that sends out a shockwave
of ripples. Having a ringside seat and actually seeing the pebble strike the water's surface puts one in the strongest possible position as an eyewitness. Arriving just in time to see the vortex in the pond's surface caused by the sinking pebble is the next best thing. That is the equivalent of seeing the aftermath.

Seeing the pebble fall through the air, but not its impact on the water's surface is analogous to the "imminent accident" category and is a weaker degree of exposure to the event. Our discussion of Dooley v. Cammell Laird\textsuperscript{102} dealt with exactly that situation. We observed that the landmark case of Hambrook v. Stokes\textsuperscript{103} is a curious mirror image of Dooley's case because it is situated at the same temporal and spatial distance from the event. However, the point in time is equidistant when measured from "ground zero", so to speak, after the event has occurred rather than before. That being the case, Hambrook v. Stokes would be relevant by analogy to those cases in which the plaintiff saw an accident about to happen, but not the actual impact. Hambrook v. Stokes was a case that arose out of such a weird set of facts that generalizing it into category hardly seems worthwhile. The chances of any other cases duplicating those facts are pretty remote - in the ordinary sense of the word, that is. Since plaintiff saw the runaway truck while it was still in motion, the case can be thought of as dealing with an event in progress. On that interpretation, the plaintiff would be a sort of partial eyewitness. On the other hand, we might say that the event was over once the truck had sped by the plaintiff's children and that what she saw was part of the aftermath. However, neither one of
these interpretations feels quite right. Perhaps the most appropriate way of looking at the case is as an aberration that falls into a twilight zone betwixt and between the regular categories. That being the case, it fits best into the conceptual scheme of things as a back-up authority by analogy to Dooley v. Cammell Laird.

As the ripples in our imaginary pond spread outwards and time passes, the next category we encounter is "traces of incident". This category is intended to capture the extended aftermath of the accident at the scene where it occurred. It goes one step beyond "nearby and attended" and envisages a situation in which the victim has already been taken to hospital, but shocking traces of the incident like the twisted wreckage of a vehicle or pools of blood still remain. The plaintiff who hears about the accident, rushes to the scene and is confronted with this sad sight might understandably suffer nervous shock.

At present, there is no reported case that deals with the situation described above. Nevertheless, by thinking through the way in which accidents typically unfold, Professor Smith and I concluded that there would be a gap in the logical sequence of events if this eventuality were not provided for in the conceptual framework. Consequently, rather than jumping straight from "nearby and attended" to "hospital visit", the McLoughlin v. O'Brian104 scenario discussed earlier, we decided to create the intermediate category of "traces of incident". Since there are no cases on point, the hospital cases would have to be used by
analogy to support the proposition that a plaintiff could recover if nervous shock was triggered by coming upon the gruesome traces of an accident. *McLoughlin v. O'Brien* would, of course, be the leading case a plaintiff would rely on in these circumstances. In addition, there are several other "hospital visit" cases that are also relevant by analogy.

Before moving on to examine the other hospital cases in the context of that category, an important distinction should be drawn between the hospital cases and the traces cases. In the traces scenario that we have posited, the plaintiff does not actually see the victim. In the hospital visit cases, the pitiful condition of the victim is what causes the shock. Therefore, although for chronological reasons the traces leaf node shown in Figure 1 is closer to the shocking event on the time line that moves from left to right, the degree of exposure is significantly less. From a defendant's point of view, that distinction would be the basis of arguing that a claim based on traces should be denied.

Now for the hospital cases. *McLoughlin v. O'Brien* removed all doubt that the $P(E)$ requirement is met where the plaintiff attends the hospital shortly after the accident and is shocked by seeing the condition of the victim. Australia's highest court handed down a decision on similar facts the year afterwards that followed in the footsteps of the House of Lords. In *Jaensch v. Coffey*, the plaintiff's husband was seriously injured when his motorcycle collided with a vehicle negligently driven by the
defendant. The plaintiff was informed of the accident by the police who took her to the hospital. She saw her husband in severe pain in the emergency ward. She was informed that his condition was serious and feared that he might die. In a unanimous decision, the court awarded the plaintiff damages for nervous shock caused by her exposure to the aftermath of the accident.

The judgment is couched in the usual duty of care and foreseeability language. The issue of how foreseeability and policy interact is also discussed. However, we can leave the rhetoric to one side and focus on the facts. Whatever the rationalizations might be, it is clear that attendance at the hospital within hours of the accident and exposure to the victim's sad condition will entitle a plaintiff to recover.

Harking back for a moment to the rescue/workmate cases, Jaensch v. Coffey provides an interesting footnote that confirms the ambivalence of the plaintiff's status in Mount Isa Mines v. Pusey. Gibbs C.J. made it plain that he regarded the critical relationship in the latter case to be that of workmate rather than rescuer. He had this to say on the subject.

"Where the relationship between the person killed or physically injured and the person who suffers nervous shock is close and intimate, not only is there the requisite proximity in that respect, but it is readily defensible on grounds of policy to allow recovery. There are cases which persons (sic) who do not stand in any such relationship have been held entitled to recover, including the case of rescuers (Chadwick v. British Railways Board [1967] 1 W.L.R. 912) and that of fellow employees (Mount Isa Mines v. Pusey; supra) but they do not now fall for consideration."
His Lordship's aside confirms the view expressed earlier that minimal efforts to assist (or perhaps even none at all, see: Galt v. British Railways Board108) will do where fellow workers are somehow exposed to an accident.

Be that as it may, there is a much earlier Australian decision than Jaensch v. Coffey that could be classified as a hospital visit case because that is where the plaintiff was first exposed to the victim's injuries. However, it does not follow the same sort of fact pattern that we have seen so far. In Brown v. Mount Barker Soldiers' Hospital Inc.,109 the plaintiff mother was at the hospital in the first place for the purpose of giving birth. In due course, she gave birth to a baby girl and mother and child did well. In keeping with hospital practice, mother and child were separated from one another. The mother was housed in a ward while the child was kept in the nursery. A spark from the fireplace in the nursery set fire to the baby's bedclothes and the infant suffered burns to her left hand and arms and lost a finger. Although the mother was not present at the time of the fire, she was informed of her baby's injuries almost immediately and saw the child shortly thereafter. She spent six weeks at the hospital nursing her injured child. The plaintiff suffered nervous shock that manifested itself as extreme nervousness and was awarded damages.

Before leaving the hospital visit cases, we should look at an anomalous Canadian case which pre-dated McLoughlin v. O'Brian where in spite of being present both at the scene and at the
hospital, the plaintiff was denied recovery. In Brown v. Hubar,\textsuperscript{110} the plaintiff's teenage daughter was severely injured in a motor vehicle accident. The plaintiff was informed of the accident by telephone. He went to the scene of the accident and saw his daughter lying on a stretcher in obviously serious condition. Her eyes were open, there was a large pool of blood behind her head, but she showed no vital signs. Having seen active service as a medic in the Canadian army during WW II, the plaintiff was able to tell by checking her over that his daughter was in bad shape. He was not optimistic about her chances, yet he hoped she would survive. After the victim had been taken to hospital by ambulance, the plaintiff went home and told his wife that things did not look good. A neighbour then drove him to the hospital. For an hour he was unable to get any information about his daughter's condition. Then the attending doctor told him that the girl was dead on arrival. As a result of his experience, the plaintiff suffered nervous shock which delayed his recovery from an earlier heart attack. Nevertheless, his claim was denied.

The reasoning the court used to arrive at its conclusion is difficult to fathom. Predictably, the defence tried to separate the plaintiff's exposure to the accident into two phases: his attendance at the scene, and his subsequent trip to the hospital. The defence argued that the shock was caused by the second phase, and that that was too remote. At the time the case was argued, the strategy was a sound one. Had the judge chosen to accept that argument, the case would be easy enough to explain.
However, Grant, J. specifically rejected that contention. He dealt with the defence submission as follows.

"It is urged that the plaintiff did not display symptoms of shock until he was at the hospital and that he did not therefore sustain mental shock from what he saw at the scene. I do not think this rules out what he saw at the scene of the accident as the cause of his shock. It is quite possible that he was seriously affected there with the symptoms only apparent when his hope that his daughter might live were finally extinguished at the hospital. ... I have no problem in finding that the plaintiff sustained such mental shock and that it was induced by finding his daughter as he did. But as to whether the plaintiff can recover for such injury in the circumstances of this case, is another matter which I shall consider later herein."111

One would think that, after the court made that finding, the case would be a sure-fire victory for the plaintiff. The finding seems to destroy the defence's only plausible argument and put the case squarely into the "nearby and attended" category, the next best thing to "eyewitness". But after spending five pages of his judgment carefully reviewing the authorities, Grant J. justifies dismissing the claim in the following puzzling words.

"The plaintiff went to the area where his daughter was lying with some knowledge of the fact that she had been involved in a mishap, although there is no evidence to indicate that he knew she had sustained physical injury. He must have been directing his attention, however, to the welfare of his daughter as he went to the scene. To find her, therefore, as he did was not a complete surprise. It was only after waiting to see the attending doctor at the hospital for over an hour that he became aware of her demise.

I consider it would be unreasonable to conclude that the driver should have foreseen that, as a result of the manner in which he was driving at the time of the collision, the plaintiff would sustain mental shock. There is no evidence to indicate that the defendant knew the plaintiff or the daughter or that he had any knowledge of the state of the plaintiff's health. It is rendered more difficult to come to such a conclusion as there is no evidence before the court of the nature of the driving.

Accordingly, the claim therefor will not be allowed."112
Bizarre is not too strong a word to describe this justification for denying the claim. To begin with, evidence about the nature of the driving would have been irrelevant. Liability was not in issue. Negligence had been admitted. The judge states that fact unequivocally.

"The defendant admitted liability for the death of the girl but no evidence was given as to the circumstances surrounding the collision."113

So what? As long as the driving was acknowledged to be negligent, who cares exactly what happened?

Whether or not the defendant knew either the plaintiff or the victim is equally irrelevant. So is the defendant's lack of knowledge about the state of the plaintiff's health. What is left to justify disallowing the claim? In effect, nothing except the court's assertion that the defendant could not have "foreseen" that his driving would cause the plaintiff to suffer nervous shock. However, since the reasons given by the court as to why the plaintiff could not have foreseen that his actions would cause shock are all the totally spurious reasons already demolished, standing alone, that talisman word is totally meaningless.

The only reasonable conclusion one can draw about Brown v. Hubar is that it was wrongly decided. The chances of a case going the same way these days on similar facts are virtually nil, especially in light of McLoughlin v. O'Brian.
We have now reached the leaf node in Figure 1 labelled "disfigurement". That category constitutes the outer limits of $P(E)$ and requires a little imagination to justify. However, the justification is not totally idiosyncratic. It was concurred in by no lesser personage than Mr. Justice Linden, the then Chairman of the Law Reform Commission of Canada, and author of the well-known text on tort law. His Lordship visited UBC law school during the summer of 1988. During his visit, Professor Smith and I had the opportunity of discussing our work on the conceptual structuring of the law of nervous shock with him. We put a hypothetical situation that Professor Smith had thought up to him that we felt would support a claim for nervous shock. Linden J. agreed. Professor Smith then asked him what, if any, case authority he could cite to back up the opinion. His Lordship reflected for a few moments and then cited the one and only case that we had surmised could be used in argument by analogy. Needless to say, we were gratified that such an eminent jurist was thinking along the same lines as us. His agreement lent a certain validity to our work. Now for the details of what was discussed.

Essentially, the hypothetical was intended to catch situations in which a negligent act causes a latent defect that does not come to light until a fairly long period of time has elapsed - much longer than would normally be allowed by $P(E)$. However, in these cases, the clock would not start running, so to speak, until the plaintiff was confronted with the results of the wrongful act. In spite of the time lag, for the purposes of $P(R)$, the act and
its effects would be deemed to follow on one another's heels as usually happens. It goes without saying that the effects would have to be of a suitably shocking nature.

The fact pattern that Professor Smith devised was as follows. A young girl is severely burned in a fire caused by the negligence of the defendant. She is taken to hospital before the plaintiff mother hears about the mishap and rushes to the scene. The mother continues on to the hospital. By the time she gets there, her daughter is in the burn unit and her injuries are being treated. When the mother is eventually allowed to see her for the first time after the accident, she is propped up in bed swathed in bandages. None of her injuries are visible. She looks like the invisible man in the B-movie of that name. The poor girl remains bandaged in this way for several weeks. Finally, when the bandages are removed, the mother sees the awful results of the defendant's negligent act for the first time. Her daughter's pretty face has been horribly disfigured. The mother instantly suffers nervous shock.

Can the mother recover? We were convinced that she could even though there is no precedent case that matches the facts outlined above. The closest analogy is *S. and Another v. Distillers Co. (Biochemicals) Ltd.*.114 This case was a test case brought against the company that marketed the drug thalidomide to deal with the issue of damages. Liability was admitted by the defendant. The representative plaintiffs were two infants and one of their mothers. But only the plaintiff mother's suit need concern us
here. She took the notorious drug during the early stages of her pregnancy. As a result, she gave birth to a son who was severely deformed. The child was born almost entirely without arms. A single digit protruded from his right shoulder. When the infant was born, the plaintiff was devastated by the sight of her son's pitiful plight. Hinchcliffe J. described her reaction to the calamity in these words.

"She was grievously shocked at the birth of R.S. and she lives with a permanent cloud over her head. Sadness is the order of the day. She is constantly reminded of the deprivations suffered by her son. She told the court that she feels 'up against the wall'. She said that she has more problems than most. She was broken-hearted at the birth and has never recovered from the awful shock."\(^{115}\)

As for the plaintiff's entitlement to damages, the judge had this to say towards the end of the judgment.

"So far as Mrs. S.'s claim is concerned, it is plain that this lady suffered a grievous shock. For a happily married woman, it is difficult to comprehend any greater shock than seeing your child born misshapen and deformed. The fun and joy of motherhood is partially destroyed. Instead of enjoying and being able to show off the baby to your friends there is a natural reluctance to do so. This has not been the sort of shock which has worn off like so many cases of shock that come before the courts; this is permanent. Ever since the birth Mrs. S. has been depressed, anxious and worried. She is daily reminded of her handicap. There is always a cloud over her happiness. She now has to take drugs prescribed by her doctor and she has a sense of guilt which makes it harder for her to recover, although Heaven knows she has nothing go blame herself for. This unhappy lady is entitled to damages for grievous shock."\(^{116}\)

The permanent deformity caused by thalidomide is a worst-case scenario. A more heart-wrenching sight with which to confront a plaintiff, especially a mother, is difficult to imagine. In the case of a disfigured burn victim, there is always the chance that
plastic surgery may restore the victim to some semblance of normality. Yet, having said that, the similarity between the two situations is striking.

Apart from the disparity in the gravity of the two shocking events, the most noteworthy difference between S. and Another v. Distillers Co. (Biochemicals) Ltd. and the hypothetical is that nowhere in the reported case is there any mention of "nervous shock" or "post-traumatic stress disorder". Throughout that portion of the judgment devoted to the plaintiff mother, the court simply talks about "shock" and "grievous shock". A lengthy summary of the evidence of various psychiatrists and other medical experts appears in that part of the judgment that relates to the plight of the malformed infants. In the relatively small portion of the judgment devoted to the plaintiff mother, there is no mention at all of any medical evidence dealing with her condition. We can only assume that none was called. In other words, it would appear that we are dealing here with the "ordinary shock" that Comyn J. spoke about in Whitmore v. Euroways Express Coaches Ltd. Yet that distinction should in no way affect a plaintiff's chances of recovering for honest to goodness nervous shock in similar circumstances if that more serious and persistent type of shock were proved.

What might make a difference to a plaintiff's chances of recovery in cases where a latent defect manifests itself belatedly is whether the manifestation is visually shocking enough. Exposure to disfigurement from burns or drug-related deformities has an
instant and jarring impact on the senses. The beholder is clearly likely to suffer shock of some kind, be it the garden variety or full-blown nervous shock (i.e., post-traumatic stress disorder). But what about a situation in which the damage is equally horrible in its extent, yet not readily apparent to the eye? In other words, the real impact of the accident is absorbed primarily through the plaintiff's mind rather than the senses?

An interesting British Columbia case can be used to argue that such a claim would fail. In *Wipfli v. Britten*, the defendant doctor negligently failed to diagnose the pregnancy of twins before the plaintiff gave birth. As a result, one of the twins suffered cerebral palsy due to oxygen deprivation during the birth process. By the time the second baby was discovered inside the womb to the surprise and consternation of the doctor doing the delivery, it had suffered irreversible harm. The infant was seriously handicapped, both physically and mentally. The parents claimed for nervous shock sustained from being present during the botched delivery upon discovering the baby's pitiful condition several months later. The claim was dismissed because there was no evidence of a proven psychiatric disorder.

Hinds J. disposed of the parent's nervous shock claim in short order. His 42-page judgment was devoted almost entirely to the action brought on behalf of the infant victim. He took only three quarters of a page to dismiss the parents' claim. He began by describing it using a verbatim quote taken from the pleadings.

"Counsel for the plaintiffs advanced a claim on behalf of Mr. and Mrs. Wipfli 'for psychological pain including nervous shock as a result of the emotional stress they endured during the labour and delivery
situation, in addition to the emotional stress encountered when told of Joseph's condition".\textsuperscript{119}

The judge took up the next paragraph with a well-known quote from \textit{Hinz v. Berry}\textsuperscript{120} about the distinction to be drawn between grief and sorrow, and a recognized psychiatric illness. We ourselves shall be looking at that issue shortly in the next section dealing with damages.

He finally got down to the nitty-gritty in the last paragraph.

"In this case there was no evidence that Mr. Wipfli or Mrs Wipfli suffered from some form of psychiatric disorder as a result of their very understandable and human emotional distress upon learning of the difficulties associated with the unexpected delivery of Joey, or upon learning some months later that he was diagnosed as having cerebral palsy. While I have great sympathy for their emotional stress, it is not something for which, on the evidence of this case, damages can be awarded."\textsuperscript{121}

We have already seen that lack of proof of damages is the favourite peg that judges use to hang their hats on when they are inclined to disallow a claim for some other underlying reason. Here we have a case in which the visually horrifying element was absent, even though the actual effect upon the victim of the defendant's negligence was just as devastating, if not more so, than in the thalidomide case and the burn injury hypothetical. The lack of a shocking visual image would arguably bar recovery, even assuming that a recognizable psychiatric illness had been proved. However, given the courts' apparent propensity to find that damage has not been proved in cases that are iffy for other reasons, we are faced with a chicken-and-egg situation about which one could speculate endlessly.
The proof of nervous shock is the next aspect of our conceptual structure that we must consider. However, before moving on, Figure 3 is worth taking a look at. It graphically summarizes the exposure element we have just covered by providing a picture of a shock-inducing event unfolding on the space-time continuum à la Big Bang. In the illustration, point E can be equated to the singularity with which astrophysicists theorize that the universe came into being. Of course, in our diagram, the analogy with the Big Bang does not hold entirely. First, we get right back to the singularity/point E itself, something that the scientists cannot do, except within an infinitesimal fraction of second. What is more, we move backwards past that point to a "time" before it. In science, what lies behind the singularity is inconceivable. Furthermore, the notion of time has no meaning until after the cataclysm that the singularity unleashed.

f. "Damage"

Except for unusual cases like trespass, every lawsuit requires proof of tangible damage in order to succeed. Nervous shock is no exception. In fact, we have already seen from a number of cases that the plaintiff must be shown to have suffered a recognized psychiatric illness, otherwise the case will fail for lack of proof of damages. In addition, we discovered that that particular defect is the most common ground on which claims for nervous shock are denied. The damage requirement of a nervous shock action is shown in Figure 1 as "damage suffered".
Figure 3
PROXIMITY OF TIME & SPACE IN NERVOUS SHOCK

E = SHOCK-PRODUCING EVENT
T = TIME
S = SPACE
L = LIMITS OF PROXIMITY

1 = IMMINENT
2 = EYEWITNESS
3 = AFTERMATH
4 = TRACES
5 = HOSPITAL
6 = DISFIGURED
Enough has been said about the need to prove that the plaintiff suffered a recognized psychiatric illness (i.e. nervous shock/post-traumatic stress disorder). A related issue that remains to be considered is where normal grief and sorrow ends and a morbid mental condition begins. The pertinent legal principle is clearly stated in *Hinz v. Berry,* a case we mentioned in passing a short while ago. Lord Denning, M.R. had this to say on the subject.

"In English law no damages are awarded for grief or sorrow caused by a person's death. No damages are to be given for the worry about the children, or for the financial strain or stress, or the difficulties of adjusting to a new life. Damages are, however, recoverable for nervous shock, or to put it in medical terms, for any recognizable psychiatric illness caused by the breach of duty of the defendant."

It goes without saying that the principle applies equally to cases of serious injury as well as death. The case cited just happened to involve a death.

Stating the principle is one thing; applying it in practice is quite another. Here again, we find ourselves faced with the perennial problem of where to draw the line. There is no easy answer. To put it bluntly, in practice it comes down to whether or not the plaintiff's lawyer can find a psychiatrist who is prepared to testify that the plaintiff's symptoms went beyond normal grief or sorrow. Psychiatry is not an exact science. If it were, the psychiatrist's bible, the Diagnostic and Statistic Manual of the American Psychiatric Association (DSM) would not be subject to constant revision. As it is, ideas in psychiatry are continually being debated and modified. Differences of opinion
are frequently found within the profession, as we saw in Beaulieu v. Sutherland. A case often comes down to the proverbial battle of the experts. The plaintiff's psychiatrist says one thing; the defence psychiatrist says another. As with all expert evidence, in the final analysis, it is up to the trier of fact (invariably the judge in cases of this kind), to decide which evidence to accept and which to reject. All a lawyer can do is (a) find a good expert, and (b) argue forcefully for the acceptance of that expert's evidence.

The corpus of nervous shock cases is a useful source of information when it comes to proof of nervous shock. Anyone who takes the time to browse through a significant number of cases will soon notice that the same symptoms tend to crop up over and over again. We have mentioned a few of the more common ones in passing, like depression, anxiety, and nausea, for example. The courts have become accustomed to hearing about these typical symptoms. Their very familiarity lends them a certain credence. The plaintiff's lawyer is obviously going to be on stronger ground if the symptoms displayed by the plaintiff are ones that have been accepted as valid manifestations of nervous shock by the courts in previous cases. Consequently, nervous shock cases should be broken down in terms of their symptoms as well as their facts. A plaintiff's lawyer will want to look at a precedent case in which the victim showed symptoms that were similar to those of the client even though the circumstances of the shock-producing event were totally dissimilar. However, in this narrative, there is no point in citing cases in which particular
symptoms appear. That would add nothing to one's understanding of the law on the subject. Different symptoms appear randomly throughout the cases. They are simply a function of the individual victim's psycho-physiological reaction to a highly stressful situation. In the arena of litigation, the cases simply serve to show the court that such symptoms are typical of nervous shock. Figure 1 shows that we grouped the symptoms culled from the cases in the three broad categories of "physical illness", "mental disorder", and "sleep disturbance".

The "damage suffered" module of Figure 1 that subsumes the "symptoms" branch and its various leaves is based on an unstated presupposition. Apart from the need to prove a recognizable psychiatric illness, manifested through appropriate symptoms, something else is needed. Although the other necessary ingredient is not explicitly represented, Professor Smith and I both assumed that it went without saying; namely, that the incident that gave rise to the shock would have to be an inherently shocking one. Our omission was interesting. It is characteristic of the unstated assumptions that lawyers make all the time when they are thinking about any area of the law. Stating the obvious is not an endearing trait when one is dealing with people who are steeped in a domain and are perfectly well aware of its underlying assumptions. In fact, it is downright irritating. On the other hand, when dealing with computers, stating the obvious in excruciating detail is a painful necessity. That is why programming drives beginners crazy.
Every single picky detail must be stated explicitly otherwise the program will not run the way it is supposed to.

The unstated assumption about the law of nervous shock discussed above was embodied in our conceptual structure by implication in our treatment of the decision in *McMullin v. F.W. Woolworth Co.* In our scheme of things, we put this case under the heading of lack of proof of damages because the incident it described was insufficiently serious to be considered a valid cause of shock. The facts were as follows. The plaintiff purchased pet turtles from the defendant for her two children. The turtles were diseased and the children contracted salmonella as a result. One child responded well to treatment and was quarantined for a few months; the other required hospitalization in an isolation unit. However, both children recovered fully. The defendant admitted liability for the damage suffered by the children. The only issue before the court with respect to them was the quantum of damages. However, the plaintiff mother's claim for nervous shock suffered as a result of the children contracting the disease was contested. The plaintiff proved that she had suffered a recognizable psychiatric illness, but her claim was dismissed. The court found that the damage was not reasonably foreseeable. As we have seen again and again, that time-honoured phrase explains nothing. Reading between the lines, what the court is really saying is that it did not feel that the event itself packed the kind of emotional punch that might reasonably be expected to trigger nervous shock. Seeing one's children fall ill does not give the average person the same
emotional jolt as witnessing a sudden event that causes them harm or puts them at serious risk.

Having finished analyzing "damage suffered", we have arrived at the final node depicted in Figure 1, "relevant cases". Unlike the previous nodes, this node is not an essential element of a nervous shock action. It is that part of the conceptual structure that addresses the need for justification through precedent. The vital importance of supporting legal arguments with case authority was hammered home earlier in the thesis. Nothing more need be said about the basic principle. However, Professor Smith and I had to decide how we should use precedent cases as an adjunct to the conceptual structure of nervous shock that has just been outlined above. The leaves of the "relevant cases" node illustrate the conclusion that we reached.

First and foremost, on the extreme left side, we have the "on facts" leaf node. That refers to the precedent cases that are used for matching against the fact pattern of an instant case. Within this group, we decided to divide the precedents into three categories: on point, relevant by analogy and contra. The on-point cases were those in which all the material facts of the precedent case exactly matched those of the instant case. The relevant-by-analogy cases were those that were similar, but not exactly the same. The contra cases were those that, in Professor Smith's expert opinion, could not be reconciled with the outcomes of the overwhelming majority of other cases in the domain. However, for the sake of completeness, these aberrant cases
should be included in the casebase, rather than swept under the rug and ignored simply because they did not jibe with the prevalent trend in the law.

Moving along to the right, the "on symptoms" node label speaks for itself. It refers to precedent cases in which the symptoms of nervous shock were similar to those displayed by the victim in the instant case. The reason why such cases would be useful to a lawyer has already been fully explained. The on-symptoms cases were divided into the three broad categories shown under the "symptoms" node of "damage suffered": "physical illness", "mental disorder" and "sleep disturbance". For ease of reference, each individual case was tagged with a bracketed list of the specific symptoms that it contained.

Getting back to Figure 1, the next node to the right of "on symptoms" is "defence perspective". Lawyers must understand the arguments on both sides of a case if they are to be fully prepared. Otherwise, they will be taken unawares. Knowing what cases one's adversary is likely to rely on is crucial in this regard. The need to know this information simply bears out the truth of the old adage, "Know thine enemy". Legal practice is, as we have seen, a highly ritualized form of warfare. The conceptual structure of nervous shock has a built-in plaintiff's perspective because it tries to identify all the material elements that need to be linked together Lego style to make out a proper case. The "defence perspective" cases are an attempt to compensate for this plaintiff-oriented bias by looking at things
from the other side of the fence. Since we know that the most
effective defence to a case of nervous shock is to argue that
there is insufficient proof of legally recognized damage (i.e.,
no recognizable psychiatric illness), all those cases in which
the claim was dismissed for that reason were aggregated under
this heading. The defence-perspective cases should not be
confused with those that fail because of lack of proof of some
other essential element, like \( P(R) \) or \( P(E) \), for instance. The
latter would be slotted into the on-facts category.

All that remains for us to look at in Figure 1 is the node
labelled "leading case". Lawyers know that there are usually one
or two cases in jurisdictions governed by comparable law which
review and restate the law in a particular area. The persuasive
force of these leading cases makes it imperative that a lawyer
who has a case in the same area of law be aware of them, whether
or not they match the facts of the case in issue. Since judges
will assume that lawyers have read these cases, unfamiliarity
with them can be a source of considerable embarrassment to the
unwary lawyer.

Judges are fond of putting lawyers on the spot in court by saying
something along the lines of "Ms. So-and-So, I assume that you
are aware of the decision of the Court of X in the case of Y v.
Z. ?" That puts a lawyer who has not heard of the case in a
bind. Faced with such a question from the bench, the unfortunate
lawyer has two choices: come clean and admit ignorance or resort
to bluff. Of the two, coming clean is the best policy. The
lawyer may suffer a momentary embarrassment, but that is as far as it goes. Bluffing puts the lawyer out on a limb. By pretending to be familiar with the case, the lawyer risks being caught out in a lie and losing all credibility with the court. Once lost, credibility is virtually impossible to regain. A relationship of trust with the bench takes a long time for a lawyer to establish. Jeopardizing it to maintain a pretence of omniscience is absurd.

Leading cases are also a good source of quotable quotes that lawyers can trot out when making legal arguments. As we have seen, although legal arguments are essentially based on a comparision of the factual features that cases have in common, legal rhetoric is the packaging in which they are wrapped up. A few good lines plucked from a leading case can add a certain lustre to any legal argument. Besides, judges are conditioned to expect arguments to be liberally sprinkled with choice quotes that invoke rules of law and high-sounding principles. Why disappoint them? That is the way the game is played. A few well-turned phrases add attractive embellishment like the garnish on a tastefully presented meal.

At the moment, the leading case on nervous shock is undoubtedly the House of Lords decision in McLoughlin v. O'Brien\(^{126}\) that we discussed at some length earlier. Any lawyer with a nervous shock case on her hands would need to be told about this weighty authority so that she could read the latest pronouncements from on high about the ins and outs of the law. Another leading case
worth knowing about is the decision of the High Court of Australia in *Jaensch v. Coffey*.

It followed hard on the heels of *McLoughlin v. O'Brian* and adopted its reasoning. We decided that these two cases should be placed under the rubric of "leading case".

So much for the conceptual structure of nervous shock that we were able to tease out of the cases in the domain.

### 4.5 The Summing Up

Having looked at all the cases, we were in a position to enlarge upon the rough equation that we initially formulated to get across the basic elements needed to put together a successful case of nervous shock. You will recall that we did this after painting the evolution of the law with broad brush strokes. We concluded that the core elements of a nervous shock action were $P(R)$ and $P(E)$. We expressed them verbosely as follows.

\[
\text{Proximity of } ((\text{relationship to the victim}) + (\text{time and space to the event})) = \text{Recovery.}
\]

In light of the mapping of our exhaustive legal analysis of nervous shock onto the conceptual structure shown in Figure 1, how can we improve on the first-cut equation? Clearly not every eventuality can be covered by a single formula. What we are looking for here is the paradigmatic case. In other words, we
want a rule of thumb that captures the essential ingredients of the domain in a terse way that is easy to remember. That means taking as our foundation the typical case where a third party is the only immediate victim of a negligent act and the plaintiff meets the criteria of \( P(R) \) and \( P(E) \). Cases involving either deliberate acts or plaintiff victims obviously do not fit the bill. But even when we exclude those special cases from consideration, there are some third-party victim scenarios that are also atypical. For instance, the \( P(E) \) requirement can vary depending on the degree of "harm" suffered by the third-party victim. This interdependency means, for example, as we know, that nothing less than being an eyewitness will avail the plaintiff as adequate \( P(E) \) where the third-party victim is only exposed to a risk of harm.

Given the different combinations and permutations of shock-inducing events that can occur, when trying to come up with a refined formula, we should have in mind the classic textbook case of the mother whose child is either killed or seriously injured. Using that as a guideline, we can describe the standard nervous shock case using a slightly expanded formula. Let us presuppose the existence of the third-party victim. In addition to \( P(R) \) and \( P(E) \), let us also make use of the following abbreviations.

\[
N = \text{Negligence} \\
AH = \text{Adequate Harm} \\
RPI = \text{Recognized Psychiatric Illness} \\
RFNS = \text{Recovery For Nervous Shock}
\]
The revised formula would then look like this.

\[ N + AH + P(R) + P(E) + RPI = RFNS \]

There is nothing esoteric about the formula. It is simply intended as an *aide mémoire*, a compendious means of expressing the basic conceptual elements of nervous shock so that they can be kept firmly in mind. The complexity lies in the deep-structure analysis of the cases from which we can derive the rule. That process allows the cases to be decomposed into factual ingredients that are instances of those conceptual elements. Once the cases have been broken down, the pieces can be slotted into the appropriate places in the conceptual structure shown in Figure 1.

We have seen that some cases are open to more than one plausible interpretation. You will recall that in *Mount Isa Mines v. Pusey*,\(^{128}\) \(P(R)\) can legitimately be viewed as being either workmate or rescuer. In such cases, every plausible interpretation of the various factual components should be explicitly represented. Thus, depending on how many factual attributes are extracted from a single case, different ones may appear more than once under the same conceptual category. To finish up the *Mount Isa Mines* example, one will note that the workmate interpretation is not explicitly shown in Figure 1, the reason being that there are serious doubts about whether it is a legally valid relationship. So, although the case would be labelled as such, that interpretation would fail to satisfy the
$P(R)$ requirement. Where an option is not included as part of the conceptual structure depicted in Figure 1, the default is failure.

A distinction must be drawn between the multiple factual representations of a case that are culled from a careful conceptual analysis, and those that are clearly apparent on a superficial reading of the case. *Mount Isa Mines* called for some conceptual analysis to determine that the plaintiff's relationship with the victim was open to a dual interpretation. In *Beaulieu v. Sutherland*, the ambiguity was even more difficult to discern. Taken at face value, the case was one in which the plaintiff failed to prove a recognizable psychiatric illness. But by carefully dissecting it, we discovered that the damage issue was really a smokescreen. What really seems to have tipped the balance against the plaintiff were the judge's misgivings about the tenuous friendship relationship.

The need for multiple factual representations that becomes apparent from a plain reading of a case is fairly common. We have seen several examples in our examination of the case law. For instance, if an accident involves several third-party victims who are related to the plaintiff in different ways, and each has suffered a different type of harm, every relationship and injury must be represented separately. The conceptual structure assumes the existence of only one third-party victim when cases are mapped to it. Therefore, each individual victim has to be treated as an additional case. No other approach is feasible.
Multiple victims could not be categorized at the same time without creating an unmanageable degree of complexity. The potential combinations that could be generated would be just too difficult to juggle.

The whole point of chunking up the cases into every plausible set of factual components is simple. Lawyers making legal arguments are looking for ammunition. When designing a KBS, everything must be done to ensure that no case will get overlooked in any possible circumstances to which it could conceivably apply. Taking a one-dimensional view of a case may sell it short. A viable legal argument founded on an alternative conceptual analysis of the case may get missed. By the same token, where the different dimensions are apparent on the face of the case because of a multiplicity of victims, injuries or symptoms, say, as long as all these facets are specifically represented, the primary aim will have been achieved. What difference does it make if the various aspects of the case are handled in layers rather than being plugged into the conceptual structure all at once? The important thing is that the case should be exhaustively described from all possible angles so that every ounce of possible usefulness can be squeezed out of it.

Having covered the development of the conceptual structure of the law of nervous shock, next we will look at how the structure was implemented as a functioning KBS.

2 Supra, note 1, p. 476.

3 Supra, note 1, p. 498.


5 T.S. Eliot, Murder in the Cathedral (New York: Harcourt, Brace & World, Inc., 1935) p.44. "Now is my way clear, now is the meaning plain; Temptation shall not come again. The last temptation is the greatest treason: To do the right deed for the wrong reason."

6 Supra, Ch. 3, note 29, pp. 88-89.


9 Supra, note 8, pp. 304-305.


13 Supra, note 12, p. 12.


15 (1888), 13 A.C. 222 (P.C.).

16 Supra, note 15, p. 225.

17 (1890), 26 L.R.Ir. 428 (Ex. Div.).

18 Supra, note 17, p. 443.

19 [1901] 2 K.B. 669 (Div. Ct.).

20 Supra, note 19, p. 675.

22 Supra, note 21, p. 158.
25 Supra, note 24, [1943] A.C. 92, p. 120.
27 Supra, note 21.
30 Supra, note 29, p. 1322.
34 Supra, note 33, pp. 186-187.
37 Supra, note 7.
38 Supra, note 35.
39 (1968), 68 C 2d. 728.
42 Supra, note 7, p. 111.
43 Supra, note 24.
45 [1897] 2 Q.B. 57.


52 Supra, note 45.


55 Supra, note 19.

56 (1976), 1 C.C.L.T. 158 (Sask. Dist. Ct.).


59 (1911), 16 B.C.R. 109, 17 W.L.R. 470 (C.A.).


62 Supra, note 59.


68 Supra, note 12.


72 Supra, note 47.


76 Supra, note 35.


78 Supra, note 29.


83 Supra, note 64.

84 Supra, note 64, p. 256.


86 Supra, note 23.


88 Supra, note 64.

89 Supra, note 65.


92 Supra, note 69.

93 Supra, note 69, p. 77.


95 Supra, note 94, pp. 247-248.

96 Supra, note 94, p. 244.

97 Supra, note 65.

98 Supra, note 91.

99 Supra, note 94, p. 239.

100 Supra, note 94, p. 245.

102 Supra, note 23.

103 Supra, note 21.

104 Supra, note 36.


106 Supra, note 82.

107 Supra, note 105, p. 421.

108 Supra, note 85.


111 Supra, note 110, p. 668.

112 Supra, note 110, p. 675.

113 Supra, note 110, p. 666.


115 Supra, note 114, p. 119.

116 Supra, note 114, p. 126.

117 Supra, note 1.


119 Supra, note 118, p. 138.


121 Supra, note 118, p. 138.

122 Supra, note 120.

123 Supra, note 120, p. 42.

124 Supra, note 94.


126 Supra, note 36.

127 Supra, note 107.
128 *Supra*, note 82.
129 *Supra*, note 94.
CHAPTER 5

IMPLEMENTING THE NERVOUS SHOCK ADVISOR (NSA)

5.1 Design Issues

Before getting into the technical details of how NSA was built, some fundamental features of its design bear looking at. We have already discussed the way in which lawyers put together a case by assembling the necessary elements Lego-style. NSA was designed to mirror this process. The logic behind the feature was to make the system intuitively appealing to lawyers and legally trained users by giving them a chain-link structure and an "early kick-out" feature that was congruent with their own thought patterns. Each material element would have to be satisfied in turn in order for the hypothetical case the system was dealing with to succeed. In other words, some component of each top-level element module shown in Figure 1 would have to be somehow instantiated or failure would result. If the user's facts failed to satisfy any link in the chain of elements, the consultation would terminate at that point. The reason for the failure would be given to the user and the negative outcome supported by case authority.
The alternative of plodding inexorably onwards through all the elements no matter what happened along the way did not seem appropriate. We decided that flaws in a case should be pointed out right away. Telling users at the very end of a consultation that their case had failed because of a defect discovered earlier on would probably be infuriating to them. The drawback to this approach is that other flaws might remain undiscovered if the first one invariably proved fatal and triggered termination. The decision to go with the early kick-out procedure was a judgment call. On balance, it seemed preferable to the other option.

The sequence in which NSA covered each of the elements was also a significant design consideration. The sequence that was ultimately chosen is the one shown in Figure 1 that we have been looking at all along. A certain amount of juggling went on before we settled on that now familiar left-to-right progression. Here again, the objective was to find a flow that seemed intuitively fitting to the legal mind. Getting "intent" out of the way first made sense. The purpose of the system was to deal with problems in the law of negligence. If the act which caused the nervous shock was deliberate, the case could be disposed of in short order. Since no difficult legal issues arose, there was no need to delve deeper. Experienced lawyers operate in the same fashion. They try to dispose of problems as quickly and as efficiently as possible by asking a few pertinent questions aimed at determining whether the matter at hand is simple or complex. Why go into a long song and dance about something only to discover belatedly that it is susceptible to a simple solution?
To use a computing analogy, the underlying logic to the sequence was basically a top-down process of pruning a decision tree.

Finding out the identity of the victim(s) was the logical next step because it affected the relevance of subsequent elements. Thus, if the plaintiff turned out to be a victim, the need to ask about $P(E)$ was obviated. That module could be skipped entirely. Similarly, if the plaintiff was the only victim, $P(R)$ was rendered equally superfluous and could also be bypassed. In cases involving multiple victims, $P(R)$ remained a factor that was worth canvassing. However, while the existence of a legally valid relationship strengthened the case, it was no longer crucial to success where a plaintiff could rely on his or her own injuries to support the claim.

A less obvious reason for identifying the victim(s) at this stage of the game was related to the element of harm. False news is a kind of harm that can only be made the subject of a nervous shock claim where the plaintiff herself is the immediate victim. The third-party victim concept has no application to these circumstances. The plaintiff cannot be at one remove from the shocking event as is usually the case. The plaintiff must be the recipient of the false news. An action cannot be brought for shock attributable to vicariously experiencing the upset someone else suffers as a result of receiving a false report. Whether the false news purportedly affects the plaintiff's welfare or that of a related third party is another matter entirely. In short, there are no third-party victims where false news is
concerned. Consequently, if any one of the victims is indicated as being a third party, false news can be eliminated as a possibility when the harm module is reached and any questions about it screened out.

The harm module necessarily follows the victim module because, once again, the nature of the harm dictates what can or cannot apply further down the line. For example, as far as $P(R)$ is concerned, unless a third-party victim has suffered either death or serious injury, the special relationship of rescuer will not be worth considering. The spectacle confronting the rescuer must have been gruesome enough to warrant a reaction of nervous shock. Hypersensitive people who go to pieces because of rendering assistance to the victims of minor injuries are not going to be able to bring successful suits by claiming that they were acting as rescuers. The degree of harm suffered by the victim imposes similar constraints on the range of possibilities that can apply under $P(E)$. For instance, as we learned during our analysis of the case law, if a third-party victim is only exposed to a risk of injury, the plaintiff must be an eyewitness to the event itself in order to be eligible to recover. Appearing at the scene afterwards, even moments later, is not good enough.

The decision to place the $P(R)$ module before $P(E)$ was more a matter of judgment than absolute necessity. The relative positions of the two could have been reversed. The switch would not have created the problems described above of needing to ascertain one thing before being in a position to know the
appropriateness of asking another. Nonetheless, the other option would not have worked as well.

The sole interdependency that exists between \( P(R) \) and \( P(E) \) relates to rescuers. By necessary implication, a rescuer must have witnessed the event itself or the immediate aftermath. A plaintiff's role as a rescuer means that they were at the scene before the dust had time to settle, so to speak. Putting \( P(R) \) ahead of \( P(E) \) allows that presupposition to be handled more elegantly than if things had been done the other way around. Once we know that a plaintiff was a rescuer, \( P(E) \) becomes a non-issue. We can assume that that requirement has been satisfied without even having to ask about it. The only reason for asking is to distinguish those rescuers who were eyewitnesses from those who were nearby and attended the scene. The distinction makes no practical difference to a plaintiff's chances of recovery. However, it does make for a more precise fact pattern match.

Turning things around and placing \( P(E) \) in front of \( P(R) \) does not permit the same unequivocal inference to be drawn because the tight logic only works in one direction. All rescuers must have been either eyewitnesses or near the accident scene. But the converse does not hold. All eyewitnesses and people in the immediate vicinity do not necessarily have to have been rescuers. If we did change the relative positions of \( P(R) \) and \( P(E) \), no insurmountable difficulties would be created. We could even narrow down the scope of enquiry by not bothering to ask whether the plaintiff was a rescuer except in cases where the degree of
exposure was found to be either eyewitness or nearby and attended. However, that approach is clunkier than the one we have adopted. It does not allow us to conclude automatically that the necessary requirements of the following element have been met as we can with rescuers when \( P(R) \) precedes \( P(E) \).

The reason for the ordering of these core elements is intuitive as well as logical. Placing \( P(R) \) first feels more fitting because it locates it closer to the victim module with which it somehow seems to have more of an affinity than does \( P(E) \). After all, relationship has more to do with the victim; exposure has more to do with the event. Therefore, as the popular advertising jingle for Mazda cars goes, "It just feels right!".

The damages module is the last element in line. Damages are looked at last because what the plaintiff must do to prove a recognizable psychiatric illness is much more difficult to make definitive pronouncements about than any of the other elements. The best one can do is to offer some guidelines by putting together a checklist of symptoms drawn from the cases. As long as a plaintiff displays one or more of these commonly accepted manifestations of nervous shock, there is a chance that the case will succeed. By the same token, if the plaintiff shows no tangible signs of shock at all, the case will fail even though all the other essential elements have been satisfied. However, since proving damages is such an iffy proposition, leaving that issue until last makes sense. The early kick-out procedure built into the system works best if it is applied first to those
elements that have a fairly clearly delineated dividing line between success and failure. With proof of damages, one can never be quite sure which way the cookie will crumble - which is, of course, the reason why the courts constantly seize upon that issue as a convenient means of dismissing a claim.

Placing damages last also seems appropriate because it fits in with the chronological sequence of events. The symptoms of nervous shock displayed by the plaintiff are the dénouement of the psychodrama, the icing on the cake. After they have made their appearance, the curtain falls. The event is over. It then becomes something for lawyers to pick over and reconstruct for the shadow drama that will be played out later in the courtroom.

It was a given that relevant cases would be provided last of all to back up whatever conclusions the system reached. No other choice was possible. One cannot support a conclusion with case authority without first reaching the conclusion for which justification is sought.

5.2 Knowledge Acquisition

Knowledge acquisition (KA) is a part of the system-building process that has become a major field of study in its own right. When I first developed the interest in knowledge-based systems in the late eighties that ultimately led to this thesis, KA was in its infancy. Back then, the conventional wisdom on the subject
was a collection of useful pointers drawn from the experience of those who had had hands-on experience constructing KBS's. This material was largely phenomenological. It was essentially a series of do's and don't's that people had learned the hard way, frequently sprinkled with anecdotes to illustrate how these pointers were come by. A systematic how-to approach to KA had yet to be developed.

Since then, KA has come a long way. New journals devoted exclusively to KA are now published. These cover all aspects of the subject, any one of which could serve as the basis for an entire thesis.

However, as important as the KA phase of building a KBS may be, the focus of this particular thesis is on the conceptual structuring of legal knowledge. Hammering out a conceptual structure is undoubtedly an exercise in KA. The KA process encompasses the total interaction between the KE(s) and domain expert(s). It describes how knowledge is acquired, structured, formalized and implemented in a specific system.

Let us take a very brief look at some of the specifics of KA before moving on. To begin with, it covers the selection of an appropriate domain and the steps that the KE took to acquaint herself with the domain before meeting the expert. Typically, this means reviewing the reading that the KE did in the subject area to get a handle on it and to pick up the proper jargon. Then come the detailed accounts of the debriefing interviews with
the expert. These interviews are the standard means by which knowledge is extracted from a domain expert and massaged into shape. Nowadays, ways of automating this phase are a topic of study. Where tracking the KA process is of prime concern, everything but the kitchen sink can get thrown into the record that is made of the interaction. The account may include verbatim accounts of some key exchanges between the expert and KE, descriptions of mistaken assumptions, fruitless speculations, false starts, blind alleys, and so on. The verbal descriptions of all this to'ing and fro'ing may be supplemented by other artifacts such as notes, sketches, videos, tape recordings and whatever else has been generated along the way. The idea is to demonstrate as graphically as possible how the trail from inception to implementation was haltingly traversed. Anything that went on between the KE and the expert is potentially grist for the mill. That can even extend to the psychological dynamics of their relationship, an area of KA that has now become a subject in its own right.

Keeping track of every twist and turn in the KA process requires a considerable allocation of resources. In software firms that develop custom KBS's, brainstorming sessions between the expert(s) and a team of KE's are often conducted in a room with whiteboards all over the walls. These are used for notes and diagrams. At the end of each session, the scribblings on the boards are photographed with a polaroid camera, dated and stored away for future reference. This technique prevents useful ideas from being forgotten. Sometimes, an idea that is discussed and
rejected may get reconsidered and adopted later on. Even if the idea is not completely forgotten and one of the participants has an inkling of what it was, without a record of what transpired when it was tossed around, reconstructing the details is a painful process. Letting a gem of wisdom slip through one's fingers can be extremely costly from a business point of view. Hence the effort expended to capture every pearl of wisdom that falls from the expert's lips. Sometimes a passing insight can be the seed from which the shape of a sizeable portion of a KBS grows. An audio-visual record of the proceedings is often kept as a means of disambiguating the hieroglyphics on the whiteboards. At the time they were discussed, their meaning may have been clear. But human memory fades rapidly. Without a multi-media key, these scribblings may be too cryptic to decipher days or weeks later. Sometimes an unobtrusive tape recorder may be the best one can do as back up. Experts who are reticent by nature can be camera shy too. They may be less than forthcoming if they see a video camera rolling in the background while they are being interviewed. The KA process calls for flexibility. KE's need to play it by ear when they are dealing with an expert. Sensitivity to the human dynamics of the situation should always take precedence over established procedures. A slavish adherence to a pre-arranged plan in the face of visible resistance on the part of the expert is a recipe for disaster. KA calls for a delicate touch and an acute awareness of the nuances of human interaction.
The aim of the thesis was not to chronicle and analyze the KA process. Had it been so, my whole approach would have been different. For example, the use of the kinds of recording techniques described above would have been imperative. However, since the focus was on the conceptual structuring of legal knowledge, I do not propose to deal with KA in any detail. Inevitably, certain lessons in KA were learned along the way. For example, I described earlier how Professor Smith's participation in the KBS-building exercise clarified his own ideas about the law of nervous shock and exposed a blind spot in his thinking.

I would add only two important observations to what was said before. First, in our case, the process was facilitated by my being a lawyer. As a preliminary step, most KE's are obliged to take a crash course in a subject so that they can get some grasp of it and be able to communicate with the expert in his own language. In my case, that was not necessary. I may have known very little about nervous shock as such, but because we were both lawyers, Professor Smith and I were on the same wavelength, so to speak. The benefit of having a shared set of unstated assumptions that goes with being in the same profession should not be underestimated. Thinking like a lawyer is a curious mindset that takes years to acquire. Boning up on nervous shock was a relatively trivial matter for me as compared to that major advantage.
The other point worth noting about our association is that the two of us complemented one another remarkably well, thanks to our differing backgrounds and orientations. Professor Smith was a legal theorist who had spent a lifetime as an academic. He wanted to use the tools of AI to test his deep-structure hypothesis. I was a journeyman lawyer who had parachuted in from the "real world". I had the slightly disdainful attitude towards theory that is common among practitioners. When I arrived, my initial motivation was to build a KBS that might be of practical use to lawyers. I was also interested in finding out whether such an undertaking was viable for other lawyers without any formal training in computer science. Each of us brought a radically different viewpoint to bear on the enterprise. Yet our improbable partnership developed into a useful symbiosis. My focus shifted from the practical to the theoretical. I came to appreciate the value of theory as a means of drawing together what would otherwise be a grab-bag of useful bits of knowledge into a coherent whole.

Having made those two points, I shall say no more about KA, except in its knowledge structuring aspect.

5.3 Technical Knowledge Representation (TKR)

We decided to use a rule-based ("production system") shell to build NSA because we believed that legal knowledge could best be represented by rules. At the risk of belabouring the point, I
hasten to add that by "rules" we do not mean the traditional rules of law. We have seen that their nebulousness makes them impossible to pin down with any degree of certainty. Only the cases that purport to interpret the rules lend them enough substance to come to grips with. Therefore, by rules we mean those rules that we ourselves formulated to predict the outcome of nervous shock cases based on our deep-structure analysis of the case law. Although NSA was to decide legal issues, it would do this by posing purely factual questions to the user.

After some shopping around, in late 1986 we chose M.1, a product marketed by Teknowledge Inc. of Palo Alto, California. M.1 was a direct descendant of EMYCIN, the first shell system. EMYCIN itself was a spin-off of MYCIN, the well-known expert system developed at Stanford in the seventies to diagnose and prescribe treatment for bacterial infections of the blood.

M.1 seemed like the best reasonably priced tool on the market for our purposes for a number of reasons. For one thing, it ran on an IBM PC with 640K of RAM memory. At the time NSA was being developed, the Faculty of Law was an IBM shop. IBM Canada Ltd. had donated a large quantity of hardware and software to the law school as part of a Co-operative Project on Law and Computers. Whatever tool we chose had to be IBM compatible.

M.1 had a number of other attractive features. For one thing, it had built-in certainty factors. We felt that any opinion NSA gave should be weighted in terms of certainty. This was another
way in which we could add a touch to the system that would be intuitively appealing to legally trained users. Lawyers are accustomed to talking about a case's chances of success or failure in percentage terms, both among themselves and to clients. These percentages are not mathematically calculated probabilities; they are simply the lawyer's gut feeling about a case's prospects translated into a best guesstimate figure. By the same token, the certainty factors used by M.1 did not conform to the rigorous mathematical standards of statistics and probability theory. Rather, they relied on the heuristic methods of handling probabilities and combining evidence that were developed in the MYCIN project, from which, as noted above, M.1 was descended. NSA incorporated this approach. No attempt was made to address the issue of uncertainty as a topic in its own right. This was not deemed necessary, given the rough-and-ready way in which lawyers themselves estimate the strength of a case and its component elements. M.1 also had an explanation facility which we felt was essential. Canned text messages could be presented to the user in response to queries about why the system was seeking certain facts. Less important features were that its rules were written in an English-like syntax and any standard text editor could be used to create the knowledge base.

It was after we had acquired M.1 that I was struck by the curious similarity between the inference engine's backchaining control strategy and the way lawyers think. As noted earlier in the thesis, the lawyer's goal in any particular case is dictated by the needs of the client. Lawyers start with a goal such as
recovery for the plaintiff in a particular case and then, working backwards, seek every available means at their disposal of achieving it. Being accustomed to the backward-seeking approach to problem solving may have made it easier for me to learn how to program in M.1.

5.4 Knowledge Encoding

Implementing NSA was a time consuming and frustrating process. Unless one has the "hacker" mentality, writing and debugging code is not much fun. Reading about how it was done is not too exciting either. Since the main thrust of the thesis is about the conceptual structuring of legal knowledge, dwelling on the technical details of how the KBS was built adds little of theoretical interest. The process of writing a program that actually works provides a great reality check. Therein lies its principal benefit. Having to specify in minute detail how every part of a conceptual structure interacts with every other keeps one's feet anchored firmly on the ground. Otherwise, one's imagination is likely to zip off on unrestrained flights of fancy that may seem dazzling at first blush, but on closer examination turn out to be fatally flawed. These defects can slip by unnoticed if one is writing a book. Computer programs are another kettle of fish.

Writing any computer program has its predictable ups and downs. NSA was no exception. For the reasons given above, I do not
propose to go into the business in excruciating detail here. Let us simply say that on many occasions I cursed the day that I first sat down at a keyboard and embarked upon this venture. The endless fiddling around required to get anything to work properly made me wish that I was back in court where I felt I belonged. The most important lesson that the exercise taught me is that getting a computer to do something apparently simple can be extremely difficult. People who have never done any programming do not understand this. As a result, they tend to have unrealistic expectations about how quickly a program can be got up and running. I was certainly among their number before hands-on experience disabused me of the notion. In any event, we shall skip the details of that tedious endeavour and confine ourselves to describing the results.

A brief technical description of the first version of NSA is as follows. The uncommented knowledge base consisted of 225 "if...then..." rules occupying about 75K of memory. All facts were elicited from the user by questions posed during an interactive consultation. Throughout the inference process, extensive use was made of pattern matching variables and the intermediate conclusions stored in M.1's "cache" (i.e. temporary storage area). From this description, computer scientists among the readers may correctly surmise that M.1 had much in common with Prolog, the logic programming language. In fact, Prolog was the underlying language in which M.1 was originally written, although it was subsequently re-written in C to improve its execution speed. At the end of the consultation, the contents of
the cache were used to build a profile of elements in the form of a list structure. This list structure was matched to a predefined table of lists representing all possible outcomes of the consultation. Each list was identified by a unique integer which acted as a pointer to a menu containing a collection of relevant case names. The menu was displayed through a linkage to the knowledge base written in C with the assistance of Doug Arnold, a computer scientist employed by the law school. Another of M.1's features is that it has built-in links to the C programming language. The case digests of the cases selected from the menu by the user were retrieved from a flat text file indexed to a list of case names. The external files were quite large: the menu file was 162K and the text file 191K. Since the M.1 inference engine alone required 232K, the completed system needed to be run off a hard disk. Some examples of the M.1 code are given in Figures 4, 5 and 6. The captions of the figures explain exactly what the code does.

A sense of how NSA works is given by the sample consultation in Appendix 1. The consultation is based on the textbook case of the mother who sees her child killed by a careless driver. The remarks in square brackets are for clarification purposes only and would not appear in an actual consultation.

5.5 System Testing and Evaluation

NSA was first tested against a class of Professor Smith's law students. He gave them a nervous shock problem to research and
This is the high level rule which determines whether or not the material elements of a cause of action are present on the facts provided by the user and states the system's conclusions. */

rule-221: if greeting-done and
parameters-found and
aggravated-incident is sought and
certainty-augmented is sought and
decision-given and
results-shown
then facts-reviewed.

This is the high level rule that seeks case authority to support the conclusions reached by the advisor. It also supplies the best defence cases and full text of the leading case on nervous shock. */

rule-224: if case is sought and
select-case is sought and
symptoms-found or
cached(judgment = no-cause-of-action) and
defences-given is sought and
overview
then cases-matched

This is the top level control rule which drives the system. The premises of this rule and the various sub-goals they generate through the back-chaining process dictate the course of the entire consultation. */

rule-225: if facts-reviewed and
cases-matched
then advice-given.

Figure 4 shows the 3 top-level rules that drive NSA's back-chaining inference strategy. The overall goal of the system is "advice-given".
Figure 5 gives an example of how NSA uses a pattern-matching rule to retrieve appropriate text messages from a table.
Figure 6

rule-162: if cached(harm-type = harm) or
    cached(harm-type = risk) or
    cached(harm-type = both) or
    cached(false-report)
    then act = valid.

rule-219: if tort = T and
    act = A and
    party = P and
    incident = I and
    other-incident = 0 and
    relationship = R and
    exposure = E and
    damage = D and
    case(T,A,P,I,O,R,E,D) = [C]
    then case = [C].

case(ok, valid, two, injury, no, child, witness, yes) = [72].
case(ok, valid, two, injury, no, spouse, witness, yes) = [73].
case(ok, valid, two, injury, no, parent, witness, yes) = [74].
case(ok, valid, two, injury, no, sibling, witness, yes) = [75].

/* -------------------------------SEE-CASE-----------------------------*/

question(see-case) =
'Would you like to peruse the cases which support my decision?'
legalvals(see-case) =
    [yes, no].
Figure 6 (cont.)

/*---------------------------------SELECT-CASE-------------------*/

The following rules either access the external data file and retrieve the cases which correspond to the entry in the case profile table or bypass the external function if the user does not wish to see the cases. */

nocache(select-case).

rule-222: if see-case and
case = [X] and
stringof(X) = CASELIST and
external(selectcases, [CASELIST]) = YSTRING
then select-case.

explanation(rule-222) =
[nl,
' I am prepared to justify my decision in terms of the case law. However, if you are not particularly interested in looking at the cases, I do not wish to bore you with unnecessary detail.',nl].

rule-223: if see-case = no or
see-case is unknown
then select-case.

Figure 6 conveys a sense of how NSA builds a profile of the consultation, using the intermediate conclusions stored in M.1's cache. The system links the profile to a text file containing relevant cases by invoking an external function. For the sake of brevity, Figure 6 only gives an example of one profile element and a portion of the table of list structures.
found that the opinion of more than 85% of the students as to the correct outcome agreed with that given by NSA. Thereafter, ongoing feedback about NSA was obtained by demonstrating the system to graduate students, faculty and visitors to the law school. The response of the legal professionals who were shown the system was overwhelmingly favourable with respect to its usefulness. However, no further formal testing was done.

Teknowledge Inc., the developers of M.l, liked the design of NSA. The company obtained permission to use the system to demonstrate the capabilities of its shell. NSA was used as a product demo for M.l in August, 1987, at AAAI in Seattle. This endorsement, of course, says nothing about NSA's usefulness as a tool for lawyers. But it did constitute a positive response to the purely technical aspects of the system from within the computing community.

Even more surprisingly, NSA aroused some interest among the public at large. A freelance journalist, trained in the history of science, who saw the system at AAAI thought it a novel enough application of AI technology and law to interview Professor Smith and me subsequently. Speaking as a layperson, he told us that he could see how such a system could be useful to lawyers. Sound bites of the interview were included in a radio program about AI that was aired as part of the CBC "Ideas" series in February, 1988. If nothing else, this media exposure seemed to indicate that the research was timely, in that a journalist whose
specialty was appraising technology deemed it to be of interest to an educated public.

However, I hasten to add that none of the feedback described above comes close to constituting a rigorous validation of NSA's knowledge, practicality and usability. The validation of the results of the KA process, as embodied in a KBS, is a major research area in its own right. The thesis would have taken a completely different tack if that had been one of its objectives.

In retrospect, it would probably have been useful to have created a questionnaire with which to document the comments of the many people who either used or were given demonstrations of NSA.

The only really fundamental criticism of NSA from the legal community was that the system did not provide information on the quantum of damages awarded to victims of nervous shock. But the function of the system was to determine liability, not to assess damages. The assessment of damages is a complex process that in itself would provide a challenging domain for a KBS. Many of the reported nervous shock cases do not contain any information about damages. Those cases that do are spread across too broad a timespan for the amounts to have any meaning in absolute terms. Furthermore, even within the same time frame, awards vary too much from jurisdiction to jurisdiction for there to be any such thing as a global "going rate" for cases of similar severity. Once these difficulties had been pointed out, the critics usually
conceded the need to separate the issue of liability from that of damages.

5.6 Deployment Strategies

NSA covers such a narrow, specialized area of law that cases which fall within its domain do not arise very often. In a sense, this is a plus because the system provides a rapid and reliable means of researching legal territory with which most lawyers are unfamiliar. However, precisely because such cases come along so infrequently, the system does not have the sort of everyday usefulness which is a feature of expert systems which deal with more mainstream types of subject matter. Therefore, rather than distributing the system to a whole series of locations where it might never be used, it was decided that the best strategy was to make its existence known to members of the profession through widespread publicity (newsletters, continuing legal education materials, etc.) and invite them to come and use it at the Faculty of Law if they had a nervous shock case.

This strategy has worked well. Since NSA was completed, a number of lawyers have used it to help them prepare real nervous shock cases. Some of those lawyers had done their own legal research before coming to see us. In each instance, NSA was able to come up with relevant cases the lawyers had missed after spending several working days researching the subject. One lawyer estimated that consulting NSA for 20 minutes had provided
material that would have taken 50 hours to collect using conventional legal research methods. Even then, there was no guarantee that all of the precedent cases provided by NSA would have been found by the human researcher. Legal research tends to be a hit-and-miss proposition because of the way reported cases are scattered among the different series of law reports. NSA's usefulness lay not only in gathering together all the cases, but also in categorizing them so that the right selection would be presented to the user in response to a particular fact pattern.

A judge presiding over a trial involving a nervous shock claim heard about NSA through the legal grapevine and made arrangements with Professor Smith to visit the law school and use the system. I shall mention no names because to do so might constitute a breach of confidentiality. The judge found the system useful because the advice it gave focussed on the very issue that he had decided was the crux of the case. The judge conceded that the selection of cases NSA came up with were indeed those on which his decision would have to be based. After the consultation, Professor Smith and I discussed the reasoning underlying NSA's opinion at length with the judge. But the judge's view of how the key issue should be resolved was at odds with our own. His ruling on that issue decided the outcome of the case. If the decision had stood, we would have been obliged to rethink some of our ideas on that particular element of nervous shock. This was not a borderline case as far as we were concerned. The correct outcome seemed clear. As it happened, the judge's decision was
unanimously reversed on appeal for the very same reason that we had given for objecting to it.

5.7 Technology Transfer Strategies

The main purpose of our work was to impose a formal structure on an area of case law so that the legal knowledge could be manipulated computationally. Since we had used a well-understood technology to achieve this end, the nature of our application was of primary interest rather than the mechanics of its operation. Consequently, NSA was much more intriguing to people in the legal field than to computer scientists. A number of law schools approached us and expressed interest in acquiring NSA as a teaching tool in torts courses and as a means of showing how computer technology could be of use in legal practice. In fact, we have provided the system free of charge to law faculties throughout Canada, the United States and Australia.

5.8 Maintenance

Maintenance is a major issue for builders of KBS's. Unless a system is kept up to date so that it reflects the current state of knowledge in a domain, it will not be of much practical use to its intended users — in this case, lawyers. At best, an outdated system's usefulness will be limited; at worst, the advice it gives will misguide a user because it will be plain wrong.
When discussing the issue of maintenance, a clear distinction must be drawn between conceptual maintenance and technical maintenance. Both are important. However, of the two, conceptual maintenance is far more significant.\(^7\) It requires making changes that affect the underlying conceptual structure of the system in some way. Whether adjustments can be made without having to scrap everything and rebuild the system from scratch is the sixty-four thousand dollar question. Technical maintenance, on the other hand, calls for routine tinkering like debugging, streamlining the code to make it more efficient, adding more cases to the case base, and so on. While these tasks are essential, and by no means trivial, they do not affect the underlying structure of the system.

As time passed, it became clear that the first version of NSA required maintenance of both kinds. This presented us with an ideal opportunity of exploring the maintenance issue in both its aspects. We shall deal with how each aspect was tackled in turn. In keeping with its relative importance, we begin with conceptual maintenance.

\[5.8.1 \text{ Conceptual Maintenance}\]

When NSA was being demonstrated, a question that we were frequently asked was: "What happens to your system if the law changes radically?". Our response to the question was evasive. In effect, we denied that such a thing could happen. We argued
that changes in case law are so gradual and incremental that a minor modification of the KBS's rule base would be more than enough to accommodate any change. In saying so, we were banking on the stability of the domain. The conventional wisdom amongst builders of KBS's was that the domain chosen should be as stable as possible. We had heeded this advice. The last thing we wanted to do was to expend a lot of time and effort building a system that could be rendered obsolete overnight. For that reason, we had eschewed volatile areas of statute law that might be revamped by a legislature to implement a new political agenda. We cited income tax law as the unstable domain par excellence.

Our assurances about how rock-solid our chosen domain was were greeted with skepticism in certain quarters. As some people rightly pointed out, we had failed to give a responsive answer to the all-important question. However, when pressed, we insisted that the conceptual structure of NSA, based as it was on a deep-structure analysis of the law, would be sound enough to incorporate change without having to be scrapped and rebuilt completely. We had no idea that our bold assertion would be put to the test by a series of significant changes in the law which came about with uncanny timeliness. What follows is a description of how the conceptual structure depicted in Figure 1 was modified to take these changes into account.

The most important unstated assumption underlying the conceptual structure of nervous shock was that the immediate victim of the shock-inducing harm must of necessity be a human being. The idea
was so self-evident to each of us that neither Professor Smith nor I ever bothered to mention it during our brainstorming sessions. Afterwards, while demonstrating NSA, we were asked on several occasions whether a plaintiff could recover for nervous shock suffered as a result of an injury to a pet animal. I particularly recall a hypothetical situation being suggested by someone in which a devoted owner is traumatized when he sees his dog get run over. We had no hesitation in categorically rejecting any chance of success in such circumstances. Our dogma was that a plaintiff could not recover for nervous shock triggered by anything other than harm inflicted upon a human being, period. Our certainty on this issue was such that we found it difficult to suppress a smile when responding to these questions about animal victims. The notion seemed too farfetched to be worth taking seriously. Indeed, we could not help suspecting that the questions were being asked tongue in cheek out of a mischievous desire to amuse the rest of the audience. They always did seem to elicit a few chuckles.

Imagine our surprise, therefore, when along came a decision of the English Court of Appeal that appeared to open the door to a possibility that we had hitherto considered unthinkable. The case in point was Attia v. British Gas Plc. First and foremost, one must understand that it is not a strong authority, the reason being that it deals only with the determination of a preliminary issue in a nervous shock action. It is not a full decision on the merits. However, having said that, the fact remains that the case does raise some intriguing questions.
The facts are as follows. The defendant gas company was hired to install a central heating system in the plaintiff's home. The plaintiff returned home and saw smoke issuing from the premises. She called the fire brigade, but by the time they arrived the whole house was on fire. It took four hours to bring the blaze under control. The house and contents were extensively damaged. The defendant admitted that the fire had been caused by the negligence of its employees who were working on the premises. The plaintiff's claim for damage to the house and its contents was settled. However, the plaintiff made a further claim for nervous shock suffered as a result of seeing her home go up in flames. By agreement of the parties, the issue of whether property damage alone could support a claim for nervous shock was decided by the court as a preliminary matter. The decision was made on the basis of an agreed statement of facts that were substantially the same as those recited above. The trial judge found against the plaintiff. On appeal, a bench of three judges unanimously reversed the lower court's finding and ordered that the matter proceed to trial.

Above all, one should be careful not to read too much into this decision. The court did not say that a plaintiff could sue successfully for nervous shock brought on by property damage. What it did say was that it was not prepared to rule that a plaintiff could not recover for nervous shock suffered under such circumstances. The difference is subtle, but critical. Dillon L.J. makes the point clearly in the judgment.

"I am not therefore prepared to hold that the fact that the shock which caused the plaintiff's assumed
psychiatric illness was caused by damage to property must preclude her from recovering damages for 'nervous shock' even if it was reasonably foreseeable that she might suffer psychiatric illness as a consequence of the negligence in causing the fire to her house."9

Woolf L.J. makes the same point even more forcefully.

"I would also not determine finally the preliminary issue in favour of the plaintiff on the facts before this court. Like Dillon and Bingham L.JJ., I consider that it is preferable that an issue of this sort should only be determined after the court has had an opportunity of exploring all the relevant facts as to liability. The statement of claim which contains the only facts before this court only indicates in outline the circumstances in which the plaintiff sustained her injuries. While the facts which are before this court do not disclose a situation where as a matter of law the plaintiff cannot succeed, whether she is entitled to succeed should only be finally determined after a trial."10

The last judge in the trio, Bingham L.J., said essentially the same thing. However, unlike the other two, he went on to indulge in some speculation which, although obiter dicta, is worth quoting because it shows how a case like this, if ultimately successful, might be applied by analogy to other fact situations.

"It is submitted, I think rightly, that this claim breaks new ground. No analogous claim has ever, to my knowledge, been upheld or even advanced. If, therefore, it were proper to erect a doctrinal boundary stone at the point which the onward march of recorded decisions has so far reached, we should answer the question of principle in the negative and dismiss the plaintiff's action, as the deputy judge did. But I should for my part erect the boundary stone with a strong presentiment that it would not be long before a case would arise so compelling on its facts as to cause the stone to be moved to a new and more distant resting place. The suggested boundary line is not, moreover, one that commends itself to me as either fair or convenient. Examples which arose in argument illustrate the point. Suppose, for example, that a scholar's life's work of research or composition were destroyed before his eyes as a result of a defendant's careless conduct, causing the scholar to suffer reasonably foreseeable psychiatric damage. Or suppose that a householder returned home to find that his most cherished possessions had been destroyed through the carelessness of an intruder in starting a fire or..."
leaving a tap running, causing reasonably foreseeable psychiatric damage to the owner. I do not think a legal principle which forbade recovery in these circumstances could be supported."\textsuperscript{11}

Bingham L.J.'s words eloquently emphasize an intrinsic feature of the common law that I have taken pains to point out throughout this thesis: the boundary line is constantly shifting. He winds up his judgment by adopting those pragmatic words of Lord Wright from \textit{Hay (or Bourhill) v. Young}\textsuperscript{12} that were cited earlier in the thesis; namely, that exactly where the line gets drawn depends on the good sense of the judge. In referring to a judge's exercise common sense at p. 1113, Bingham L.J. stresses the futility of trying to come up with hard and fast rules when dealing with legal matters, another point that I underscored when discussing the neats' mania for mathematical precision.

"His good sense provides a better, because more flexible, mechanism of control than a necessarily arbitrary rule of law."\textsuperscript{13}

What His Lordship omits to mention when he talks about setting boundaries is that there is an ebb and flow to the law. Taken at face value, his words suggest that the frontier is constantly expanding outwards to embrace new territory. In fact, the law sometimes retreats from an earlier, more expansive interpretation to a more restrictive one. Apropos of which, we shall see later on that \textit{Attia v. British Gas Plc.} may well represent the high-water mark of the law of nervous shock. The last word on the subject suggests that in future the courts will reduce the scope of the domain's coverage to a much narrower purview. However, in alluding to that, we are getting ahead of ourselves; that recent development will be examined as it arose, as a new wrinkle too
late in the day for me to include it in the modified conceptual structure we are about to examine. That happening is in itself a fitting comment on the law. The law's shape is constantly shifting. That state of flux poses problems for thesis writers. They must, at some point, call a halt to their research and start writing about it if they are ever to complete their degrees. Their great fear is that some last-minute development in the field will nullify everything they have done. In my case, that did not happen. But a less drastic possibility is that a new twist will be added to the work already done. A development will occur that, in good conscience, cannot be ignored. That very thing materialized with the law of nervous shock. The only reasonable way to handle such late-breaking news is to tack it onto the end of the research in the form of a postscript. That is precisely what I did, as we shall see in due course.

However, having had a sneak preview of what lies ahead, let us get back to the Attia case for the time being. We should note that the Court of Appeal's judgment, for what it was worth, was never overturned. The defendant gas company's petition for leave to appeal the decision to the House of Lords was refused. Not surprisingly, there is no subsequent report of any trial having taken place. In all likelihood neither party was anxious to see the case go to trial. The tentative nature of the Court of Appeal's judgment makes it plain that the plaintiff's chances of success were not that great. On the other hand, there was obviously a chance that the plaintiff might succeed. The defendant's insurers would not want to run the risk of setting a
bad precedent and opening the door to a flood of nervous shock claims stemming from damage to property. Consequently, it was not in the interests of either party to to roll the dice by going to trial. The situation was tailor-made for a compromise. In all probability, the reason why the case has not surfaced again is that an out-of-court settlement was reached.

Now let us explore the effect that Attia had on the original conceptual structure shown in Figure 1. Clearly, the victim module had to be restructured to allow for property to be a valid immediate victim of a shock-inducing event. But the implications of the Attia case went further than that. If property could legitimately fall within the victim category, then what about animals? Since, in law, animals are considered to be a type of property, on that narrow ground alone, there was some basis for putting them under the same heading and arguing that they are just another kind of property. However, to do so seemed intuitively wrong. Most people tend to think of property as being something inanimate. Animals, on the other hand, are living creatures that seem much closer to human beings than a lifeless piece of property. Approaching things from that angle, one could argue that, if a plaintiff could recover for nervous shock in cases of damage to property, then a fortiori a plaintiff should be able to recover where the victim was an animal. Apart from the logic of the argument, some authority for this proposition was to be found in the case law. The source of the support was a piece of obiter dicta in Owens v. Liverpool Corporation, the case we have already looked at in which the
overturned coffin shocked the mourners in the funeral cortege. The issue, of course, was whether the mistreatment of a corpse was sufficient grounds on which to found a claim for nervous shock. MacKinnon L.J. had this to say in his judgment in *Owens*:

"Does it follow that, in a claim for damages for shock, there must in every case be apprehension of injury to some human being, as the learned deputy-judge thought? If real injury has genuinely been caused by shock from apprehension as to something less important than human life (for example, the life of a beloved dog), can the sufferer recover no damages for the injury he, or perhaps oftener she, has sustained?

On principle we think that the right to recover damages for mental shock caused by the negligence of a defendant is not limited to cases in which apprehension as to human safety is involved."\textsuperscript{15} [Emphasis added]

A corpse, of course, is not a living thing, nor even a person any more. Human remains are treated with great respect for a variety of cultural reasons. Yet they more naturally fit into the category of property than a live animal. A legal story reported in the June 9, 1988, issue of the *Globe and Mail* newspaper makes the point in a darkly humorous way. The article describes a case that was heard in traffic court in Santa Ana, California. The item is so short that it is worth quoting verbatim rather than attempting to paraphrase it and losing something of its flavour in the translation.

"A man was fined $58 U.S. after failing to persuade a judge that the four frozen corpses in his van qualified him to use a car pool lane.

Robert Hanshew, 25, of Westminster, who transports cadavers for a mortuary transportation service, was stopped March 21 on a freeway entrance ramp. Only vehicles with at least two people can use the car pool lanes.

Mr. Hanshew told an officer that he believed the bodies in his van qualified as passengers, but his reasoning was not shared by Municipal Judge Richard Stanford, who ruled that passengers must be alive to qualify for life in the fast lane.
"He even said his mother had died a while back and hoped no one would refer to his mother as cargo," bailiff Kerry Kowalski said.\textsuperscript{16}

Since the judicial mind has a tendency to think along the same lines, there is every reason to believe that a Canadian judge would dispose of a similar case in the same way.

Let us now examine the ways in which the conceptual structure depicted in Figure 1 needed to be modified to handle non-human victims. We shall begin with the victim module, but we shall see that the changes to it cause a ripple effect through the succeeding modules pertaining to harm, $P(R)$ and $P(E)$. You will notice that the diagrams we shall use to illustrate the changes attributable to the inclusion of non-human victims also show modifications to other parts of the conceptual structure. Let us ignore those other changes for the time being. They will be explained in due course. While we are discussing the various changes that have been made throughout the structure, it would be useful to flip back to Figure 1 from time to time for comparison purposes.

Figure 7 shows the modifications to the victim module. The module no longer presupposes the existence of only a human victim. It has been subdivided into 3 nodes: human, animal and property. The human node subsumes the original victim categories of plaintiff and third-party. The animal node has been subdivided into "pet" and "non-pet". The "non-pet" leaf node has a gray background to it that signifies failure.
Figure 7
From now on, a gray background will always be used to represent failure. The new structure differs from the old in that some failure conditions are specifically represented. You will recall that, in the old structure, failure was the default if a particular possibility was not actually mentioned. The rationale behind the change is simple. Users are better informed by being told unequivocally that certain fact patterns they may have thought would support a claim are not in fact considered legally valid. Not every conceivable failure condition is set up like a straw man just to be knocked over. Those chosen are ones that seem to follow on as logical extensions of a line of reasoning, but which happen to fall beyond the pale. In addition, failure conditions that are the other side of a pair of opposites are included to balance out the symmetry. The pet/non-pet dichotomy is a case in point to which we will now return.

Why should pets be considered a valid animal victim and not non-pets? In Owens v. Liverpool Corporation, MacKinnon L.J. uses a "beloved dog" as an example of an acceptable non-human victim. However, the judge was not talking about any old dog. The adjective "beloved" plays a key qualifying role in his description. The clear implication behind those words is that the animal in question must be a pet; hence the distinction drawn in Figure 7 between pets and non-pets. Assuming that the animal victim must be a pet, what kinds of pets will do? Pet shops these days are crammed with a bewildering variety of exotic animals being offered for sale as pets. Would any of them fit the bill as long as they were loved? Professor Smith tended to
think not. He thought that, if the law extended the ambit of recovery to include pets as allowable victims, which was in itself questionable, it would include only standard pets such as dogs, cats and horses. In other words, the group would be restricted to those mainstream mammals that have traditionally had close relationships with human beings. The small set shown in Figure 7 reflects that judgment. People undoubtedly do have close relationships with snakes, gerbils, mice, and a variety of other reptiles and rodents. They might very well be devasted if someone's negligence caused the untimely demise of one of these creatures. But the law is always looking for natural cut-off points at which to draw the line. The set of standard pets seems like the obvious place.

Property, the other non-human node of the victim module, splits naturally into the two traditional legal categories of real and personal property. The division is in keeping with the policy adopted throughout the thesis of using accepted legal categories and terminology wherever possible so as to make the look and feel of the KBS appealing to legal users. While the Attia case arose out of a house fire, there is no reason in principle to prefer real over personal property when it comes to determining eligibility as a potential victim. The destruction of the household contents, which were personal property, was part of the reason for the plaintiff's distress. Furthermore, the examples given by Bingham L.J. - a scholar's life's work and someone's cherished possessions - make it clear that real and personal property are regarded by the law as being on essentially the same
footing in this context. The crucial requirement is that the property should be valuable. However, the problem lies in knowing what criteria to use when assessing value.

Bingham L.J.'s remarks in Attia make it clear that monetary value is not the only yardstick by which value should be measured. Something more meaningful of a personal nature has to be an ingredient of the object's value. However, the item would probably also have to have significant pecuniary value to which was added what one might call a sentimental component, for lack of a better expression. An object of nominal value is unlikely to be accepted as a valid property victim no matter how much sentimental value a would-be plaintiff attached to it. Estimating the relative proportions of the monetary/sentimental value mix in some objective fashion is an impossible task. The difficulty is that we are dealing with a situation in which beauty is in the eye of the beholder. Let us take a fanciful example from Charles Schultz's well-known cartoon strip "Peanuts". Imagine, if you will, that Charlie Brown were to tear Linus's blanket from his grasp and burn it before his eyes. Anyone who knows about Linus's fanatical attachment to that blanket can imagine that the cartoon character might instantly be prostrated by nervous shock. But could the destruction of a grubby old blanket support a claim? It almost certainly would not.

In all likelihood, the courts will adopt a two-part test that has both an objective and a subjective element to it. That approach is commonly used as a legal device for striking an uneasy balance
between this pair of opposites. For example, in criminal law, defences to some crimes depend for their success on a blend of subjective and objective factors. The defence of consent to a charge of sexual assault is a case in point. For an accused to avail himself of such a defence, he must first prove a sincere belief in a state of affairs which, if it existed, would afford him an excuse. However, in addition to this subjective state of mind, he must also prove to the court that there were some objective grounds on which he could base that belief. In the absence of an objective element, there would be no way of controlling a flood of defences based on sincerely held beliefs with no foundation in consensus reality.

Whether or not damage to a piece of property of a high pecuniary value, but of no sentimental significance, would be sufficient to support a claim is debatable. Some people are not sentimentally inclined. However, their material possessions mean a lot to them. Let us suppose that some hard-headed businessman sees his factory go up in flames and suffers nervous shock as a result. Should his claim be denied because the financial implications of the loss were what devastated him, not some loftier sentiment? The question is hard to answer.

The modified conceptual structure shown in Figure 7 makes no attempt to disentangle the pecuniary and sentimental aspects of property value. In effect, it fineses the problem by allowing for both options. All that the structure requires is that the
value of the property should be high in one way or another. If this condition precedent is not satisfied, failure results. While we are looking at Figure 7, let us digress for a moment and dispose of a minor change to the intent module in passing. The presupposition implicit in the structure shown in Figure 1 is that the shock-producing act was culpable. That being the case, by necessary implication, it must have been either deliberate or negligent. Figure 7 articulates what is implicit in Figure 1. It expands on the earlier diagram by making the full range of possibilities explicit. In our earlier discussion of the case law, we saw that deliberate acts are invariably culpable. We also discovered that nervous shock cases involving deliberate acts can be divided up according to whether the actor's intent was to cause nervous shock itself or some other form of harm that happened to precipitate nervous shock. Figure 7 makes that distinction. At the highest level, it also divides acts into two categories according to whether they were unintentional or deliberate. That fundamental division is appropriate from a legal and a common sense point of view. It allows us to further divide unintentional acts into those that were negligent and those that were non-negligent. Accidents sometimes happen through no fault of any of the people involved. The possibility that a shock-producing act might have been blameless is now allowed for, which is as it should be.

Let us now look at how the harm module was modified to include animal and property victims. Figure 8 shows the adjustments to the conceptual structure. The same pattern of separating human,
Figure 8
animal and property victims is followed as in the preceding module. One can see immediately that a number of changes have been made to the human victim node. However, we shall defer explaining those, and all other changes relating to human victims that we subsequently encounter as we work our way through the conceptual structure, until after we have tracked those pertaining to animal and property victims to their logical conclusion.

The basic assumption that Professor Smith made in deciding what sort of harm would be needed to support a claim in the case of animal and property victims is that the degree of harm in either instance would have to be severe. He felt that nothing short of serious harm would do, given the dubious legal status of these types of victims. This guiding principle was translated into the harm depicted in Figure 8: "death" or "serious injury" for animals; "total destruction" or "severe damage" for property. The pairs of options selected for each victim type are intended to be of exactly equivalent seriousness, making allowances, of course, for the intrinsic differences in nature between animals and property.

The type of harm deemed adequate for animals is a subset of the sort of harm that can befall human victims. However, at the risk of being repetitious, the two overlapping types were duplicated under the animal node rather than risk making Figure 8 confusing by attempting to link up the animal node to only a small part of the human node.
We must now consider how the element of $P(R)$ might be satisfied where non-human victims are concerned. What kinds of relationships to these victims will the law be likely to recognize? Where human beings are concerned, we have seen that the law's tendency is to favour close family relationships. The analog for property and animals would be legal ownership. In keeping with our convention of usually putting the strongest factual instances that satisfy a category on the left-hand side, "legal owner" is shown in Figure 9 as the premier relationship for both pet animals and property.

But what about less formal relationships? Let us begin with animals. Should a child traumatized by witnessing the gruesome death of the family cat be denied damages for nervous shock simply because the legal owner of the animal was a parent? Common sense tells us otherwise. If anything, a child is likely to be more attached to the family pet than its parents. Be that as it may, there is no reason for not including all the members of the legal owner's immediate family when mapping out the limits of $P(R)$. They may all love the cat. If they do not, phoney claims will still be forestalled because their indifference to its plight will prevent them from displaying genuine symptoms of shock when the unfortunate animal gets killed. Consequently, Figure 9 shows "member of owner's family" as the other acceptable degree of proximity for pet animals.

The relationships to inanimate property that fall short of legal ownership that the law is likely to recognize as satisfying $P(R)$
Figure 9
are of a different order than those involving animals. They will probably be lesser legal interests of one kind or another - not at all the sort of thing that would apply to pets. Let us vary the facts of the Attia case to make the point. Let us suppose that the fire occurred in British Columbia and that the plaintiff's husband held sole title to the property. Would she still have a valid claim for nervous shock? Chances are that she would. If the house were the matrimonial home, she could claim a beneficial interest in it. All other things being equal, under the property split provisions of the Family Relations Act, she would be entitled to claim fifty percent of the house if the marriage broke up. Why then should she be disqualified from claiming damages for nervous shock? There is no good reason to deny the claim because she was not the registered owner of the premises. One can imagine a host of other situations in which a legal interest of a lesser kind than outright ownership in either real or personal property might provide the basis for a nervous shock claim. Problems may arise if the interest has yet to vest. For example, can the designated heir to a valuable antique claim for nervous shock if he sees it smashed to smithereens through someone's negligence during the lifetime of the testator? That is another question which is hard to answer. As Figure 9 indicates, the best that one can say is that the "possessor of a legal interest" in a piece of property may be able to claim for nervous shock if that property is severely damaged or destroyed.

Finally, we must consider how the $P(E)$ element should apply to non-human victims. In Professor Smith's estimation, the answer
was simple. Given the restrictive attitude the courts would undoubtedly take towards cases of nervous shock caused by harm inflicted upon animals or property, nothing less than being an eyewitness to the incident would fit the bill. Unless that highest of all standards of exposure were met, the case would fail. Therefore, in cases in which the immediate victim is non-human, only that option need be presented to a user. All others would be screened out. That, of course, does not call for any conceptual reworking; it merely requires some technical twiddling.

While the Attia case had the single the most radical impact on the existing conceptual structure, several other cases also had an effect. We shall now look at each of these cases in turn and their effects.

The McMullin v. F.W. Woolworth Co.\textsuperscript{17} in which the plaintiff's children became infected by diseased turtles was cited as authority for the proposition that nervous shock must be triggered by an intrinsically shocking event. Whatever the event is, it must be of the kind that administers a sudden jolt to the system. So far so good. The case we shall analyze next, Beecham v. Hughes,\textsuperscript{18} adds a further refinement. It shows that, even though a shocking event precipitates a sequence of events that ultimately causes nervous shock, that fact in itself is not good enough to establish a valid cause of action. In addition, the onset of symptoms must be both directly attributable to and roughly contemporaneous with the initial event.
Now let us turn to the facts. As so frequently happens in nervous shock cases, a motor vehicle accident was the traumatic event that started the ball rolling. The plaintiff was a passenger in a vehicle driven by his common law wife. Another vehicle driven by the defendant went out of control and struck the plaintiff's vehicle. The plaintiff suffered relatively minor injuries. However, his common law wife was grievously injured. Most seriously of all, she suffered extensive irreversible brain damage that left her unable to speak or control her bodily functions. Her injuries required that she be placed in an extended care facility on a permanent basis.

The plaintiff visited his common law wife every day. She appeared to recognize him, but that was the extent of her response to his presence. Any meaningful communication between them was no longer possible. After being exposed to this sad situation for several years, the plaintiff underwent a personality change. He lost his sense of humour, his desire to socialize with other people and to engage in those activities that he had previously enjoyed. His condition was ultimately diagnosed as "reactive depression". His claim for nervous shock was dismissed at trial. He appealed, but a bench of three appellate court judges unanimously dismissed the appeal.

Taggart J.A. wrote a 49½-page judgment in which Carrothers J.A. concurred. Lambert J.A. wrote his own 2½-page concurring judgment. Unfortunately, this afterthought is a thoroughly confusing mish-mash of legal jargon that leaves one wondering
what His Lordship is really driving at. For all practical purposes, therefore, Taggart J.A.'s judgment is what the case is all about.

After spending the first 13 pages of his judgment reviewing the facts and the medical evidence adduced at trial, Taggart J.A. devoted the remaining 36½ pages to an evaluation of the impact of the leading cases of McLoughlin v. O'Brian and Jaensch v. Coffey on the law of nervous shock. In the final analysis, Taggart J.A. adopted the reasoning of Deane J. in Jaensch v. Coffey.

"I find the reasoning of Deane J. most persuasive. I agree with his conclusion based on his analysis of the judgment of Lord Atkin that 'causal proximity' must have a role in controlling the application of the reasonable foreseeability principle. The concept of causal proximity provides an objective basis for limiting the undue expansion of liability which would flow from the unfettered application of reasonable foreseeability."

Taggart J.A. then applied this reasoning to the case at hand.

"What then should be the result in this case? It is of first importance to realize that the medical evidence makes clear beyond question that the reactive depression suffered by Mr. Beecham was not caused by the shock of the accident or by the shock of seeing the injuries suffered by his wife. Furthermore it is not possible by reference to any of the evidence, whether of lay or medical witnesses, to say with any degree of certainty when the illness became manifest. ...

It would seem that a very considerable period of time intervened between the first accident and the onset of the reactive depression. The interval is so long that I cannot say the first accident caused the reactive depression. Here the causal proximity concept comes into play. If foreseeable alone governed, it could be said that it is reasonably foreseeable that negligent conduct will create a risk of injury to others, including injury in the nature of a reactive depression caused by the wearing and debilitating effect on the plaintiff of seeing his wife day after day in a condition utterly unlike her condition before the accident. But as Deane J. points out, Lord Atkin did not intend his description of those who may be neighbours to be a class of persons limited in number
only by reasonable foreseeability of risk of injury to them. Rather his language implies there must be (to use the expression of Deane J.), a causal proximity between the tortious conduct and the class of persons affected by it.

In the case at Bar, the evidence does not support the existence of such proximity. On the contrary I think it supports the proposition that the reactive depression stems from the inability of Mr. Beecham to accept the fact that his wife will not again be the person she was before the accident. I have great sympathy for Mr. Beecham for he has shown an admirable devotion to his wife. However as I view the authorities to which I have referred, they do not sanction the recovery of damages for his reactive depression."20 [Emphasis added]

Taggart J.A.'s concept of causal proximity is mirrored in the changes made to the damage module that are shown in Figure 10. Now, a condition precedent to a successful action is that the telltale signs of nervous shock must manifest themselves right away. As noted in the leftmost top-level node of the module, as far as the symptoms are concerned, there must be a "sudden onset triggered by shock-inducing event". If, on the other hand, as the rightmost node indicates, there is a "gradual onset over time", failure results.

Taggart J.A.'s judgment is noteworthy for two other reasons. First, in adopting Deane J.'s view of the law, by implication, he rejects the double standard of causation that was the unfortunate upshot of the two Wagon Mound cases.

"Deane J. rejected both a return to the strict and limited notions of causation and remoteness which were discarded following the Wagon Mound cases, and the narrow approach to reasonable foreseeability unmoderated by the proximity concept of Lord Atkin."21
Secondly, again following Deane J.'s cue, Taggart J.A. seems to sidestep deciding the controversial issue of whether public policy has an overriding role to play when it comes to drawing the line. Referring to some remarks made by Deane J. about certain limitations imposed on the foreseeability test, Taggart J.A. had this to say.

"He [Deane J.] found that both those requirements were met in the Jaensch case and it was unnecessary to determine whether each or either of them was a part of the requirements of proximity of relationship or whether they were part of some other controlling rule based on policy considerations."^22

Given Taggart J.A.'s wholehearted endorsement of Deane J.'s views, it seems reasonable to infer that he has also chosen to avoid committing himself on the public policy issue.

Now let us look at Lambert J.A.'s short concurring judgment. The most charitable thing one can say about it is that it adds nothing useful to the decision. Taggart J.A. gave us something concrete to grab onto that we could translate into a modification to our conceptual structure. He linked his reasoning directly to the facts of the case and identified lack of causal proximity as its fatal flaw. In contrast, for reasons that are impossible to fathom, Lambert J.A. refuses to concede that the single factor pinpointed by Taggart J.A. was determinative, even though it clearly was in the circumstances. Instead, he presents us with a weird pastiche of concepts that not only has no direct bearing on the facts before the court, but also does nothing to enlighten us. For what it is worth, here is what he has to say.

"In my opinion, the same principles that apply to the determination of liability in negligence for physical damage also apply to the determination of
liability in negligence for psychological damage, otherwise known as 'nervous shock'. Would a reasonable person in the position of the defendant, at the time the defendant committed the allegedly negligent conduct (sic), have had the risk of the type of injury that actually occurred, to the class of plaintiff who actually suffered it, in his or her mind? That question must be answered by a consideration of foreseeability, proximity, causation and remoteness. Such consideration is more difficult for cases of psychological damage than it is for physical damage; the medical evidence may be less certain and harder to apply; the state of knowledge to be assumed in a reasonable but ordinary person may be farther from the frontiers of medicine; but the legal principles remain unchanged.

The questions of foreseeability, proximity, causation and remoteness are interlocked. There are not four answers to four questions, but one composite answer to one composite question. And, to paraphrase Lord Wright in *Hay (Bourhill) v. Young*, [1943] A.C. 92 at 110 (H.L.), the borderline of liability lies where the good sense of the trier of fact puts it when he determines the composite answer to the composite question of foreseeability, proximity, causation and remoteness.

By the same token, I would not put the entire emphasis on 'causal proximity', to the exclusion of 'temporal proximity', 'geographical proximity', or 'emotional proximity'. I would try to balance them all. "23

Foreseeability, proximity, causation and remoteness are certainly key concepts in the law of negligence. Yet why should Lambert J.A. decide to roll them up into one ball and throw it at us here when the circumstances do not warrant such an excursion? We know that foreseeableability is the broad overarching concept that subsumes all the rest. Causation and remoteness are related, as we have seen. Proximity is indeed multifaceted. But so what? There was no need for Lambert J.A. to string all those buzzwords together for our edification instead of putting his finger on the real issue in the case as Taggart J.A. did. Incidentally, Lambert J.A. also ducks the policy issue with these words.
"There may well be an implicit policy element in the decision making, but it is well within the kind of policy question that is inherent in the judicial function."

In sum, Lambert J.A.'s judgment is a masterpiece of misdirection and judicial obfuscation. It can be safely ignored.

A final comment bears making about the judgment as a whole, not on the issue of $P(E)$ which was addressed directly, but rather on the issue of $P(R)$. The closeness of the relationship between the plaintiff and the victim was never raised as an issue in the case. However, the failure to mention it speaks volumes. As a result, Beecham v. Hughes can be taken as tacitly accepting the validity of a common law relationship for the purposes of $P(R)$. In other words, there is now some judicial approval of the "live-in lover" category, as we have hitherto called it. Mind you, in this case the plaintiff and the victim had cohabited for over 4 years prior to the accident, a period longer than many marriages. No wonder that proximity of relationship was not a ground of challenge to the plaintiff's case. Still, the court might treat much shorter periods of cohabitation differently. Nevertheless, one would hope that, despite their conservative tendencies, they would take cognizance of the realities of modern life. Any intimate relationship should be regarded as adequate for the purposes of $P(R)$, albeit a short-lived and informal one. As the old social fabric unravels, transitoriness seems to be the order of the day, in relationships as well as in practically everthing else.
The next change to the conceptual structure that we shall now examine relates to the human node of the harm module shown in Figure 8. First of all, a comparison with the earlier diagram in Figure 2 will reveal that the components of the node have been rearranged. Harm to human beings is now divided into two main categories: physical and non-physical. The leaf nodes of the physical harm branch remain unchanged. However, those of the non-physical branch have been altered both in nomenclature and by adding to them.

To begin with, the pre-existing categories of "risk of injury" and "false news" have been retained in essence, but their names have been changed to "near miss - risk of serious injury" and "distressing news" respectively. The intent of the new wording is to convey more precisely what is meant in each case. A risk of injury is not good enough to support a claim for nervous shock unless the potential injury would have been serious and the plaintiff truly had a close call. The term "distressing news" is apt because, as Figure 8 shows, this node now subsumes both "true" and "false" news. Our assumption had always been that only the dissemination of false news could support claim. However, in the old conceptual structure that assumption was implicit because only the success condition was shown. The new structure explicity negatives true news as a valid basis for a claim, even though it may be of a distressing nature, by showing that path ending in failure. Completing the picture in this fashion makes the new structure more informative and more aesthetically appealing by balancing out the symmetry.
The impetus for reworking the news node was the appearance of the
decision in *Turton v. Buttler et al.* The case expressly
declared that the publication of true news, whatever its effects
might be, does not constitute a wrongful act. The plaintiff was
a masseuse who had been receiving obscene phonecalls. When the
Edmonton Sun reported the fact, she got in touch with the
newspaper and asked them not to publish any further reports. She
was afraid that the publicity would hurt her business. In spite
of the plaintiff's request, the paper went ahead and published
another article on the subject. The plaintiff was dismissed from
her job and claimed that, as a result, she suffered a depression
that amounted to nervous shock.

The defendant applied to have the statement of claim struck out
as disclosing no cause of action. Master Funduk, sitting in
Chambers, granted the application. The Master devoted most of
the 3-page judgment to taking the plaintiff's counsel for task
for erroneously describing nervous shock as a tort. As the
Master took pains to point out, nervous shock is not a tort in
its own right, but a type of injury resulting from a wrongful act
that sounds in damages. The nitty-gritty of the judgment is in
the last half page. Master Funduk summed things up this way.

" Counsel for the plaintiff submits that there was a
duty on the Sun not to publish what it did because it
knew the public dissemination of that information would
cause her 'mental shock'. I do not agree.

A duty cannot be imposed merely by a person saying
to the prospective actor - don't do that because it
will mentally bother me. To use the language of
*Winfield*, that would put an enormously powerful brake
on all fields of human activity.

It can easily be said that the public dissemination
of true facts about a person may in particular cases
mentally exacerbate that person. However, it can
hardly be said that person (sic) should have a cause of action for that. For example, a newspaper publishes the true fact that a well-known public figure was born illegitimate. The bastard may be mentally aggrieved by the dissemination of that information. However, he has no cause of action."^26

The case's failure to even get off the ground effectively scotches any notion that an action could lie for disseminating true news. Indeed, the self-evident nature of that proposition was the reason why Professor Smith and I failed to mention it explicitly in the first place.

Rounding out the non-physical harm branch, to the right of the "distressing news" node in Figure 8, is an entirely new node labelled "legal wrong". What jumps out of the page immediately is that the whole node results in failure. That being the case, one might well ask: If it goes nowhere, then why bother to include it? In fairness, it should be conceded that the reasons for doing so were far from overwhelming. The node was added as an afterthought. From time to time, after seeing the first version of NSA, people had raised the question of whether the commission of some purely legal wrong could support of a cause of action for nervous shock. Professor Smith thought not. However, specific examples were difficult to come up with. At some point, someone suggested the Unemployment Insurance Commission's negligent failure to pay benefits to a destitute claimant as a hypothetical. We extended the example by analogy to the private sector to cover a trustee's failure to make payments to a beneficiary. These ruminations were the genesis of the two leaf nodes of "legal wrong": "breach of trust" and "withholding a benefit".
The only case that raises the issue of whether the breach of a legal right gives rise to a cause of action for nervous shock is *Frame v. Smith et al.* In that case the Supreme Court of Canada was dealing with a deliberate act, yet there is no reason on principle why the same reasoning should not apply with equal force to conduct that was negligent.

The case grew out of an acrimonious marriage breakup. The wife obtained a court order granting her custody of the children and giving her husband generous access rights. The wife's unremitting efforts to thwart her former husband's exercise of those rights prompted the husband to initiate legal proceedings against her. La Forest J. gives a terse summary of the plaintiff's predicament which is worth repeating because it could not be bettered by rephrasing it.

"According to the husband, however, his former wife had done everything in her power to frustrate his access to the children. She has moved between Winnipeg, Toronto, Denver and Ottawa, making access and visitation, in his words, impossible. She has changed the children's surname and religion, told them that the appellant was not their father, forbade telephone conversation with him and intercepted his letters to them. The husband alleges that as a result of his former wife's conduct he had undergone considerable expense and has suffered severe emotional and psychic distress. He claims that she and her present husband are liable for any damages flowing from their wrongful interference with the legal relationship he had with his children."28

The case was one that never went to trial. The defendant's response to the husband's action was to move to strike the statement of claim on the ground that it disclosed no cause of action. The defence motion was granted by the Ontario Supreme Court and that ruling was upheld by the Court of Appeal. The
sole issue before the Supreme Court of Canada was whether, on the facts alleged in the pleadings, the lower courts' ruling that no cause of action existed was correct.

In a majority judgment concurred in by Dickson C.J.C., Beetz, McIntyre and Lamer JJ., La Forest J. dismissed the appeal. He found that the facts disclosed neither tort liability nor fiduciary obligation on the part of the defendant. Curiously, nowhere in his judgment does La Forest J. make any mention whatsoever of nervous shock. His failure to do so is a strong indication that the court did not consider the question worthy of serious consideration. Indeed, logically speaking, the court's decision that an action did not lie rendered it unnecessary to go any further and consider whether the plaintiff could claim damages for nervous shock. As we know, nervous shock is a head of damages. If there is no action, there can be no damages.

For reasons that are unclear from the case report, Chouinard J. sat on the bench that heard the case, but took no part in the judgment.

Wilson J. wrote a lengthy dissent. Dissents are not normally worth spending much time on. However, this one is of particular interest because, unlike the majority judgment, it did address the question of nervous shock. In fact, Wilson J. appeared to come close to deciding that the facts brought the case with the ambit of Wilkinson v. Downton, given that the defendant had intentionally inflicted mental suffering upon the plaintiff.
However, Her Ladyship backed off and ruled otherwise when the
dire implications of putting such a weapon into the hands of
warring spouses became apparent to her. She describes the
potential consequences with great eloquence.

"It is obvious that such a cause of action, if it were
made available throughout the family law context, would
have the same potential for petty and spiteful
litigation and, perhaps worse, for extortionate and
vindictive behaviour as the tort of conspiracy.
Indeed, the tort of intentional infliction of mental
suffering appears to be an ideal weapon for spouses who
are undergoing a great deal of emotional trauma which
they believe is maliciously caused by the other spouse.
It is not for this court to fashion an ideal weapon for
spouses whose initial, although hopefully short-lived
objective, is to injure one another, especially when
this will almost inevitably have a detrimental effect
on the children. Yet, if this cause of action were
extended to encompass the facts of this case, it seems
to me that there is no rational basis upon which its
extension to other areas of family law could be
resisted. The gist of the tort is the intentional
infliction of mental suffering regardless of the
relationship between plaintiff and defendant. It would
be available in respect of all inter-spousal conduct
both before and after marital breakdown. I would
therefore not extend this common law tort to the family
law context where the spin-off effects on the children
could only be harmful."

A word of clarification is called for lest Wilson J.'s reference
to "the tort" of intentional infliction of mental suffering"
should seem contradictory in light of what was said earlier about
nervous shock not being a tort, but rather a head of damages. An
action for deliberate infliction of what amounts to nervous shock
must be distinguished from an action in negligence in which the
damage alleged is nervous shock. In both cases, the deleterious
effect on the plaintiff is the same, but the actions are framed
differently.
In any event, the upshot of Frame v. Smith is that the breach of a legal duty, which we have described in Figure 8 as a "legal wrong", does not give rise to a valid cause of action. Such misconduct cannot, therefore, support a damage claim for nervous shock. That is not to say that the victim is left without a remedy. Superior courts have an inherent jurisdiction to punish a person who fails to abide by a court order for contempt. Furthermore, the Criminal Code also prescribes penalties for the breach of a court order. Those provisions include orders that were made during the course of civil proceedings.

Other significant modifications to the conceptual structure affect the P(E) module depicted in Figure 10. First, the existing components from the original module were split between two separate branches labelled "during" and "later". The idea behind the change was to draw a clear distinction between a plaintiff's exposure to an event in the process of actually unfolding, and one that had effectively ended as far as the ongoing action was concerned. The more immediate kind of exposure is sometimes graphically described by the courts as occurring while "the dust is still in the air". Taking that image one step further, the more remote kind happens after the dust has settled. For classification purposes, a natural dividing line seemed to fall between these two groups.

The "during" branch subsumes the "imminent accident", "eyewitness" and "aftermath" categories. The "aftermath" category is another name for what was previously called "nearby
and attended". The terminology was changed because the earlier name began to sound too longwinded and clumsy. By "aftermath", what is meant is the immediate aftermath of the accident. In other words, the spectacle that confronts a plaintiff who happens to be nearby and attends the scene of the accident immediately after it has happened. Two leaf nodes have been appended to the "eyewitness" mode. We shall discuss their significance shortly when we examine the rest of the additions to the $P(E)$ module.

As well as some additions, the "later" branch includes the old categories of "traces of incident", "hospital visit" and "disfigurement" in their original form.

Now let us look at the additions to the $P(E)$ module. Two facts about them are immediately obvious. First, they all relate to mass media coverage of an event. Secondly, they all end in failure conditions. Why was the media angle included in the new structure if it was to be negatived entirely? Above all, the addition was made so as not to leave users wondering. Of all the what-ifs people put to Professor Smith and me during the course of our discussions about $P(E)$, ones in which plaintiffs found out about a shocking event through the media were the most common. Of these, TV news reports were the favourite. A typical question went something like this. "Supposing a guy gets home from work and his wife is not there. He sits down and clicks on the TV to watch the evening news. While he is watching, he sees a report of a bad car accident and recognizes his wife as the badly
injured victim being pulled from the wreckage. As a result, he suffers nervous shock. Can he recover?"

Professor Smith and I discussed the question of TV coverage on a number of occasions. At the time, no court had ruled on the issue. That situation was to change much later on, well after we had updated the conceptual structure. However, for the time being, that late-breaking legal news need not concern us. We shall be looking at the most recent developments in the law of nervous shock in the context of a postscript to this part of the thesis. But let us return to the situation as it then was.

While the courts had not yet had to decide the issue, they were well aware that it would come up sooner or later. Lord Wilberforce had this to say on the subject in McLoughlin v. O'Brian.

"Lastly, as regards communication, there is no case in which the law has compensated shock brought about by communication by a third party. In Hambrook v. Stokes Bros [1925] 1 KB 141, [1924] All ER Rep 110, indeed, it was said that liability would not arise in such a case, and this is surely right. It was so decided in Abramzik v. Brenner (1967) 65 DLR (2d) 651. The shock must come through sight or hearing of the event or of its immediate aftermath. Whether some equivalent of sight or hearing, e.g. through simultaneous television, would suffice may have to be considered."31

Professor Smith and I naturally concluded that, of all the types of media exposure to an event imaginable, live TV coverage would put a plaintiff in the strongest possible position. From Lord Wilberforce's choice of that particular example one might surmise that he was of the same view, as it came most readily to his
mind. Live TV coverage has a greater impact on the senses than footage edited for later viewing. Live TV reports convey more forcefully the nightmarish quality of disastrous events while they are unfolding. They capture the raw emotion of the actors, the anguish, the confusion, the panic, and the pain. In short, live coverage can get across something of the gut-wrenching sensation of being caught up in the violence of the moment; something, but not the whole experience. The caveat is worth bearing in mind. There is no substitute for actually being there. The camera is a filter that focuses on some things to the exclusion of others. What is more, TV cameras not only edit reality, they also distort it. What the viewer sees depends on the camera angle, the distance from the subject, the lighting conditions, and so on. As a society, we have become so accustomed to seeing the world from the comfort of our armchairs that we get lulled into thinking that what we experience vicariously on the screen and the reality of what is happening out there are one and the same thing. Most assuredly they are not.

The question is: Does live TV come close enough to duplicating the reality of an event to meet the requirements of $P(E)$? After batting the idea around for a while, Professor Smith and I concluded that it did not. Needless to say, if the most powerful type of media coverage available failed to make the grade, then so did all the other less graphic ways of communicating information about an event to the public. Our decision about live TV was a difficult call to make. We realized that when the
issue came before a court the decision could easily go either way.

One feature of Figure 10 may require some explanation: that is the decision to separate the "via live TV" category from the other types of media coverage and to pair it off with "present at the scene" as a leaf node of the "eyewitness" category. Live TV was slotted in there because that is where it fits on the space-time continuum running from left to right that we saw depicted in Figure 3. The "media coverage" node was inserted between "hospital visit" and "disfigurement" for exactly the same reason. The different media it subsumes - "recorded TV", "radio" and "newspaper" - would normally all fall into that time zone. Granted, on rare occasions, recorded TV or radio broadcasts might conceivably be made before a plaintiff could make it to the hospital, given that the timespan allowed by the courts for hospital visits can run to several hours. Be that as it may, the diagram is designed to capture the rule not the exception, which is what it does.

A case in which media reports played an exclusive role in conveying information about an event to the plaintiff is Rhodes v. Canadian National Railway Co., the most recent British Columbia case to define the limits of $P(E)$. The case arose out of what has come to be called the Hinton Rail Disaster. The accident occurred when a CNR freight train and a Via Rail passenger train collided head-on near Hinton, Alberta, causing serious loss of life. The plaintiff's son was amongst the dead.
The manner in which the plaintiff was apprised of the accident is described succinctly by Taylor J.A.

"Mrs. Rhodes was near her home at Errington, B.C., on Vancouver Island, when she heard of the accident on the radio. She went to Edmonton the next day, and then to Hinton, to discover what had happened to her son. She is said to have seen pictures of the wreckage in the newspapers. She came over a period of several days, to the realization that her son must have died. She did not see her son or his body because his death occurred, and his remains were consumed, in a fire which engulfed the railway passenger car in which he had been travelling.

When Mrs. Rhodes eventually reached the scene of the accident 8 days had passed since the collision. The wreckage of the car in which her son was killed had by then been removed. She was shown another car in which it was at first believed that he may have been travelling."

Those are the only essential facts that have a strict bearing on the issue of \( P(E) \).

Unfortunately, the plaintiff's sad situation was exacerbated by a series of calamities that befell her after the accident. While these had no relevance whatsoever to the question of \( P(E) \), they could not help making her an almost irresistibly sympathetic plaintiff. First, she was denied access to the crash site where her son had perished. Secondly, she was sent by CN's staff to the wrong memorial service, causing her to miss the one that was held for the crash victims. Finally, in an unbelievably macabre twist, the remains of her son - a small number of bone fragments - were delivered to her unannounced by ordinary mail in an unmarked cardboard box. If it were not for the ghastly nature of these mistakes, they would have a kind of comic opera absurdity to them. The crowning touch was a dreadful irony. The plaintiff herself had talked her son into taking the train for safety
reasons instead of flying to Edmonton as he had intended to. At some level, she probably blamed herself for his death and will continue to do so for the rest of her life.

The case was a trial lawyer's dream. It was custom made for a massive sympathy pitch. Reading between the lines, the pitch seems to have worked. The tragic circumstances appear to have clouded the trial judge's view of the case and let his sympathy get the better of him. He seemed determined to compensate the plaintiff for nervous shock, one way or the other, even though there was clearly no precedent for doing so. The main stumbling block in the way of finding for the plaintiff was her total lack of involvement in either the accident or its immediate aftermath. Her exposure to the incident, using the term loosely, was limited to what she had heard on the radio and seen in the newspapers. From a legal point of view, this difficulty was insurmountable. However, "Where there's a will, there's a way", as the saying goes. The sheer arbitrariness of what the judge did by flying in the face of established authority to the contrary is enough to turn non-believers into rule skeptics. His way of solving the problem was elegant in its simplicity. He insisted on the flimsiest of pretexts that it was not a problem at all, as Taylor J.A. pointed out.

"In the decision appealed from, the learned judge says (A.B. p. 86) that there 'does not appear to be any particular logic' in distinguishing between 'nervous shock' brought on by seeing or hearing an accident, on the one hand, and by learning of it through the 'media', or the mere knowledge that it has resulted in the death of a close relative, on the other.

The judge says that what he sees as the 'arbitrary limit' imposed by that distinction has now been removed
by this Court in *Beecham*, adding (at p. 87 [W.W.R., p. 78 C.C.L.T.]):

'While it is true that recovery has never been granted in any case where the plaintiff has merely heard about the accident from a third party, the Court of Appeal has expressly left this door open. In my view, it is for the trier of fact to determine on a case by case basis just how wide that opening should be.'

But I find myself unable to agree that the *Beecham* case has opened the possibility of recovery in those circumstances."

The trial judge's decision in the *Rhodes* case was so legally aberrant that it makes no sense at all unless interpreted as stemming from a misguided determination, prompted by the terribly sad circumstances, to allow the plaintiff's claim for nervous shock, no matter what. As we know, judges undoubtedly do have a fairly wide margin of discretion within which to manoeuver. However, in this case, the trial judgment transgressed those boundaries so blatantly that the decision could not be permitted to stand. In unanimously reversing it, the Court of Appeal made it plain that a plaintiff's vicarious involvement in an event through radio and newspaper reports alone is nowhere near good enough to meet the requirements of $P(E)$.

Now let us look at some relatively minor modifications to the human node of the $P(R)$ module. These changes are shown in Figure 9. First of all, a comparison with Figure 1, the original diagram, reveals that some rearranging of the pieces has been done. At the top level, the node splits into two branches: "connected" and "unconnected". The "unconnected" branch terminates one level down in the "rescuer" and "stranger" leaf
nodes. That grouping more accurately reflects the current state of the law. The basic proposition, as we know, is that a plaintiff cannot recover damages for nervous shock caused by harm suffered by a stranger. To make that clear, the failure condition is now represented explicitly instead of being left to happen by default, as was done before. The rescuer is a stranger who is allowed to recover because of a policy exception the law makes to encourage rescue. Thus the stranger and rescuer belong together in a category of their own that stresses their lack of connection to the immediate victim. What was done in the first place caused a niggling feeling of unease. Tacking the rescuer on at the end of a series of relationships did not seem right. It implied that rescuer was a type of relationship when in fact that is not the case. The anomaly has been removed by hiving rescuers off and lumping them in with strangers where they belong.

The "connected" branch of the human relationship node splits into two branches: "family" and "affection". It seemed appropriate to divide relationships into the close ones based on family ties and the more tenuous ones of a less formal nature. The family node requires no further comment. The "affection" one needs a word or two of explanation. It has had "workmate" added to it as a leaf node that ends in failure. You will recall that our analysis of the relevant law, particularly the case of Beaulieu v. Sutherland, disclosed that the workmate relationship is of dubious validity, in Canada at least. The solar system style diagram in Figure 2 attempts to get that idea across by showing
the workmate as being partially obscured by outer darkness. On one interpretation, the Australian case of Mount Isa Mines v. Pusey,\textsuperscript{36} appeared to attach greater importance to the workmate relationship. But some kind of male-bonding, mateship principle may be at work there. After all, Australian males are notorious for preferring to hobnob with their mates rather than with anybody else. In any event, changing tack somewhat, one further comment remains to be made about the workmate. Putting a working relationship in a category labelled "affection" may seem a trifle incongruous. Many working relationships undoubtedly are of an affectionate nature. Others run the gamut from correct to downright hostile. We may have been stretching things a little by putting workmate under that heading. However, at the time, doing so seemed preferable to creating a separate category. Writing these lines makes me reconsider. Now I am not so sure that a "work-related" category might not be such a bad idea. But the time for revisions and indecisions is past.

That brings us to the end of our description of how the conceptual structure of the nervous shock advisor was revamped.

5.8.2 Technical Maintenance

Given that some fairly substantial changes needed to be made to the conceptual structure of NSA, a preliminary question that had to be decided before implementing them technically was whether to stick with the same software tool or look around for something
else. For a variety of reasons, Professor Smith and I decided upon the latter course of action. Our experience in building NSA in M.1 had showed us that, although purely rule-based systems work well, they have a number of inherent shortcomings. For this reason, instead of spending time maintaining the original system, we decided that it would be preferable to attempt to overcome these inadequacies by trying to find a better tool for creating the updated version of NSA. Another compelling reason for doing this was that the exercise of porting NSA to a different medium would give me the opportunity of exploring alternative means of technical knowledge representation (TKR).

What were the problems we encountered with the rule-based version of NSA? (hereafter referred to as Version 1). First, the path which the backchaining control mechanism took through the knowledge base while seeking to prove its goal was difficult to follow. This was so even with the assistance of the trace mechanism that followed the sequence of rules that had fired during the consultation. The flow of control became more and more convoluted as the body of rules grew larger and the levels of backchaining deepened. Secondly, since not only the logic, but also the structure of the system was embodied in rules, the underlying conceptual framework was not readily discernible. Finally, updating the rulebase to reflect changes in the law was difficult because of the many dependencies which existed in the interconnected web of rules. While these weaknesses could be palliated to some extent by good rule-base design, they could not
be overcome entirely in a system that relied on rules to do everything.

Another major drawback of Version 1 was not related to its rule-based structure, but rather to the way in which the case authorities were stored and retrieved. Because of the need to justify legal arguments in terms of precedent, the case storage and retrieval mechanism constituted a key part of the system. In Version 1, the case digests were stored in a large flat text file, not a database. An index file identified each case by a unique name and provided the link between the case digest file and an even larger file containing the collection of menus presented to the user. The menuing system consisted of 120 different menus each identified by a unique number. Each menu was essentially of a list of cases that was relevant to a particular fact situation. The situation in question was described by a terse header at the top of the menu. The cases in the menu were divided up according to whether they were on point, relevant by analogy or contra to the factual situation described in the consultation. The profile of factual elements built up in M.1's cache (i.e., dynamic database) during the course of a consultation was matched to a list structure comprising the same set of elements. That list structure was equated with a particular menu number, as can be seen in Figure 11. The corresponding menu was retrieved by an external function call and displayed to the user. The user could view the digest of any of the cases by selecting them from the menu. Each termination point in a path of inference was matched to a menu that was
#12. THE FOLLOWING CASES ARE RELEVANT TO YOUR FACT SITUATION:

* PLAINTIFF ONLY—HARM

* CASES ON POINT:

Toronto Railway Co. v. Toms (1911), 44 S.C.R. 268, 12 C.R.C. 250.;
McCallum v. Waito (1983), 29 C.C.L.T. 1 (Ont. H.C.);
Canning v. McFarland, [1954] O.W.N. 467 (H.C.);
Strain v. Toronto Transportation Commission, [1945] O.W.N. 870 (H.C.);
Marriott v. Maltby Main Colliery Co. (1920), 90 L.J.K.B. 349 (C.A.);
Constable v. T.F. Maltby, Ltd., [1955] 1 Lloyd's R p. 569 (Q.B.);
Guiffre v. Scaffide and McGrath, [1960] W.A.R. 74 (S.C.);
Daly v. The Commissioner of Railways (1906), 8 W.A.L.R. 125 (S.C.).

* RELEVANT BY ANALOGY:

* Plaintiff Only—Risk
Dulieu v. White & Sons, [1901] 2 K.B. 669.;
Kirkpatrick v. Canadian Pacific Railway Co. (1902), 35 N.B.R. 598 (C.A.);
Dvorkin v. Stuart, [1971] 2 W.W.R. 70 (Alta. S.C.);
Horne v. New Glasgow, [1954] 1 D.L.R. 832 (N.S.S.C.);
Fitzpatrick v. Great Western Railway Co. (1855), 12 U.C.Q.B. 654.;
Brown v. The Corporation of the City of Glasgow, [1922] S.C. 527 (Scottish Ct. of Session);
Bell v. Great Northern Railway Co. of Ireland (1890), 26 L.R.I. 428 (Ex. Div.).
Figure 11 (cont.)

* Plaintiff Harmed And Third Party Harmed--Related
Canada Trust Co. v. Porter (1980), 2 A.C.W.S. (2d) 428 (Ont. C.A.);
McLaughlin v. Toronto Railway Co. (1916), 9 O.W.N. 407, varied as to the amount of damages 10 O.W.N. 135 (C.A.).;

* Plaintiff Harmed And Third Party Harmed--Unrelated

* CONTRA:

Taylor v. British Columbia Electric Railway Co. (1911), 16 B.C.R. 109, 17 W.L.R. 470 (C.A.).;
Victorian Railways Commissioners v. Coultas (1888), 13 App. Cas. 222 (P.C.).;
appropriate to the factual outcome of the consultation.

Even though the retrieval system functioned well, it was too cumbersome to create and difficult to maintain. To begin with, the selection of cases to be included in the menus had to be decided upon in consultation with Professor Smith. The process was time-consuming and tedious. In a moment of exasperation, Professor Smith rightly described it as "hellish". However, the laborious work of ascertaining the contents of the menus was just the first stage. Once this had been done, each menu had to be physically created by meticulously typing in the relevant case names and citations in the proper places. Unless the case names were letter perfect, they would not match those in the case index and the retrieval mechanism would fail. Unfortunately, the sheer tedium of the work had a mind-numbing effect that made mistakes almost inevitable. The system also had a sizeable element of redundancy built into it. The same case name had to appear in different menus if it was relevant to a number of possible outcomes. Typing in the same case name over and over again was bad enough the first time around. Having to repeat the process continually to update the system was too depressing to contemplate. In short, the case retrieval mechanism of NSA was functional, but too clunky to be worth maintaining if a better way of doing the job could be found.

Professor Smith and I began looking at ways of remedying what we perceived to be the deficiencies of Version 1. Eventually, we decided in principle to switch from a purely rule-based to a
hybrid approach to knowledge representation. The improved system would use a combination of objects and rules. Structure and logic would be separated from one another in a clear-cut way, not intermingled as they had been in the past. The modified conceptual structure of NSA would be represented as a series of related frames and sub-frames that would describe all the component parts of the system. Once these were in place, the underlying structure of the system would be easy to discern. Furthermore, the object-oriented structure would naturally modularize the whole system. Modularization would make the system easy to modify without causing the kinds of unforeseen ripple effects that can occur when dependencies get buried in a tangled, undifferentiated mass of rules. While the rulebase would be created separately from the structural framework, the rules would be capable of accessing and reasoning about all the frames which made up the structure.

The new system clearly had to include a streamlined method of retrieving precedent cases. The handcrafted, static menuing system that had caused us so much grief had to go. We decided that the new system should be linked to a relational database in a way that would permit relevant cases to be retrieved and presented to the user as a dynamically assembled menu. A single record entry in the database would be sufficient to allow the case to be retrieved in all circumstances to which it was relevant. Of course, cases that were subject to multiple interpretations, be they factual or conceptual, would be an exception. They would have to be represented by however many
records it took to capture all the different points of view from which they could be seen. We also intended to take advantage of the database to give Version 2 of NSA something of the flavour of a case-based reasoner. The database would allow us to search on particular attributes (i.e. fields in the database schema) and extract all those cases that shared them. Furthermore, rather than simply lumping the cases into three broad categories as we had done in Version 1, the database would enable us to rank them according to persuasive force by weighting certain key features such as jurisdiction, level of court and the closeness of match with the user's facts.

With this shopping list of desiderata in mind, we started looking around for a suitable tool with which to build the new version of NSA. We considered a number of options and ultimately decided on Intelligence/Compiler. This piece of software met our basic requirements and seemed scaled at exactly the right size for our purposes. It also had the added desirable feature of offering hypertext as a medium which could be used for storing case digests. We had seriously considered using two other pieces of software: KEE and Nexpert. However, while we experimented with both of those packages and found that they had much to commend them, they did not seem as appropriate as Intelligence/Compiler for our purposes.


The coverage of KA topics in the literature is too detailed to do justice to them in what is, in effect, an aside. Two examples will at least provide a starting point and give something of the flavour of the field these days. For a look at some fundamental issues with an interesting philosophical slant, see: P. Compton and R. Jansen, "A philosophical basis for knowledge acquisition," Knowledge Acquisition (1990) 2, 141-257. For a more comprehensive, systemic view of the KA process see: Jasbir Singh Dhaliwal and Izak Benbasat, "A framework for the comparative evaluation of knowledge acquisition tools and techniques," Knowledge Acquisition (1990) 2, 145-166.

M.1 is no longer sold or supported. Teknowledge decided some time ago to get out of the software marketing business and shift its focus to consulting and building custom systems.


Supra, note 4, p. 1105.

Supra, note 4, p. 1109.

Supra, note 4, p. 1112.

Supra, Ch. 4, note 24.

Supra, note 4, p. 1113.


Supra, Ch. 4, note 53, pp. 399-400.


Supra, Ch. 4, note 125.

19 Supra, note 14, p. 51.
20 Supra, note 14, p. 52.
21 Supra, note 14, p. 45.
22 Supra, note 14, p. 46.
23 Supra, note 14, pp. 53-54.
24 Supra, note 14, p. 55.
26 Supra, note 21, p. 77.
28 Supra, note 23, p. 9.
29 Supra, Ch. 4, note 45.
31 Supra, Ch. 4, note 36, [1982] 2 All E.R. 298, p. 305.
34 Supra, note 28, p. 131.
35 Supra, Ch. 4, note 94.
36 Supra, Ch. 4, note 82.

37 Intelligence/Compiler is marketed by IntelligenceWare, Inc., of Los Angeles, California. The software was featured prominently in a book on expert systems technology. See: Kamran Parsaye and Mark Chignell, Expert Systems for Experts (New York: John Wiley & Sons, Inc., 1988).

38 KEE (Knowledge Engineering Environment), marketed by IntelliCorp, Inc., of Mountain View California.

39 Nexpert is marketed by Neuron Data Ltd., of Palo Alto, California.
6.1 Introduction

The revised conceptual structure of NSA was implemented in Intelligence/Compiler (I/C) as a series of frames. Each essential element module was represented as a separate group of frames. In other words, the same chain-link structure was preserved. However, there is not an exact correspondence between the contents of the diagrams and the way in which the frames are organized or named. All the same components are still there, but sometimes in a slightly different guise. To facilitate implementation, it was necessary to juggle some of the pieces around or to label them differently. When we come to examine the frame-based structure of the I/C implementation, it would be useful for the reader to refer back to the conceptual diagrams for comparison purposes. This will make it easier to discern the changes that were made in the translation from the Conceptual Knowledge Representation (CKR) to the Technical Knowledge Representation (TKR) scheme.
We shall not be looking at every detail of the new implementation. To do so would not only be extremely time-consuming, but also insufficiently interesting from either a conceptual or technical point of view to warrant the exercise. Instead, we shall sketch out the main features of the frame structure and then go on to describe in general terms how the interaction between the frames and the rules drives the whole system. If we were to do otherwise, a large part of the intended audience - those on the legal side of the fence - would have trouble following the explanation. Delving into excessive detail would also make it more difficult for the technically oriented reader to see the wood for the trees.

Let us take a quick look ahead to give the reader a sense of what to expect. A sneak preview will add focus to the enquiry by indicating clearly where all this is leading. Apart from its use of frames as a means of creating a clearly discernible structure, what are the key features of the new implementation? In essence, they are twofold. First, on the technical side, the system uses a slicker method of storing and retrieving cases. An easily maintainable database is employed in conjunction with hypertext as a display medium. Secondly, and more importantly from a conceptual point of view, the system incorporates a case-based reasoning (CBR) component. This innovation is designed to ensure that no case that could possibly be relevant to the user's fact pattern gets overlooked. Finding the right cases, as we have seen, is crucial to developing effective legal arguments. Enough said for the time being. Less fundamental changes will be
described as we get into the specifics of the new implementation. However, before doing that, a prefatory word or two is called for on the subject of frames.

6.2 Frames

Frames take advantage of our ability to generalize about stereotypical things. In that regard, they have something in common with scripts. The basic idea behind frames has been around for a long time. However, we need not bother to trace its intellectual pedigree here. Suffice it to say that Marvin Minsky is credited with being the person who recently resurrected, expanded upon and popularized the notion in a seminal article.\(^1\) Minsky himself did not provide a detailed blueprint for implementing frame-based systems. Other people took his ideas and put them into practice.

Frames are a type of object. An object represents some concrete or abstract thing. Typically, objects are made up of object-attribute-value (OAV) triplets. An attribute is a common characteristic of an object. A value is one way in which that characteristic can manifest itself. To illustrate, let us take the automobile, a mundane example often used in AI circles. Most people are familiar with a car's standard features. So, a series of OAV triplets used to represent one of the classic cars of the Sixties might look something like the following:
Object: Automobile

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>YEAR</td>
<td>1969</td>
</tr>
<tr>
<td>MAKE</td>
<td>Ford</td>
</tr>
<tr>
<td>NAME</td>
<td>Mustang</td>
</tr>
<tr>
<td>MODEL</td>
<td>Convertible</td>
</tr>
<tr>
<td>ENGINE SIZE</td>
<td>6-Cylinder</td>
</tr>
<tr>
<td>DOORS</td>
<td>2</td>
</tr>
<tr>
<td>COLOUR</td>
<td>Red</td>
</tr>
<tr>
<td>OWNER</td>
<td>Joe Cool</td>
</tr>
<tr>
<td>LICENCE NO.</td>
<td>XTC-142</td>
</tr>
</tbody>
</table>

To complete each set of OAV triplets, each attribute/value pair should be read as being preceded by the object's name.

One of the fundamental characteristics of frame-based systems is that they are organized into hierarchies. This hierarchical structure allows for inheritance, an important feature of frames. Inheritance, as the name suggests, works in trickle-down fashion. Child frames are able to inherit both the attributes of their parents and the values of those attributes. The mechanism is useful because it can make for an economical knowledge representation scheme. Shared attributes need only be defined once at the parent level for them to be inherited by every child in the lineage, along with their values, where appropriate.

Frame-based systems use the assumptions that we make about the characteristics of typical things as default values. For example, in a system that dealt with cars, the default value for the attribute WHEELS would be 4 because it is usually safe to assume that cars have 4 wheels. Of course, there are exceptions. For instance, the odd-looking Heinkel or Fiat 3-wheelers that one occasionally sees putt-putting along the roads of Europe. Handling these exceptions is one of the inherent problems with
systems that rely heavily on typicality, as we saw earlier in the thesis.

Frame hierarchies typically have a pyramid structure. At the top, one finds a few frames that represent wide classes of objects within which are nested a host of child frames. Let us expand upon our example of the automobile to demonstrate the point. If we were to move upwards towards the top of the pyramid, we might encounter the following sequence of parent frames:

```
Means of Transportation
Vehicle
Land Vehicle
Motor Vehicle
Automobile
```

The higher one goes, the more general the categories become. Beneath the Vehicle frame, we might expect to find other frames for Air Vehicle and Sea Vehicle. Not much imagination is required to flesh out the taxonomy by creating frames for things like airplanes, helicopters, ships and hovercraft and slotting them into an appropriate place in the hierarchy. Something exotic like Star Trek's transporter does not fit into any obvious category. It would require its own frame under the general rubric of Means of Transportation.

Frame-based systems need not have a simple linear structure. They can be organized into arbitrarily complex networks of interlocking frames. For example, our Automobile frame might be a sub-frame of a frame called Possessions which in turn could be a sub-frame of a parent frame called Person relating to and individual named Joe Cool.
There are no hard-and-fast rules that dictate how the world should be divided up. Nevertheless, when one is grappling with a particular subject matter, there is no need to begin the classification process in a vacuum. Our experience of the world gives us a starting point. Conventional categories, a partial nomenclature and some ways of organizing the material will naturally suggest themselves. The obvious provides a base on which to build. It should not be shunned out of some perverse desire to be different just for the sake of being different. Furthermore, users feel comfortable with familiar categories and terminology. This is especially so in specialized areas like law that have their own jargon. Certain terminology has been hallowed through long usage and acquired an almost talismanic power. Deviations from accepted norms can create user resistance to the system by impugning its legitimacy. However, the exigencies of conformity are not that onerous. They leave ample scope for the exercise of creativity.

The broadening of categories that takes place as one moves up the frame hierarchy is reminiscent of a game that children play. Driven by some instinctive urge to fix themselves in space, school children take delight in writing out their addresses in the most painstaking detail possible. A typical example might look something like this.

Alice Jones,
Grade 5,
Queen Mary Elementary School,
2000 Trimble St.,
Point Grey,
Vancouver,
British Columbia,
Canada,
North America,  
The Northern Hemisphere,  
The World,  
The Solar System,  
The Milky Way Galaxy,  
The Universe.

Finally, the child is stymied and can go no further. Whether they consciously realize it or not, they have bumped up against the mind-boggling concept of infinity. A similar form of backstopping occurs with frame-based systems. The categories run out. At the apex of the pyramid, sits an undefinable "Thing", the abstract entity of which everything imaginable is a child. This notion of an unnameable source from which everything else emanates has a distinctly Taoist flavour to it. I/C uses "Thing" as its built-in super frame to which all user-defined frames are subordinate. "Thing" is a fixed high point that cannot be accessed or tampered with by the user.

6.3 System Overview

After that brief introduction to the concept of frames, let us take a closer look at the structure of NSA. Below "Thing", we find a top-level user-defined frame called "Shock". It represents the idea of the cause of action as a whole. The groups of frames that make up the essential elements of the action are each its direct offspring. The concordance between these groups of frames and the conceptual modules shown in Figure 1 is as follows.
<table>
<thead>
<tr>
<th>Module</th>
<th>Frame</th>
</tr>
</thead>
<tbody>
<tr>
<td>intent</td>
<td>Event</td>
</tr>
<tr>
<td>victim</td>
<td>Victim</td>
</tr>
<tr>
<td>harm</td>
<td>Injury</td>
</tr>
<tr>
<td>P(R)</td>
<td>Connection</td>
</tr>
<tr>
<td>P(E)</td>
<td>Exposure</td>
</tr>
<tr>
<td>damage suffered</td>
<td>Symptoms</td>
</tr>
<tr>
<td>relevant cases</td>
<td>Profile-Schema</td>
</tr>
</tbody>
</table>

The system works the same way in principle as the earlier version. NSA moves through each of the essential element components in turn, seeking to satisfy them in some fashion with facts elicited from the user. Failure at any point along the way results in what was described before as "early kick-out". The systems skips over the remaining elements, tells the user why the facts do not support a cause of action, and displays cases that justify its conclusion.

However, while the new system produces similar results, the mechanics of its operation are very different from those of the purely rule-based earlier version. The entire structure of the M.1 system was to be found in the manner in which the rule base was organized. M.1's cache (i.e. Dynamic database) was the sole repository of information obtained from the user. The only means of determining what had transpired up to any given point in a consultation was by using the rules to test the contents of the cache. In essence, the new hybrid system functions through the interaction between its frames and rules. The frames provide the system with a definite structure which is created first and exists entirely separately from the rules. The facts that the system accumulates as the consultation progresses are stored in the slots of its frames by assignment statements embedded in the rules. Intermediate factual conclusions that the system has
reached can be ascertained by using the rules to test the slots of frames to see whether they contain a certain value or any value at all. The factual profile used for case matching is put together by scanning key slots in the framebase and assembling their values in a single frame that provides a snapshot of the entire consultation. At the end of the consultation, all the frames can be browsed. The values that their slots contain provide a graphic picture of how the consultation unfolded.

6.4 A Closer Look

The preceding overview of how the system works should put things in perspective. Now let us get a better idea of the nuts and bolts of its operation by looking at each of the component parts in turn. Each part comprises a group of frames, the parents of which were listed earlier, and a corresponding set of backchaining rules.

6.4.1 Event

Figure 12 shows the Event frame. An event turned out to be the object best suited for getting at the question of intent, the key issue from a legal point of view. At first, intent itself was tried as an object, but it did not seem to work in that role. In retrospect the reason seems clear enough. The event is primary. Intent has no meaning when divorced from a particular event. It
Frame: Event
Parent: Shock
Slot: Flag  Value:

Frame: Act
Parent: Event
Slot: INTENT  Value:
Slot: PURPOSE  Value:
Slot: CULPABLE  Value:
is simply a quality ascribed to an event to give it a legal colouring. Event was a suitably neutral term for describing something that happened. However, it was too general. Here we were dealing with a certain kind of event - one involving a human actor; in other words, an act. All acts are events, but not all events are acts. We needed to narrow things down by creating a sub-frame of Event called Act. Act was given the three attributes shown in Figure 12: "INTENT", "PURPOSE" and "CULPABLE".

Fashioning OAV triplets out of abstract ideas can be a frustrating exercise. It certainly seems much more difficult than using things that have a physical existence. A concrete object like a car is easy to come to grips with. It has well-defined boundaries and decomposes easily into a limited number of main parts. Abstractions lack that reassuring tangibility. Their nebulosity sometimes makes them seem as difficult to grasp as a handful of smoke. The more one thinks about them, the murkier things seem to get. Eventually, one begins to doubt whether they have any hard-and-fast meaning at all. They take on the outlandish aspect of a common word that is stared at too long.

Be that as it may, the combination of attributes given to the Act frame allow all the possibilities in the intent module shown in Figure 2 to be canvassed. First, the user is asked whether the act in question was unintentional or deliberate. If it turns out to have been unintentional, the value "Unintentional" is
assigned to the "INTENT" slot. At the same time, the value "None" is assigned to the "PURPOSE" slot since, by definition, an unintentional act has no purpose. That automatic assignment precludes the system from asking an inappropriate question about purpose in those circumstances. NSA then goes on to determine whether or not the unintentional act was negligent. If so, "CULPABLE" is assigned the value "Yes" and the system moves on to the next module. If not, the slot receives the value "No". In the latter case, the consultation terminates because it goes without saying that only negligent unintentional acts are legally blameworthy. Should the act turn out to have been deliberate, another type of screening takes place. The value "Deliberate" is assigned to the "INTENT" slot. At the same time, "Yes" is assigned to the "CULPABLE" slot because all deliberate acts are considered legally culpable. Since there is no issue of remoteness to be explored where deliberate acts are concerned, here again, the consultation terminates. The user is advised that liability has been established right off the bat and offered cases to support that conclusion.

Before NSA moves onwards, it assigns the value "Valid" to the "Flag" slot of the Event frame. The assignment shows that the essential element of nervous shock represented by that group of frames has been satisfied. By doing the same thing with each succeeding group of frames, NSA creates a checklist of elements as it goes along. The flag slots provide a simple means of screening. Testing a single slot as a condition precedent can be used to prevent the relentlessly goal-driven system from seeking
inappropriate goals. Thus NSA will not attempt to forge a subsequent link in the chain of elements where an earlier link was broken. Similarly, using flag slots is a convenient method of bypassing considerations that are not relevant to a particular set of circumstances. For example, the whole question of $P(E)$ is inapplicable to cases of plaintiff victims. In those situations, the value "Valid" is immediately assigned to the "Flag" slot of the Exposure frame. Convinced that it has satisfied the exposure element, NSA jumps ahead to perform its next task.

6.4.2 Victim

The structure of the Victim frames is shown in Figure 13. It closely resembles that of the conceptual diagram of the victim module in Figure 7. So closely in fact, that the significance of the frame structure can easily be discerned by comparing the two diagrams.

First, NSA must determine whether the immediate victim of the shocking act was a human, an animal or a piece of property. The system cannot handle multiple victim types during the same consultation; the concurrent juggling of different criteria for harm, $P(R)$, and $P(E)$ would be an impossible task. The practical solution in the rare cases in which different victim types are involved in the same incident is to run separate consultations for each one of them. This solution may not be ideal, but it is a realistic trade off against increasing complexity to ridiculous
Figure 13

Frame: Victim
Parent: Shock
Slot: Flag Value:

Slot: HUMAN Value:

Slot: ANIMAL Value:

Slot: PROPERTY Value:

Frame: HumanV
Parent: Victim

Slot: PLAINTIFF Value:

Slot: "THIRDPTY" Value:

Frame: AnimalV
Parent: Victim

Slot: "AN_SPECIES" Value:

Slot: "AN_STATUS" Value:

Slot: "PET_TYPE" Value:

Frame: PropertyV
Parent: Victim

Slot: "PROP_TYPE" Value:

Slot: "PROP_VALUE" Value:
proportions while gaining very little in return.

On the other hand, NSA will accept more than one human victim as input. Either the plaintiff, a third party or both can selected as victims. It was important to allow for this eventuality in the interests of exact case matching; for, as we have seen, multiple victim cases are fairly common. Furthermore, running multiple human victims as separate consultations would distort the result, given that the courts seem more inclined to grant recovery in multiple victim cases. In such cases, the whole is greater than the sum of its parts from a legal point of view. The combination of victims seems to create a kind of synergistic effect as far as the plaintiff's chances of success are concerned.

For the most part, the slots of the frames that relate to animal and property victims take as values the range of options shown in Figure 13. AnimalV's "AN_SLOT" takes "Pet" or "Non_pet". Its "PET_TYPE" slot takes "Dog", "Cat", "Horse" or "Other". However, AnimalV's top slot, "AN_SPECIES", is an addition to what appears in the conceptual diagram. It acts as a high-level screening device. The user responses that can be assigned to the slot are either "Mammal" or "Other". If the animal victim turns out to be a non-mammal, there is no need to proceed further. The consultation terminates in failure. The addition was made for the sake of clarity. The broadest rule that one can formulate for the purposes of elimination is that only mammals would ever be acceptable as animal victims because of their relative
proximity to human beings. The collection of standard pets narrows things down further to a limited sub-set of the species that the courts are likely to accept at the moment. One day an adventurous judge might rule that a trained dolphin could qualify as a victim. If that happened, the highly intelligent mammal could simply be added to the current group of eligible mammals without disturbing the structure of the system.

The relationship between the structure of the conceptual diagram's property node and that of the PropertyV frame is obvious. The frame's "PROP_TYPE" slot takes the values "Real" or "Personal". Its "PROP_VALUE" slot takes either the value "High pecuniary", "High sentimental" or "Low". A few minor semantic changes were made in the translation, but they did not affect meaning.

So much for the Victim frames. In dealing with the groups of frames that follow, we shall no longer dwell on every frame or exhaustively list the values that each slot can take. Once the structural correspondence between the conceptual diagrams and the frames has been grasped, the purpose of those frames and the values that they take can be inferred. In some cases, the translation from one medium to the other has necessitated minor changes in terminology. However, those slight differences are not worth spending time on either. Our detailed dissection of the system to date will have given the reader a good idea of how structural changes come about in the transition from CKR to TKR. There is no point in endlessly repeating more of the same when
the point has already been made. From now on, commentary will be confined to changes that are both significant and non-obvious.

6.4.3 Injury

Figure 14 shows the set of Injury frames designed to handle the contents of the harm module in Figure 8. The varieties of harm dealt with by the frames are exactly the same as those that appear in the module. The frames were simply organized in a way suited to manipulating that sort of information.

In the first place, injuries to human victims were split between a frame dealing with plaintiffs ("Pl_Injury") and one dealing with third parties ("P3_Injury"). That distinction is not drawn in the conceptual diagram. However, it was necessary to make it for technical purposes because the types of injury which allow plaintiffs and third parties to recover are different, as we discovered in our earlier discussion of the applicable law. The plaintiff and third-party frames were each given two slots, one for injury type ("ITYPE"), the other for injury extent ("IEXTENT"), with the respective identifying prefixes "PL_" and "P3_. The purpose of the "ITYPE" slots was to differentiate physical from non-physical injuries, as was done in the conceptual diagram. The "IEXTENT" slots could then take as values the specific types of harm shown in that diagram.
Figure 14

Frame: Injury
Parent: Shock
Slot: Flag Value:

Frame: "P1_Injury"
Parent: Injury
Slot: "PL_ITYPE" Value:
Slot: "PL_IEXTENT" Value:

Frame: "P3_Injury"
Parent: Injury
Slot: "P3_ITYPE" Value:
Slot: "P3_IEXTENT" Value:

Frame: "AN_Injury"
Parent: Injury
Slot: "AN_ITYPE" Value:
Slot: "AN_IEXTENT" Value:

Frame: "PROP_Injury"
Parent: Injury
Slot: "PR_ITYPE" Value:
Slot: "PR_IEXTENT" Value:
The injury frames dealing with animals and property follow exactly the same format as those for human victims. Yet, one might ask, why even bother including an "ITYPE' slot for the former when we know that only serious physical harm will suffice to support a claim in either case? The uniformity of structure undoubtedly does give the appearance of the frames a certain pleasing symmetry. More importantly, however, the "ITYPE" slot serves as a screening device. If the injury to the animal or property is described by the user as non-physical, the consultation terminates in failure. Once again, as with the mammal/non-mammal distinction that was used in the victim frames, the idea is to prune the decision tree as quickly as possible at the highest level of generality.

The uniform structure of the Injury group of frames raises a much more important question that will immediately occur to anyone familiar frame-based systems. Remember inheritance? one of the big pluses of using frames. Given the way it works, why not capitalize on it by defining two generic slots called "ITYPE" and "IEXTENT" once at the level of the Injury frame? Then these slots could be inherited by each child frame as required. After all, the only difference between all the pairs of slots is their prefix. Surely the suggested strategy would obviate the necessity of defining what are essentially the same pairs of slots in four different places? It seems silly not to take advantage of one of the main benefits of working with frames.
The question is a perfectly legitimate one. As it happens, the suggested approach was tried in the first place. From a technical point of view, it worked perfectly well at the local level of the Injury frames. Unfortunately, it turned out to pose a more far-reaching technical problem that was not initially foreseen. To understand the difficulty, we must bear in mind the ultimate objective of the system; namely, to create a fact profile of the user's case that can be mapped onto the database schema used to retrieve relevant precedents. For the mechanism to work, there must be an exact mapping of elements from profile to schema. For this to happen, a unique occurrence of the "ITYPE" and "IEXTENT" slot-cum-field on either side is a must. Frames cannot have two or more slots with identical names and the same thing applies to the fields of database schemas. However, in cases involving both plaintiff and third-party victims, the generic injury "ITYPE" and "IEXTENT" slots will get inherited from the Injury frame twice, once by "P1_Injury" and once by "P3_Injury". That in itself causes no difficulty as long as the identically named slots remain linked to their respective parent frames. Each of them can be referenced separately and differentiated from the other through their association with the parent. Problems arise at the end of the consultation when NSA proceeds to build a fact profile as a prelude to retrieving relevant cases. At that point, the system attempts to assign the values in the two slots with identical names but different parents to a single slot of the same name in the profile frame. But the values from two slots cannot be rolled up and stuffed into one. The second assignment overwrites the first. As a
result, the case retrieval mechanism will not work properly because the fact profile does not accurately reflect the user's input. The only way the system could work with the "ITYPE" and "IEXTENT" slots defined once at the Injury frame level would be if we could ensure that they would be inherited by no more than one child frame during any given consultation. Having two possible human victims to contend with made that impossible. Consequently, it was necessary to forego the benefits of inheritance and to define equivalent slots for each potential victim's injuries.

The need to overcome the technical glitch was determinative of the issue when it came to deciding whether or not to take advantage of inheritance in the circumstances we have just discussed. However, before it became clear that the use of inheritance was precluded for purely technical reasons, other considerations did enter into the equation. The ancillary issue boiled down to a toss-up between being terse but opaque as opposed to verbose but clear. Although the issue was rendered academic, there is a strong argument to be made for going the same route for the sake of clarity alone. The terse approach that makes use of inheritance would have rendered the frame definition elegantly sparse, a quality that is enormously appealing to programmers. However, one of the principal reasons for using frames was to create a structure that would be immediately apparent to people probing the nuts and bolts of the system for the first time. Terse code may be satisfying to the person writing it, but it detracts from another person's ability
to make sense of what is going on. The use of unique labels for the four pairs of injury type/extent slots certainly makes it easier for someone who does not understand how inheritance works to perceive the structure of the Injury frames.

6.4.4 Connection

The next set of frames shown in Figure 15 deal with the question of $P(R)$. The parent frame of the group was called "Connection" because "Relation", the stem of "Relationship", is a reserved word in I/C dedicated to database operations. Several abortive attempts to use "Relationship" as the frame name for the sake of uniformity produced strange side-effects that made it clear that any word that has "Relation" as its stem is treated the same as the reserved word itself.

Unlike the Injury frames, the Connection frames make use of inheritance. All the slots used by the group of frames are defined once at the parent level and inherited down by the child frames as needed. In other words, any slot of the Connection frame can be referenced in the rules as though it were the uniquely defined slot of a child and will be treated as such. If the slot is inherited in this way and assigned a value during the course of the consultation, browsing the framebase afterwards will show the slot and its value as part of whichever child frame made use of it. Until particular slots are invoked on behalf of a child frame, they appear only at the parent level. This
Figure 15

Frame: Connection
Parent: Shock
Slot: Exists Value:
Slot: Family Value:
Slot: Affection Value:
Slot: Other Value:
Slot: RDEGREE Value:
Slot: "REL_RANK" Value:
Slot: "PLUS_REL_RANK" Value:
Slot: "MINUS_REL_RANK" Value:
Slot: Match Value:
Slot: Bracket Value:
Slot: Flag Value:

Frame: HumanR
Parent: Connection

Frame: AnimalR
Parent: Connection

Frame: PropertyR
Parent: Connection
sparseness of definition gives the child frames a pleasingly uncluttered look. To reiterate the point that was made in the previous section, such parsimony can only be achieved by NSA if identically named slots that are relevant to creating the fact profile are not going to be inherited by more than one child.

Before triggering any questions that explore the issue of relationship, NSA does some screening. It uses its rules to explore the values accumulated in pertinent slots of the framebase to determine whether the victim it is dealing with is human, animal or property, and whether the injury sustained was valid. Having done this, NSA activates a subset of the rules associated with the Connection frame that apply to the relevant victim type. Of those subsets, the most extensive deals with human victims because the range of possible relationships is greatest where human victims are concerned. Of the 11 slots defined in the Connection frame, 9 are dedicated exclusively to human victims. The remaining 2, "RDEGREE" and "Flag", are used in common by all three types of victims. "RDEGREE" acts as the placeholder whenever a valid relationship is established. Its value is later assigned to a slot of the same name in the profile frame when the fact profile is created. As mentioned earlier, the "Flag" slot is used as part of a cumulative checklist. Its value indicates whether or not any sort of valid relationship with the victim was established.

First, let us deal with human relationships. Once NSA establishes that the victim was human, the appropriate subset of
rules is triggered. These rules generate questions to the user and a set of allowable responses that are presented in programmer-designed menus. Incidentally, the customizable menu interface is one of I/C's most attractive features. In any event, the user's response to the menu question would have been given a unique identifier during the menu-creation process that allows it to be referenced by the rules and assigned as a value to an appropriate slot in the group of frames. These slots can then be referenced and their values tested to determine the direction in which the consultation should progress next.

The first four slots in the Connection frame are inherited by the HumanR frame when the rules relating to human victims bring them into play. The slots' roles are easy enough to infer from their names. The "Exists" slot is used to show whether or not any relationship exists between the plaintiff and the third-party victim. If so, the nature of the relationship is explored. The "Family", "Affection" and "Other" slots indicate which general type of relationship is involved. NSA goes on to establish the precise nature of the relationship in each category. The final result is assigned to the "RDEGREE" slot. Where no relationship at all or no valid relationship exists between the plaintiff and third party, the rescuer option is canvassed as a last resort. In cases where both the plaintiff and third party were victims of the incident, an attempt is made to establish a relationship between them as a means of strengthening the plaintiff's case. However, failure to do so does not prove fatal to the outcome.
If the facts fail to satisfy the criteria governing human relationships, NSA advises the user accordingly and offers to provide case authority to back up its conclusion. If, on the other hand, a legally adequate relationship is established, the system does one more thing before moving along to attempt to forge the next link in the chain of elements. It uses a series of rules to rank the relationship on a scale of proximity and assigns the value, an integer from 1 to 11, to the "REL_RANK" slot of the HumanR frame. This number is used as a benchmark by NSA's CBR component which, you will recall, was added as an enhancement to the new version. The four slots immediately below "REL_RANK" - "PLUS_REL_RANK", "MINUS_REL_RANK", "Match" and "Bracket" - also relate to that component. Its operation will be described later when we come to deal with the case matching and retrieval mechanism.

Since so few legally acceptable relationships to animals and property exist, the manner in which these are dealt with is very straightforward compared to the range of human relationships we have just examined. A single question is enough to elicit the required information from the user. The value obtained is assigned directly to the "RDEGREE" slot of the AnimalR or PropertyR frame, as the case may be. NSA tests the validity of the relationship, assigns the result to the "Flag" slot, and either terminates the consultation or moves on, depending on the outcome. No ranking of the relationship is done in the case of animals or property because the few options available do not make such an exercise worthwhile.
6.4.5 Exposure

A glance at the Exposure group of frames shown in Figure 16 will reveal that their structure closely parallels that of the Connection frames we have just discussed. In fact, mutatis mutandis, the two groups of frames function in essentially the same way. Inheritance is used to roughly the same extent. The "PROXIMITY" slot acts as the repository of the final answer to the $P(E)$ question in a manner analogous to "RDEGREE"'s handling of $P(R)$. Exposure's ranking mechanism is similar in function and purpose. Also, its application is limited to the case of human victims for a similar reason; namely, that the legally valid degrees of exposure applicable to animals and property are too few to be worth ranking. These similarities are so striking and extensive that very little more need be added by way of explanation.

About the only feature that does call for further comment is the way in which NSA divides up the time continuum to facilitate the decision tree pruning process. The system adopts the same top-level distinction between "during" and "later" shown in Figure 10, the conceptual diagram. The answer to an initial question designed to make that rough dichotomy is assigned to Exposure's "Time" slot which gets inherited down to the level of the appropriate victim frame. Animal and property victims immediately fail to satisfy the requirements of $P(E)$ if their response to the opening question is "later". If they happen to select "during", "eyewitness" and "aftermath" are the only
Figure 16

Frame: Exposure
Parent: Shock
Slot: PROXIMITY Value:
Slot: "PROX_RANK" Value:
Slot: "PLUS_PROX_RANK" Value:
Slot: "MINUS_PROX_RANK" Value:
Slot: Match Value:
Slot: Bracket Value:
Slot: Flag Value:
Slot: Time Value:

Frame: HumanE
Parent: Exposure

Frame: AnimalE
Parent: Exposure

Frame: PropertyE
Parent: Exposure
acceptable answers to the follow-up question, the "imminent accident" category being applicable solely to human victims. In other words, animal and property victims can be disposed of in short order when it comes to determining $P(E)$.

As far as human victims are concerned, exactly the same range of possibilities is canvassed as shown in Figure 10. What NSA does do differently is to use its rules to present these options to the user in smaller chunks and in a slightly altered order. The system, of course, presents the various options wrapped in suitably worded questions. However, by stripping things down to the sets of possible answers, we can illustrate the sequence as follows.

**During**

1. [Eyewitness, Aftermath, Other] ->
2. [Imminent, Other*]

**Later**

1. [Traces, Hospital, Other] ->
2. [Disfigurement, Other] ->
3. [Newspaper*, Radio*, TV*, Other*]

Note:  -> denotes continuation
       * denotes failure.

The choices were split up into smaller segments primarily to make the accompanying questions easier for the user to understand. Confronting someone with too much information at once, especially onscreen, can be confusing. Strict chronological order was abrogated to give the consultation a smoother, more intuitive flow. Under the "During" branch, "Imminent" was placed after "Eyewitness" and "Aftermath", even though it precedes both in time. The switch was made to present the user with the most
likely answers first - the same rationale that good software packages use in setting their default options.

On the "Later" side of the temporal bifurcation, the strict time sequence was juggled to permit NSA to work through all valid options before encountering any failure conditions. Consequently, although the disfigurement of a victim is a condition that would take some time to become apparent, it is presented to the user before various types of media coverage that would undoubtedly follow hard on the heels of a shocking event. If the plaintiff's exposure to the event was through the media, the fact becomes critical only if that was the sole means of exposure. The plaintiff may well have seen the disfigured victim in person in addition to having been exposed to media reports. Therefore it makes more sense to eliminate the legally valid option first before turning to others that end in failure. There are no technical impediments to doing things the other way round. The rules could be written in a way that allowed a potentially failure-inducing response to be held in abeyance until NSA had exhausted all other avenues of enquiry. But from a design point of view, to paraphrase Cole Porter, accentuating the positive (without eliminating the negative) seems preferable.

While we are on the subject of negatives, a wider issue arises. Why even bother asking the user questions that lead nowhere? Is that not simply setting up a straw man just to knock him down? an exercise usually condemned as a waste of time. The straw man argument (a diversionary tactic beloved by lawyers and
politicians) can often be validly criticized. Not so in this case, though. Posing these kinds of questions to users serves an educational purpose by alerting them to the boundary conditions where failure occurs. If obvious alternative scenarios are not raised, an astute user will probably think of them anyway and be left wondering "What about this?" and "What about that?". It is better to anticipate these questions and to dispel any doubts in the user's mind by raising them, if only to answer them in the negative.

6.4.6 Symptoms

Finally, we come to the last link in the chain of nervous shock's essential elements, the damage ingredient. The damage issue is handled by the Symptoms set of frames shown in Figure 17. From our earlier analysis of the law, you will recall that nervous shock must be brought on suddenly by a traumatic event. A condition that develops gradually over time will not support a claim, even though it produces symptoms commonly associated with nervous shock. Before finding out about the victim's symptoms, therefore, NSA must first question the user to establish that their onset was rapid and attributable to a sudden jolt to the system. The value obtained is assigned to the Symptom Frame's "TRIGGER" slot and tested. If the requisite precondition is not met, the consultation terminates prematurely in the usual way. If that hurdle is cleared, NSA addresses itself to the task of finding out the victim's symptoms.
Figure 17

Frame: Symptoms
Parent: Shock
Slot: DAMAGES Value:
Slot: TRIGGER Value:
Slot: Physical Value:
Slot: Psychological Value:
Slot: Psychcount Value:
Slot: Phycount Value:
Slot: Placeholder Value:
Slot: Psychcases Value:
Slot: Physcases Value:
Slot: Flag Value:

Frame: Physym-Schema
Parent: Symptoms
Slot: Vomi Value:
Slot: Head Value:
Slot: Naus Value:
Slot: Dizz Value:
Slot: Tach Value:
Slot: Hear Value:
Slot: Misc Value:
Slot: Prem Value:
Slot: Stil Value:
Slot: Hyst Value:
Slot: Psyc Value:
Slot: Diar Value:
Slot: Weig Value:
Slot: Derm Value:
Slot: Unab Value:
Slot: Exac Value:
Slot: Othe Value:

Frame: Physym
Parent: Physym-Schema

Frame: Psychsym-Schema
Parent: Symptoms
Slot: Depr Value:
Slot: Anxi Value:
Slot: Hyst Value:
Slot: Pani Value:
Slot: Para Value:
Slot: Flas Value:
Slot: Hall Value:
Frame: Psychsym-Schema
Parent: Symptoms

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Frame: Psychsym
Parent: Psychsym-Schema

Frame: Psychnumbers
Parent: Shock

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<thead>
<tr>
<th>Slot</th>
<th>Value</th>
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<td>Psych9</td>
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<td>Psych10</td>
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Frame: Physnumbers
Parent: Shock

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<th>Slot</th>
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<td>Phys10</td>
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The earlier version of NSA divided symptoms into three broad categories: physical, mental and sleep disorder. The cases in each category were retrieved en masse when the category was selected, presenting the user with a list of case names and citations. A few terse words in brackets after each citation narrowed things down by describing the specific symptoms that had cropped up in that case. The user was obliged to peruse the caselist looking for a precise match among the bracketed terms before calling up the corresponding case summary.

In essence, the new version of NSA goes one better than its predecessor by exactly matching the victim's symptoms with those in the precedent cases.

First, a structural change was made. When NSA was being redesigned at the conceptual level, the three-way split of symptoms categories described above was abandoned in favour of the simpler division into physical and psychological symptoms shown in Figure 10.

Next, the information needed to match symptoms more closely to cases was extracted from the case law. All the cases were carefully reviewed and an exhaustive list compiled of the specific symptoms which the courts have accepted as manifestations of nervous shock. Since different courts sometimes describe the same thing in slightly different words, the most commonly used contemporary terms were chosen as generic descriptors to eliminate duplication. The master list of
symptoms was divided into two separate lists, one for physical symptoms, the other for psychological symptoms. Those two lists are shown in Figures 18 and 19 respectively. An attempt was made at logical ordering by listing the most common symptoms first and grouping closely related symptoms together. The contents of the two lists largely dictated the course the implementation process took.

The ultimate objective was to allow the user to select a wide variety of symptoms, in any order, from one or both lists, and for NSA to retrieve all the cases in which those symptoms appeared. Defining the objective was easy. Figuring out how it could be accomplished programatically within the constraints of I/C was not. Up until now, we have deliberately avoided getting into programming details so as not to inundate the non-technical reader in a mass of superfluous detail. As long as NSA's method of operation could be comprehended in general terms, that was deemed to be good enough. However, the way in which the system handles symptoms is sufficiently interesting to make it worth looking at some of the computer code.

Basically, I/C's list processing capabilities were used to solve a key part of the problem. Let us refer back to Figure 17. As a preliminary matter, we should note briefly in passing the role played by the Symptoms frame's two slots called "Physical" and "Psychological". They are simply used for elimination purposes. Each slot takes either "Yes" or "No" as a value, depending on which of the two general categories of symptoms were exhibited by
<table>
<thead>
<tr>
<th>Physical Symptoms</th>
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<tbody>
<tr>
<td>1. Vomiting.</td>
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<td>2. Headaches.</td>
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<td>3. Nausea.</td>
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<tr>
<td>4. Dizziness.</td>
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<tr>
<td>5. Tachycardia.</td>
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<tr>
<td>6. Heart attack.</td>
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<tr>
<td>7. Miscarriage.</td>
</tr>
<tr>
<td>11. Psychosomatic symptoms.</td>
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<tr>
<td>12. Diarrhoea.</td>
</tr>
<tr>
<td>13. Weightloss.</td>
</tr>
<tr>
<td>15. Unable to work.</td>
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<tr>
<td>16. Exacerbation of existing condition.</td>
</tr>
<tr>
<td>17. Other.</td>
</tr>
<tr>
<td>Psychological Symptoms</td>
</tr>
<tr>
<td>--------------------------------</td>
</tr>
<tr>
<td>1. Depression</td>
</tr>
<tr>
<td>2. Anxiety</td>
</tr>
<tr>
<td>3. Hysteria</td>
</tr>
<tr>
<td>4. Panic attacks</td>
</tr>
<tr>
<td>5. Paranoia</td>
</tr>
<tr>
<td>6. Flashbacks</td>
</tr>
<tr>
<td>7. Hallucinations</td>
</tr>
<tr>
<td>8. Amnesia</td>
</tr>
<tr>
<td>9. Insomnia</td>
</tr>
<tr>
<td>10. Nightmares</td>
</tr>
<tr>
<td>11. Loss of self-esteem</td>
</tr>
<tr>
<td>12. Impotence</td>
</tr>
<tr>
<td>13. Nervous breakdown</td>
</tr>
<tr>
<td>14. Personality change</td>
</tr>
<tr>
<td>15. Insanity</td>
</tr>
<tr>
<td>16. Thoughts of suicide</td>
</tr>
<tr>
<td>17. Attempted suicide</td>
</tr>
<tr>
<td>18. Suicide</td>
</tr>
<tr>
<td>19. Exacerbation of existing condition</td>
</tr>
<tr>
<td>20. Other</td>
</tr>
</tbody>
</table>
the victim. The two frames called Physym-Schema and Psychsym-Schema play a much more interesting role. The "Physym" and "Psychsym" prefixes are obviously abbreviations for "Physical symptoms" and "Psychological symptoms" respectively. Now compare those two frames with the lists of symptoms shown in Figures 18 and 19. You will notice that the slot names of the two frames are the same as the names on the symptoms lists, except that the slot names have been truncated after the fourth character. Truncation was used to avoid I/C's constraints on the length and syntax of slot names, while at the same allowing each slot to have a unique name that could be used to link it to its counterpart on the corresponding symptoms list. The customized menu of choices offered to the user when questioned about the victim's physical or psychological symptoms is identical to the corresponding symptoms list. The user is invited to select as many of the symptoms as the victim displayed. As soon as the selection has been made, NSA invokes a series of list processing rules to deal with the result.

Figure 20 shows a set of 5 rules that handle user responses to questions about physical symptoms. Since the rules applicable to psychological symptoms work in exactly the same way, these 5 rules will be ample for illustration purposes. The number in brackets above each rule has been added for ease of reference. I/C's rules are not actually numbered.

Rule 1's first line is the goal which is satisfied once the three sub-goals "anded" together as premises below the "IF" statement.
(1) DIALOG-SAVE-PHYSYM
IF GET-DIALOG-PHYSYM AND VALIDATE-PHYSYM AND PHYS-STRING-MATCH;

(2) GET-DIALOG-PHYSYM
IF DIALOG-GET-SET PHYSYM, CHOICE, PhysymList AND FAIL OR NO-BACKTRACK;

(3) VALIDATE-PHYSYM
IF LIST-MEMBER Other, PhysymList AND LIST-EQUAL PhysymList, "[Other]"
AND (Flag of Physym) := Invalid AND NO-BACKTRACK;

(4) VALIDATE-PHYSYM
IF NOT LIST-MEMBER Other, PhysymList OR NOT LIST-EQUAL PhysymList, "[Other];"

(5) PHYS-STRING-MATCH
IF LIST-MEMBER 'Symptom', PhysymList AND SUBSTRING 'Symptom', 1, 4, 'C'
AND Physym HAS-A 'Slot'
AND NOT HAS-VALUE Physym, 'Slot'
AND 'Slot' = 'C'
AND ('Slot' of Physym) := 'Symptom'
AND FAIL OR NO-BACKTRACK;
each element in the list with its corresponding slot in the Physym frame. When a match is made, the full description of the symptom is assigned as a value to the slot in question. Now for the details.

First, the rule uses the list-membership function to find out if the variable 'Symptom' is a member of "Physymlist". Because of the way in which variable binding works, the variable gets bound to the first member of the list, thereby satisfying the premise. The next premise uses a string-handling function to create a substring 4 characters long from the first 4 characters of the name of the physical symptom bound to the variable 'Symptom'. That substring is in turn bound to the variable 'C'. The rule then uses I/C's "HAS-A" function to test whether the Physym frame has a slot that will bind to the variable 'Slot'. When this happens, Physym inherits down "Vomi", the first slot of its parent, Physym-Schema, and "Vomi" is bound to 'Slot'. The binding lasts only if the rule's next premise succeeds in establishing that the slot does not already have (i.e. hold) a value, by using negation in conjunction with I/C's "HAS-VALUE" function. If the slot is empty, NSA compares the 4-letter substring that was chopped off the front of the physical symptom name supplied by the user with the 4-letter slot name. If the two are identical, the full symptom name is assigned as a value to the slot. Having succeeded all the way up to that point, the rule next encounters I/C's "FAIL" statement which forces it to fail and start again from the beginning with a different set of
variable bindings. In other words, the "FAIL" statement causes iteration.

If the rule fails at some earlier premise before reaching the "FAIL" statement, NSA backtracks as far as it has to within the body of the rule and tries different variable bindings in an attempt to get all the way through to the "FAIL" statement.

The rule is written in such a way that all combinations and permutations are tried until each symptom supplied by the user is matched up with its proper slot. Having completed its task, the matching process runs out of raw material for new bindings. When this happens, NSA is unable to satisfy the first premise of the rule. Faced with this situation, the system's only remaining option is to jump to the last premise which is connected to the rest of the rule by the disjunctive "OR". Since I/C's "NO-BACKTRACK" statement always succeeds, the final premise is proved, as is the rule as a whole, thanks to the disjunctive connector. The "NO-BACKTRACK" is used frequently in I/C. It serves the same purpose as "the cut" in Prolog, acting as a barrier that once crossed cannot be recrossed again in the opposite direction. In effect, therefore, "NO-BACKTRACK" prevents the inference engine from doing any more backtracking to prove its current goal, whether for the first or the nth time.

We have now seen how the symptoms supplied by the user get assigned as values to appropriate slots in the Physym and Psychsym frames. By inheriting down slots only as needed from
the full range defined at the parent level, NSA groups the victim's symptoms together, thereby enabling the user to see them all at a glance while reviewing a consultation, instead of having to scan a long list full of empty slots to pick them out. We will now leave the Symptoms group of frames for the time being, returning later to see how the rest of the frame structure interacts with the rules to retrieve symptoms cases.

6.4.7 Fact Profile

Having verified the existence of all the material elements that go to make up a nervous shock case and identified the victim's symptoms, NSA's next task is to build a concise fact profile that characterizes the case. The system uses the Profile frame shown in Figure 21 as its storage medium. The gamut of possibilities is defined above in the parent frame, Profile-Schema. The list of key slots in Profile-Schema will be familiar to the reader after our review of NSA's structure.

NSA gathers the information needed to fill the Profile frame's slots by using the pattern-matching rule and the two lists shown in Figure 22. The "BUILD-PROFILE" rule seems deceptively simple, but it is capable of achieving powerful results. First, it scans the entire framebase seeking bindings for its variables, 'Frame' and 'Slot', constrained by the requirement that every potential match be a list member of either "FrameList" or "ElementList" respectively. The first of these lists contains the frames and
Frame: Profile-Schema
Parent: Thing
Slot: INTENT Value:
Slot: PURPOSE Value:
Slot: CULPABLE Value:
Slot: HUMAN Value:
Slot: ANIMAL Value:
Slot: PROPERTY Value:
Slot: PLAINTIFF Value:
Slot: "THIRD_PTY" Value:
Slot: "AN_SPECIES" Value:
Slot: "AN_STATUS" Value:
Slot: "PET_TYPE" Value:
Slot: "PROP_TYPE" Value:
Slot: "PROP_VALUE" Value:
Slot: "PL_ITYPE" Value:
Slot: "PL_IEXTENT" Value:
Slot: "P3_ITYPE" Value:
Slot: "P3_IEXTENT" Value:
Slot: "AN_TYPE" Value:
Slot: "AN_IEXTENT" Value:
Slot: "PR_ITYPE" Value:
Slot: "PR_IEXTENT" Value:
Slot: RDEGREE Value:
Slot: "REL_RANK" Value:
Slot: PROXIMITY Value:
Slot: "PROX_RANK" Value:
Slot: DAMAGES Value:
Slot: TRIGGER Value:

Frame: Profile
Parent: Profile-Schema
BUILD-PROFILE
IF
LIST-MEMBER 'Frame', FrameList
AND
'Frame' HAS-A 'Slot'
AND
LIST-MEMBER 'Slot', ElementList
AND
HAS-VALUE 'Frame', 'Slot'
AND
('Slot' of Profile) := ('Slot' of 'Frame')
AND
FAIL
OR
NO-BACKTRACK;


the second the slots that together are needed to construct the fact profile. Once the list-membership requirements that restrict variable binding have been met, the rule uses I/C's "HAS-VALUE" function to make sure that the seminal slot of the bound slot/frame pair is not empty. The test is necessary because the variety of fact patterns that can be received as user input make it a foregone conclusion that not all of these slots will hold values at the end of any given consultation. However, the slots that do contain values are the ones that are critical to constructing a fact profile. If the "HAS-VALUE" function finds a value, the rule assigns that value to a slot of the same name in the Profile frame. Finally, the inference engine hits the "FAIL" statement which forces it to loop back to the top of the rule and begin the whole process over again. Once the sifting of slots is finished and the fact profile has been built, the rule runs out of potential variable bindings. Looping stops and the rule is proved in the manner described earlier when NSA leaps over the "OR" connector and finds the "NO-BACKTRACK" statement.

6.4.8 Relevant Cases

6.4.8.1 Offering the User a Wider Selection

The final phase of NSA's operation is its case-retrieval process. Figure 23 shows the different types of cases the system retrieves. The retrieval sequence is from left to right overall and top-down for the "Facts" cases shown in the leftmost module
If $N_{Cl}$

Figure 23
of the diagram. The Facts module's "exact fact pattern match" cases and all the cases in the other modules - Symptoms, Successful defences, and Leading case - are carry-overs from the earlier version of NSA. The purpose served by providing these cases to the user has already been mentioned. On the other hand, the "case-based reasoning key element match" cases that appear under the right-hand branch of the Facts module are new. Their purpose requires some explanation before we go on to examine the actual mechanics of case-retrieval.

To understand the significance of these new cases, we need to remind ourselves of the basics of legal reasoning. In law, as we have seen, making a successful case is a matter of satisfying all its essential elements by matching this set of abstractions with suitable facts. Just what these elements are varies from case to case. Every element of the case must be proved in some way. But whatever the case, some elements invariably loom larger than others because they constitute the distinctive core of that particular cause of action. As far as nervous shock is concerned, these central elements are $P(R)$ and $P(E)$. Matching all aspects of a user's case as closely as possible with precedent cases is important, given the analogical nature of legal reasoning. Generally speaking, the closer the match, the more persuasive the precedent. However, limiting the match to cases that satisfy each and every essential element of the cause of action with roughly the same facts is unnecessarily restrictive. The drawback of exact fact pattern matching is fairly obvious. Cases that could be very valuable to the user
are excluded from consideration because they are factually similar to the user's case only in some respects. However, if the similarities that do exist include one or more key elements, these cases should be brought to the user's attention even though the match is not exact. NSA's CBR component is designed to remedy that shortcoming by offering the user precedent cases that share the "same degree" of $P(R)$ or $P(E)$, as indicated in Figure 23.

A large part of a lawyer's skill in putting together a successful case depends on knowing where the courts have drawn (or are likely to draw) the line between a case that succeeds and one that fails. Some cases are obvious winners or losers. However, sometimes the dividing line between the two can be very thin indeed. Figure 23 shows the "bracketing" feature used on the key elements of $P(R)$ and $P(E)$. Its purpose is to help the user to assess the strength of a case by locating these elements in relation to the dividing line between success and failure. "Bracketing" is a term borrowed from military parlance. The Heritage Illustrated Dictionary of the English Language defines that sense of the word as follows.

"4. Military. To fire beyond and short of (a target) in order to determine range."

NSA does something similar with the $P(R)$ and $P(E)$ elements of the user's case, but in reverse. It starts right on target, so to speak, with the degree of proximity described by the user as its point of reference. Then it brackets the target area from above
and below using a numbered scale to rank different degrees of
proximity. The two scales are as follows.

\[
\begin{array}{llll}
P(R) & P(E) \\
Eyewitness & 6 & Child & 11 \\
Aftermath & 5 & Spouse & 10 \\
Imminent & 4 & Sibling & 9 \\
Traces & 3 & Parent & 8 \\
Hospital & 2 & Grandparent & 7 \\
Disfigured & 1 & Live-in lover & 6 \\
Lover & 5 & Fiance(e) & 4 \\
Rescuer & 3 & Workmate & 2 \\
Friend & 1 & & \\
\end{array}
\]

The \(P(R)\) and \(P(E)\) elements of precedent cases are given integers
in accordance with where each falls on their respective scale.

The same thing is done with the key elements of the user's case.

With the user's numbers acting as benchmarks, NSA is able to
provide the user with all precedent cases whose key elements have
degrees of proximity that are

(a) the same,
(b) slightly greater (i.e. 1 level up), and
(c) slightly lesser (i.e. 1 level down).

If no greater or lesser degree of proximity exists because the
user's case falls at either the top or bottom of the scale, the user
is advised. By putting the key elements of the user's case in
context, the expanded matching process gives the user a much
ter better idea of the relative strength of those elements.
6.4.8.2 Improved Storage and Retrieval

Having explained the rationale behind the expanded selection of cases offered to the user, the time has come to look at the improvements to NSA's case storage and retrieval mechanism.

First, let us briefly recapitulate on the old system to put the discussion about improvements in context. The way in which the first version of NSA handled precedent cases was clunky, to say the least. Case summaries were stored in a flat text file. They were retrieved when the case was selected from a large static menu file linked to the text file through an index of case names. A piece of custom-written 'C' code controlled the interaction of the various components and provided a "hook" to M.1. The system worked well enough. However, it was extremely time-consuming both to construct and maintain, largely because the case citations in the menuing system needed to be entered manually in a great many different places. The massive duplication of entries was necessary for the three-tiered case-matching process, based on the categories on-point, relevant by analogy and contra, to work. When the menus were being put together, Professor Smith aptly described the laborious task of figuring out the many different places where a particular case name should appear as "a nightmare". We have already seen how the three categories that the old system used have been superseded by a much more extensive case-matching process. This conceptually different approach to comparing cases with precedents has been implemented in conjunction with significant technical changes that make the case
storage and retrieval mechanism more efficient and easier to maintain.

The case storage component of the new system comprises three main parts: an external relational database; a frame-based database within I/C, structured so as to make it a carbon copy of its external counterpart; and a large I/C hypertext file. Simply stated, the system works in the following manner. Precedent cases are entered as records in the external database. A conversion program is then run to import the contents of the external database into I/C's similarly configured frame-based database. The conversion program need only be run again to update the system when new cases have been added to the external database. I/C's hypertext file stores the text of all case summaries. Rules match the fact profile created during a consultation with data records in I/C's internal database. When NSA retrieves particular types of relevant cases, their names and citations are presented to the user in a menu. When a user selects cases for viewing, other rules use string-matching functions to tie the case names to those of their corresponding case summaries. So much for the bare bones of the new system's operation; now for the details.

NSA's external database is Ashton Tate's dBase III, a widely used software package with which I/C is designed to be compatible. Precedent cases are entered as records in a database file called SHOCKER.dbf. Figure 24 shows the structure of the database. Fields 9 through 35 of the database schema are obviously
### Figure 24

Structure for database: C:\SHOCKER.dbf

Number of data records: 148

Date of last update: 06/07/91

<table>
<thead>
<tr>
<th>Field</th>
<th>Field Name</th>
<th>Type</th>
<th>Width</th>
<th>Dec</th>
</tr>
</thead>
<tbody>
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<td>Character</td>
<td>65</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>CITATION</td>
<td>Character</td>
<td>65</td>
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<td>Numeric</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>4</td>
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<td>7</td>
<td></td>
</tr>
<tr>
<td>5</td>
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<td>Character</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>JURIS_STAT</td>
<td>Character</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>WEIGHT</td>
<td>Numeric</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>WINNER</td>
<td>Character</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>INTENT</td>
<td>Character</td>
<td>13</td>
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</tr>
<tr>
<td>10</td>
<td>PURPOSE</td>
<td>Character</td>
<td>5</td>
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</tr>
<tr>
<td>11</td>
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<td>Character</td>
<td>3</td>
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</tr>
<tr>
<td>12</td>
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<td>Character</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>ANIMAL</td>
<td>Character</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>PROPERTY</td>
<td>Character</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>PLAINTIFF</td>
<td>Character</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>THIRD_PTY</td>
<td>Character</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>AN_SPECIES</td>
<td>Character</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>AN_STATUS</td>
<td>Character</td>
<td>7</td>
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<td>Character</td>
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<td>20</td>
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<td>Character</td>
<td>8</td>
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<td>27</td>
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<td>Character</td>
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<td>28</td>
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<td>Character</td>
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</tr>
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<td>29</td>
<td>PR_IEXTENT</td>
<td>Character</td>
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<td>Character</td>
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<td>Character</td>
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<td>Numeric</td>
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<td></td>
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<td>Character</td>
<td>7</td>
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<td>Character</td>
<td>7</td>
<td></td>
</tr>
<tr>
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<td>Character</td>
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<td></td>
</tr>
<tr>
<td>37</td>
<td>PSYCHSYM</td>
<td>Character</td>
<td>40</td>
<td></td>
</tr>
</tbody>
</table>

**Total** 614
identical to the slots that we saw earlier in I/C's Profile-Schema frame. However, the other fields are new and require some explanation.

Our explanation of the unfamiliar fields in Figure 24 will work from top to bottom. Field 1, "CASE_NAME", identifies a case by the name of the parties. Field 2, "CITATION", gives the case's citations from the law reports. Field 3, "YEAR", indicates the year in which the decision was handed down. Field 4, "COURT_TYPE", describes the level of court that decided the case. The three possibilities are trial, appellate and court of last resort. These have been suitably abbreviated. Field 5, "JURIS", names the jurisdiction in which the court was located. Canadian cases are identified by province, except those from the Supreme Court of Canada which are simply labelled "Canada". All cases from foreign jurisdictions take the name of their country of origin. Fields 6 and 7, "JURIS_STAT" and "WEIGHT", play a part in a scheme that NSA uses to weigh its cases by assigning them numbers that reflect the case's persuasive force. This is the first mention that has been made of the weighting system. The way in which it works will be described later. Field 8, "WINNER", shows which of the parties, the plaintiff or defendant, won the case. The last two slots in the schema are Field 36, "PHYSYM", and Field 37, PSYCHSYM". As the abbreviated names suggest, these fields are used for psychological and physical symptoms respectively.
During the new system's development phase, a program was written to print out an edited version of each database record in hardcopy for reference purposes. Having hardcopy on hand proved extremely useful. It obviated the tiresome business of having to call up dBase whenever one needed to look at a case's salient features for some reason. Although the printed-out records are slightly modified versions of their electronic masters, they still give an accurate picture of what information about a case looks like when it has been entered into the database. Figure 25 shows hardcopy of Walker v. Broadfoot's^3 database record. The minor changes are easy to discern by comparing it with Figure 24. The format of a number of the field names in the printout has been altered slightly to make the printout more readable than it would be if dBase syntax were used. In addition, some fields have been omitted altogether because they are superfluous for manual reference purposes. For instance, the "YEAR" and "COURT_TYPE" fields are not required because the information they contain also appears in the case citation. The "JURIS_STAT" and "WEIGHT" fields are left out too because they only take on values during the weighting procedure, and these values can change. This explanation may seem rather cryptic at this juncture. However, its meaning will become clear when come to discuss how weighting is done.

Walker v. Broadfoot is a case that happens to have only one database entry. However, a single data record is sometimes not enough to describe a case adequately. Multiple records may be required to capture all of its relevant factual aspects as, for
Figure 25

NERVOUS SHOCK CASES DATABASE

RECORD: 47
CASE: Walker v. Broadfoot
CITATION: [1958] O.W.N. 173 (H.C.)
JURISDICTION: Ontario
WINNER: Plaintiff
INTENT: Unintentional
PURPOSE: None
CULPABLE: Yes
HUMAN: Yes
ANIMAL:
PROPERTY:
PLAINTIFF: No
THIRD PARTY: Yes
SPECIES:
STATUS:
PET TYPE:
PROP TYPE:
PROP VALUE:
PL ITYPE:
PL IEXTENT:
P3 ITYPE: Physical
P3 IEXTENT: Death
AN ITYPE:
AN IEXTENT:
PR ITYPE:
PR IEXTENT:
RELATIONSHIP: Spouse
REL RANK: 10
PROXIMITY: Eyewitness
PROX RANK: 6
DAMAGES: Damages
TRIGGER: Sudden
PHYSYM:
PSYCHSYM: Depression
example, in cases involving more than one plaintiff or third-party victim. Those kinds of cases can include several different types of injury, relationship to the plaintiff or exposure to the incident. Each of these facets of the case needs to be catalogued. If a significant factual attribute is left unrecorded, the database is incomplete. As a result, the case in question may get overlooked as a precedent in a set of circumstances to which it could conceivably apply. The same thing is true of cases with facts that are open to more than one plausible interpretation. These cases too must be recorded in a way that takes account of their nuances. Let us hark back to Mt. Isa Mines v. Pusey, an example used earlier, to make the point. The plaintiff's relationship to the victim in that case was entered in the database as "rescuer" in one data record and as "workmate" in another. The double entry was needed to do justice to the inherent ambiguity of the court's handling of the relationship.

Symptoms cases will also require additional data records to describe them fully if the victim displayed more than one physical or psychological symptom. The two database fields allocated to symptoms, "PHYSYM" and "PYSCHSYM", only allow for one value per data record.

Figure 26 shows the "SHOCK CASES" frame. It acts as the schema for I/C's internal database. The structure of the frame is identical in every respect to that of the schema defined in dBase's Shocker.dbf file. When the dBase file is imported into
Figure 26

Frame: SHOCK CASES
Parent: Relation
Slot: "CASE_NAME" Value: String, 65
Slot: CITATION Value: String, 65
Slot: YEAR Value: Integer, 1
Slot: "COURT_TYPE" Value: String, 7
Slot: JURIS Value: String, 21
Slot: "JURIS_STAT" Value: String, 9
Slot: WEIGHT Value: Integer, 1
Slot: WINNER Value: String, 9
Slot: INTENT Value: String, 13
Slot: PURPOSE Value: String, 5
Slot: CULPABLE Value: String, 3
Slot: HUMAN Value: String, 3
Slot: ANIMAL Value: String, 3
Slot: PROPERTY Value: String, 3
Slot: PLAINTIFF Value: String, 3
Slot: "THIRD_PTY" Value: String, 3
Slot: "AN_SPECIES" Value: String, 6
Slot: "AN_STATUS" Value: String, 7
Slot: PET_TYPE Value: String, 5
Slot: PROP_TYPE Value: String, 8
Slot: PROP_VALUE Value: String, 20
Slot: PLTYPE Value: String, 20
Slot: "PL_IETYPE" Value: String, 30
Slot: "P3_IETYPE" Value: String, 20
Slot: "P3_IEXTENT" Value: String, 30
Slot: ANETYPE Value: String, 20
Slot: "AN_IETYPE" Value: String, 20
Slot: "AN_IEXTENT" Value: String, 30
Slot: PRETYPE Value: String, 20
Slot: "PR_IETYPE" Value: String, 20
Slot: "PR_IEXTENT" Value: String, 30
Slot: RDEGREE Value: String, 20
Slot: "REL_RANK" Value: Integer, 2
Slot: PROXIMITY Value: String, 30
Slot: PROX_RANK Value: Integer, 2
Slot: DAMAGES Value: String, 7
Slot: TRIGGER Value: String, 7
Slot: PHYSYM Value: String, 40
Slot: PSYCHSYM Value: String, 40
I/C, the conversion program takes the contents of each data record and fills a frame with them by transferring the values in each field to slots of the same name in the frame. In effect, "SHOCK CASES" is not a single frame, but rather a collection of frames that collectively bears that name. It is the equivalent of a standard database file, except that it is made up of frames instead of records. I/C recognizes that the "SHOCK CASES" frame serves as a database because its parent frame is Relation. "Relation" is a reserved name in I/C that identifies any child of a parent with that name as a database file that can be manipulated differently from other frames.

The third part of NSA's case storage system is an I/C hypertext file that contains all the case summaries. This file is capable of holding large amounts of text. The case summaries can either be typed up within the hypertext file itself or copied into it as external files as long as they are in plain ASCII format. The big advantage that I/C's text file has as a storage medium over its predecessor in the old version of NSA is the hypertext feature. I/C allows any chunk of text to be assigned a hypertext term as a unique identifier. When the hypertext term is invoked within a rule, the associated text can be retrieved and displayed to the user. Hypertext's potential as a means of storing and retrieving cases was obvious. The case names could be used as hypertext terms to link them to the summaries. I/C could do the rest. In effect, the list of hypertext terms took the place of the index of case names that NSA had used before. Furthermore, the built-in capabilities of I/C's hypertext feature dispensed
with the need to write custom code that linked the case names to the summaries and retrieved them.

The new version of NSA still uses the same case summary for both facts and symptoms cases. The summary is clearly divided into two sections, the first labelled "FACTS" and the second "SYMPTOMS". The summary of facts is presented first because cases are most frequently used for their facts. Here again, the rationale behind the design is that the most likely choice should be put front and centre. However, the summary of facts is so terse that both sections of the case are visible together on a single screen. The user need only bother reading the one that is pertinent. Using a single case summary for dual purposes makes sense because it saves space and avoids duplication. Furthermore, it allows everything about a case to be viewed in one location. Many case reports contain no mention of any symptoms that the victim may have displayed. Knowing whether symptoms were noted in the report could be of incidental interest to a user browsing the case primarily for its facts. Splitting up the facts and symptoms would leave the user in the dark on that score. If there were not such good reasons militating against it, the summaries could easily be divided up into two sets. The requirement that hypertext terms be unique would pose no problem. The case names could still be used in that capacity. A one-character prefix would be enough to distinguish between those terms linked to facts and those linked to symptoms cases without detracting from the meaningfulness of the names.
Now that we have examined all the pieces that make up the new case storage and retrieval system, let us take a closer look at the mechanics of its operation. The rules are the glue that binds everything together and makes the various components work in concert. The best way of understanding how the system functions, therefore, is to trace the flow of execution of the rules. However, therein lies a danger. A large body of rules has been written to cover every eventuality. We cannot possibly attempt to unravel them all without getting mired in a mass of extraneous detail. Fortunately, the basic principles of the system's operation are essentially the same in every case. Tracking a single case, therefore, will serve as a paradigm that will enable us to understand the guts of the system. Apart from that, a few additional remarks will be enough to highlight some interesting peculiarities of the CBR component and the symptoms matching procedure.

The fact pattern we shall trace through the case-retrieval process will be the textbook case of nervous shock in which a mother sees her child killed by a careless driver. As our starting point, we pick up the story where we left off earlier. We had seen how NSA puts the fact profile together. The next step is for the system to match the profile with all the cases that have similar facts in its "SHOCK CASES" database.

Figure 27 shows a series of rules that have been excerpted from NSA's rulebase. In reality, these rules would be widely scattered. They have been gathered together for convenience to
GET-THIRD-PARTY-CASES
IF
LIST-ASSIGN "[]", CaseList
AND
'P3_Itype' := ('P3_ITYPE' of Profile)
AND
'P3_Iextent' := ('P3_IEXTENT' of Profile)
AND
'Rdegree' := (RDEGREE of Profile)
AND
'Proximity' := (PROXIMITY of Profile)
AND
GET-INSTANCE 'Record ID',
FROM SHOCK CASES
WHERE "P3_ITYPE" = 'P3_Itype',
"P3_IEXTENT" = 'P3_Iextent',
RDEGREE = 'Rdegree', PROXIMITY = 'Proximity'
AND
assemble-case-data 'Record ID'
AND
FAIL
OR
NO-BACKTRACK;
(2)
assemble-case-data 'Record ID'
IF
'Name' := ('CASE_NAME' of 'Record ID')
AND
'Citation' := (CITATION of 'Record ID')
AND
'Winner' := (WINNER of 'Record ID')
AND
'weight' := (WEIGHT of 'Record ID')
AND
CONCATENATE 'Name', " ", 'Citation', " ", 'Winner'," ", 'weight','Authority'
AND
add-case-to-list 'Authority';
(3)
add-case-to-list 'Authority'
IF
NOT LIST-MEMBER 'Authority', CaseList
AND
MAKE-LIST 'Authority',InterimList
AND
LIST-APPEND InterimList,CaseList,CaseList
OR
NO-BACKTRACK;
(4)
DISPLAY-CASES
IF
list-assign "[]",ChoiceList
and
REPEAT
AND
POP-TEXT-SET ChoiceList, CaseList, 8,1, {
The following cases exactly match your fact pattern.
They have been ranked according to their precedential weight.}
AND
DISPLAY-HYPERTEXT;

(5)
DISPLAY-HYPERTEXT
IF
NOT list-equal "[]",ChoiceList
and
run-menu hyper text
AND
FAIL
or
list-equal "[]",ChoiceList
AND
no-backtrack;

(6)
APP-STARTUP hyper text
IF
for-every list-member 'member',ChoiceList
do display hyper term 'member';

(7)
display hyper term 'member'
if
'counter' := 9
and
repeat
and
substring 'member',1,'counter','hyper term'
and
'counter' := 'counter' + 1
and
hyper-action 'hyper term';
illustrate the example we have chosen, and numbered for ease of reference.

Rule 1 is a multi-purpose rule that handles all cases in which a third party was the only immediate victim of the shock-producing event, assuming that all the necessary elements of nervous shock have been satisfied. Third-party cases that fail because of some defect are screened out beforehand by other rules. Rule 1 takes the key fields that characterize this type of case from their slots in the Profile frame and assigns them to variables. The instantiated variables are strung together to create the database query called "GET-INSTANCE". The 'Record ID' variable that appears at the top of the query ensures that every record in the database will be scanned so that all records to which the query applies will be retrieved. After the query has been formulated, the next premise of the rule, "assemble-case-data 'Record ID'", leads the inference engine to Rule 2.

Rule 2 takes the contents of the "CASE_NAME", "CITATION", "WINNER" and 'WEIGHT" slots in the retrieved record (i.e. "SHOCK CASES" frame) and assigns them to a set of similarly named variables. These instantiated variables are concatenated (i.e. strung together) into a single string that is assigned in its entirety to the variable 'Authority'. The purpose of the rule is to assemble one line of information that distinctively identifies the case. The last premise of Rule 2 fires Rule 3.
Rule 3's purpose is to add the line of information about the case to a cumulative list called "CaseList". This list was initialized as an empty list in the first premise of Rule 1. For simplicity's sake, from now on we shall refer to the line of information about the case as the case citation, even though there is more to it than that. Since I/C's variables are globally scoped, 'Authority' will contain the same value that it was given in the previous rule. To ensure that list entries are not duplicated, a negated list-membership function is used to verify that the case has not already been added to the list. In these particular circumstances, that would not happen because of the restrictive search parameters. However, since the rule is multi-purpose, duplications can sometimes occur. The symptoms cases that we will look at later are an example. A single case may have a number of symptoms. If the case citation has already been added to the list because of one symptom, there is no point in adding the case again when data record documenting another symptom for the same case is subsequently retrieved. If the case citation is not already an element of "CaseList", the variable is made into a list of a single element called "InterimList". This is done so that the next premise of the rule can add the citation to the end of the existing list using the "LIST-APPEND" function. The conversion of the variable into a list is necessary because only lists can be appended to lists.

Rule 4 presents the user with the list of relevant case citations. The user can click on cases with the mouse to select their summaries for viewing. The case citations selected become
elements of "ChoiceList". The "REPEAT" statement at the top of the rule allows the selection process to be repeated more than once after a particular batch of case summaries has been viewed. The "DISPLAY-HYPERTEXT" premise triggers the set of hypertext rules that handle the retrieval of case summaries.

Rule 5 checks to see that "ChoiceList" is not empty before invoking I/C's hypertext feature with the "run-menu hypertext" statement.

Rule 6 starts up hypertext and uses I/C's "FOR-EVERY ... DO" combination to designate all members of "ChoiceList" for processing in the same way by the loop in the next rule.

The hypertext terms that NSA uses are truncated case names. In effect, Rule 7 peels off the first 9 letters of each case name in "ChoiceList", creating a substring which is a hypertext term. I/C's "HYPER-ACTION" function retrieves the hypertext case summary associated with that term and displays it to the user. The summaries are presented as overlapping windows. The user can peruse each summary by clicking on the edge of the window to activate it and bring it to the fore. The user can close the windows containing the summaries and return to the list of choices. Other cases can be selected for viewing and their summaries will be displayed. When the user does not wish to see any more exact pattern match cases (i.e. "ChoiceList" is empty), NSA exits from the hypertext menu and moves on with the consultation.
Next, the whole range of other cases shown in Figure 23 is offered to the user. While a host of different rules are invoked to accomplish this, in every instance, NSA uses essentially the same method of case matching and retrieval as the one we have just examined in detail. That being the case, there is no need to go over the same ground twice when dealing with the remaining categories of cases. A few supplementary remarks devoted to each category will be enough to pinpoint any peculiarities in the way they are retrieved and to conclude our discussion of the topic.

Now that we have the big picture, explaining how the CBR component of NSA works is quite straightforward. The "same degree" cases are retrieved by rules that incorporate database queries with pattern-matching variables of the same kind as we have already seen. The queries are simply formulated differently. They use broader parameters that capture all successful third-party victim cases with the same degree of \( P(R) \) or \( P(E) \), as the case may be, regardless of the other differences that exist between those cases and the user's facts.

The bracketing process that supplies the user with cases that have greater and lesser degrees of \( P(R) \) and \( P(E) \) requires a preliminary step before the database is queried. NSA's rules increase or decrease the numerical rank assigned by those key elements of the user's case by 1 to retrieve those cases immediately above or below on the scale. The rule shown in Figure 28 demonstrates how this is done to get weaker relationship cases. The rule tests the value in the "REL_RANK"
GET-WEAKER-RELATIONSHIP-CASES
IF
LIST-ASSIGN "[]", CaseList
AND
'Rank' := ("REL_RANK" of HumanR)
AND
'Rank' > 1
AND
'Minus_Rel_Rank' := ('Rank' - 1)
AND
("MINUS_REL_RANK" of HumanR) := 'Minus_Rel_Rank'
AND
GET-INSTANCE 'Record ID',
FROM SHOCK CASES
    WHERE PLAINTIFF = No, "REL_RANK" = 'Minus_Rel_Rank'
AND
assemble-case-data 'Record ID'
AND
FAIL
OR
NO-BACKTRACK;
slot of the HumanR Frame just to make sure that the relationship in the user's case does not fall at the bottom of the scale. If that turns out to be the case, the rule fails and another rule advises the user that the law does not recognize any weaker relationship. Otherwise, the rule retrieves all the cases with relationships that are one notch down the scale.

The successful defences cases are simply those in which the plaintiff failed to prove the requisite element of damage. Nothing technically innovative is done here. A database query embedded in a rule is designed to retrieve that set of cases - end of story. The justification for putting these cases in a category of their own is purely legal. The case law shows that failure to prove damage is by far the most common reason why nervous shock cases fail. Lack of proof of damages is a convenient hook for judges to hang their hats on. It gives them a clearcut reason for tossing out a case that allows them to sidestep thornier legal issues. These cases are supplied to users to show plaintiffs what they are up against and defendants where they may find an Achilles heel in the case against them.

Users are supplied with full text of the leading case on nervous shock to give them instant access to the most authoritative, up-to-date statement of the legal principles that govern that area of law. The case is retrieved in a manner as equally unremarkable from a technical viewpoint as the successful defence cases. The unabridged version of the case, McLoughlin v. O'Brian, is given its own data record. A special symbol is
appended as a prefix to the case name as a means of distinguishing it from the regular case name that is linked to a summary. The case is retrieved by querying the "CASE_NAME" field of the database for the unique name of the fulltext version.

Finally we come to the symptoms cases. Apart from their similarity of symptoms, these cases bear no factual resemblance to the user's case, except by coincidence. The victim's symptoms are not treated as an integral part of the shock-inducing event, the conceptual entity that NSA analyzes, but rather as something occurring after the fact. The law's insistence that the victim's symptoms must manifest themselves in close contemporaneity with the event itself still does not make them part of that event. Symptoms provide tangible proof of nervous shock. Without them, what would otherwise be a textbook case will fail. In other words, one can rightly say that the law penalizes stoicism. The symptoms cases provide a counterpoint to the defence cases; they are used for bolstering a plaintiff's case as opposed to undermining it.

The method used to retrieve symptoms cases is of some technical interest because it was designed to overcome the difficulty of not knowing ahead of time exactly how many physical or psychological symptoms a user would select from the two long lists of options offered in each case. These lists are shown in Figures 18 and 19 respectively. In essence, the difficulty was overcome by counting the number of symptoms selected and writing rules tailor-made to retrieve an exact number of physical and
psychological symptoms. The set of rules allowed for nine
different choices in each case. Realistically, this number is
far more than users would select unless they were deliberately
trying to overload the system and make it fail. Nervous shock
victims tend to display no more than three or four different
symptoms in any given case, if that. However, while setting the
maximum number of allowable choices at nine may have been
overkill, it provided a comfortable safety margin.

Since cases relating to physical and psychological symptoms are
retrieved in exactly the same way, we need only examine one type
of symptom to understand how things work. Figure 29 shows a
collection of rules that handle the retrieval of psychological
symptoms cases.

Rule 1 systematically checks each slot of the Psychsym frame for
symptoms. Each time it finds one, the rule assigns the symptom
to a temporary placeholder while Rule 2 is invoked from within
Rule 1 to increment a counter by 1. Then Rule 3 is similarly
invoked to assign the symptom from the placeholder to the next
empty slot in the Psychnumbers frame shown in Figure 17. Once
the assignment has taken place, the placeholder is reinitialized
to "NO-VALUE". Control returns to Rule 1 and the "FAIL"
statement starts the loop again. As a result, the total number
of symptoms is counted and, starting from the top, each symptom
is assigned to a consecutively numbered slot in the Psychnumbers
frame. Looping ends when all the symptoms received as input from
the user have been dealt with.
Figure 29

(1) MATCH-PSYCH-SYMS
IF Psychsym HAS-A 'Slot'
AND HAS-VALUE Psychsym, 'Slot'
AND 'Slotvalue' := ('Slot' of Psychsym)
AND LIST-MEMBER 'Slotvalue', PsychsymList
AND (Placeholder of Symptoms) := 'Slotvalue'
AND UP-PSYCH-COUNT
AND NUMBER-PSYCH-SYMPTOM
AND FAIL
OR NO-BACKTRACK;

(2) UP-PSYCH-COUNT
IF 'count' := (Psychcount of Symptoms)
AND 'count' := 'count' + 1
AND (Psychcount of Symptoms) := 'count';

(3) NUMBER-PSYCH-SYMPTOM
IF Psychnumbers HAS-A 'Slot'
AND NOT HAS-VALUE Psychnumbers, 'Slot'
AND ('Slot' of Psychnumbers) := (Placeholder of Symptoms)
AND (Placeholder of Symptoms) := "NO-VALUE";
(4) GET-PSYCH-CASES
IF (Psychcount of Symptoms) = 3
AND GET-PSYCH-SYM3
AND NO-BACKTRACK;

(5) GET-PSYCH-SYM3
IF LIST-ASSIGN "[]", CaseList
AND 'Symptom1' := (Psych1 of Psychnumbers)
AND 'Symptom2' := (Psych2 of Psychnumbers)
AND 'Symptom3' := (Psych3 of Psychnumbers)
AND GET-INSTANCE 'Record ID'
    FROM SHOCK CASES
    WHERE PSYCHSYM = 'Symptom1', PSYCHSYM = 'Symptom2',
    PSYCHSYM = 'Symptom3'
AND assemble-case-data 'Record ID'
AND FAIL
OR
NO-BACKTRACK;
Let us assume, for the sake of this example, that three different symptoms were counted. When Rule 4 finds that the symptoms count is equal to 3, it invokes Rule 5. Rule 5 is tailor-made to handle cases with exactly three psychological symptoms. Each symptom is bound to one of the three variables in the rule. The database query then retrieves all data records that contain any of those symptoms in the "PSYCHSYM" field/slot, which is specified as the place to search for all of them.

In all other respects, the symptoms cases are retrieved and displayed in the same way as other cases.

6.4.8.3 Case Weighting

Not all cases are created equal. A case's persuasive force varies depending on the level of court that decided it, the court's jurisdiction, and, to some extent, how recent the case is. Furthermore, the importance of the court's jurisdiction, is relative. It depends on one's frame of reference. For example, all other things being equal, the decision of a British Columbia court carries more weight in B.C. than a decision of the same level of court from elsewhere in Canada. By the same token, Canadian cases are more persuasive than cases from foreign jurisdictions. Ideally, the cases supplied to the user of a KBS should reflect this legal reality.
The weighting of precedent cases was the subject of a series of discussions that took place in the Fall of 1990 between Professor Smith, then LL.M. student Andrzej Kowalski, and myself. We all agreed in principle that it was desirable to incorporate some system of case weighting into legal KBS's. But how exactly should precedent cases be ranked? Together we worked out the following method of allocating points to cases.

**Points for Court**
- Court of Last Resort: 70
- Appellate Court: 50
- Trial Court: 30

**Bonus Points for Court**
- Local Appellate Court: +10
- Local Trial Court: +10

**Bonus Points for Recency** (assuming 1990 is the current year)
- 1990: +5
- 1989: +4
- 1988: +3
- 1987: +2
- 1986: +1

**Penalty Points for Court**
- English Court: -10
- Other Foreign Court: -15

The point system we devised had no pretensions at being a precise means of measurement. It was merely intended to give the user a rough idea of a case's relative importance. As inexact as it might be, the scheme was definitely preferable to drawing no distinctions at all between the cases. The user could not alter the number of points allocated for each feature. However, the system would allow the user to select the jurisdiction from which to view the cases. The choices of jurisdiction offered were as follows: Canada as a whole, all the Canadian Provinces, England, Australia and New Zealand. The choice of jurisdiction could
affect the weight of a case by garnering bonus points for it if it was decided by a court in the jurisdiction.

These ideas were first implemented by Andrzej Kowalski in the Malicious Prosecution Advisor, a system that he built as part of his LL.M. thesis. At the time, the new version of NSA was still in the design phase. The same weighting system was later incorporated into NSA.

The weighting component is simple to use. Before running a consultation, a pulldown menu is used to select the jurisdiction from whose point of view the cases will be weighted. The choice offered is between Canada, England, Australia and New Zealand. If Canada is selected, the jurisdiction must be narrowed down further to a particular province. The weighting routine sorts through the cases and calculates their weights in accordance with the method outlined above. The resulting integer is assigned to the "WEIGHT" slot of the case record in the "SHOCK CASES" frame. When NSA assembles a case citation while creating a list of cases to present to the user, the case's weight appears at the end of the case citation. The "JURIS STAT" slot in the "SHOCK CASES" frame is used to store the name of the current jurisdiction. The weighting selection made by the user remains in effect until it is changed or overwritten when the internal database is updated from dBase.
6.5 Miscellaneous

We have now walked through the new version of NSA and examined every aspect of its design and functioning at an appropriate level of detail. All that remains is for us to wrap up the discussion by adding some miscellaneous observations that are of interest.

Once one consultation has been completed, the user can run another based on a different set of facts without exiting from NSA. Every time a new consultation is run, an initialization routine cleanses the framebase of the old values that were accumulated during the previous consultation and starts the system again from scratch.

Unlike its predecessor, the improved version of NSA did not use certainty factors to evaluate the strength of a user's case. Instead, it combined the use of CBR, bracketing, and case weighting to achieve a similar purpose by different, and more sophisticated, means.

I/C proved to have enough features to make it useful for experimenting with a hybrid knowledge representation scheme. To that extent, it served its purpose as an academic research tool. However, a caveat is in order. The software has a serious drawback; namely, a random bug that makes it unreliable for practical applications. The bug causes I/C to crash unexpectedly at different points in NSA's execution. The crash either freezes
up the computer completely so that it has to be re-booted, or kicks the user out of NSA to the DOS prompt. Andrzej Kowalski experienced exactly the same problem with his malicious prosecution program.

IntelligenceWare Inc., the company that markets I/C, was originally advised of the bug by telephone in November, 1991. In general terms, the bug was conjectured to be caused by a conflict in memory allocation between the computer's operating system and I/C. At IntelligenceWare's request, the problem was fully documented in a follow-up letter that enclosed electronic copies of NSA and the Malicious Prosecution Advisor for testing purposes. Unfortunately, while acknowledging the existence of the bug, IntelligenceWare Inc. did not come up with any way of getting rid of it. Numerous subsequent phonecalls to the company, followed as a last resort by a strongly worded letter from Professor Smith, failed to produce any result. Finally, it became clear that the company was either unwilling or unable to fix the bug. I/C had served a useful purpose. Regrettably, however, its unfixed fatal flaw clearly disqualified it as a tool for developing future systems.

Despite I/C's disconcerting habit of crashing unexpectedly, the new version of NSA has been widely demonstrated to interested parties. It was shown at the Third International Conference on AI and Law at Oxford, England, in June, 1991. It has also been demonstrated to visitors to UBC from other universities. These include people in the AI field, such as Professor Lotfi Zadeh
from the University of California at Berkeley, and Professors Carole Hafner and Donald Berman from Northeastern University in Boston.

6.6 The Last Word on the Law of Nervous Shock

The law does not stand still. It performs a delicate balancing act between the polarities of certainty and flexibility. Its strength lies in its ability to adapt to changing circumstances without destabilizing its solid foundations. We traced the evolution of the law of nervous shock from its inception to the modern day. We saw how a rational structure could be teased out of a mass of cases and translated into a working KBS. We then saw how the conceptual structure could be extended to incorporate significant recent changes in the law. The new conceptual structure was in turn implemented as a KBS using a different technical knowledge representation scheme. But, not surprisingly, that is not the end of the story. In the meantime, the law has changed yet again.

The latest change in the law of nervous shock came about as a result of Alcock et al v. Chief Constable of South Yorkshire Police. The case arose out of a tragedy at a soccer match at a stadium in England. Ninety-five people were killed and many more were injured when they were crushed as a result of overcrowding in a confined area of the stadium. People were allowed to keep pouring into that area and when those already there were being
crushed and had nowhere to go to escape the press. Friends and relatives of the victims were exposed to the event in a variety of different ways. Some saw it actually happen. Others saw graphic pictures on live TV or on later TV newscasts. Still others heard about the tragedy on the radio, by word of mouth, or in the newspapers. A number of those people suffered nervous shock. They sued the police force responsible for negligently failing to exercise proper crowd control and thereby avert the disaster.

At trial, Hidden J. dealt with the element of $P(R)$ in terms of clearly defined categories. He held that the parents, children, spouses or siblings of persons who had been killed or injured were sufficiently closely related for their nervous shock to be reasonably foreseeable. He found that all other relatives or friends fell outside the bounds of reasonable foreseeability. With respect to $P(E)$, the judge broke new ground. In addition to those who had witnessed the event or its immediate aftermath, he found that those who had seen the graphic coverage on live TV were close enough in time and space to the event to recover. However, those who had seen recorded TV broadcasts or heard about what had happened on the radio or from others were not. Hidden J.'s rationale for including live TV within the ambit of recovery was that it was an artificial means of enhancing the power of vision, something like binoculars.

Hidden J. knew very well that his judgment would be appealed. He said as much.
"I have been told by counsel on both sides, not in any sense in terrorem (to frighten me) that, whatever my findings, there will be appeals to the Court of Appeal. They added realistically, that it is almost inevitable that the cases will reach the House of Lords."\(^8\)

The Court of Appeal's handling of Alcock\(^9\) was more restrictive in its result, but more liberal, on balance, in its interpretation of the law. Parker L.J. took essentially the same approach to \(P(R)\) as Hidden J. He looked at it strictly from the point of view of categories of relationships. Those plaintiffs that fell within certain categories satisfied the element of \(P(R)\); those that fell outside did not. However, unlike the trial judge, Parker L.J. excluded siblings. He limited the acceptable categories to those of spouse, parent and child.

The two other judges who sat on the appeal court bench in Alcock did not allow themselves to get locked into a rigid process of categorization. Both Stocker and Nolan LL.J. adopted a more realistic, flexible way of dealing with \(P(R)\). They found that the critical factor was the existence of a close relationship of loving care or affection between the plaintiff and the victim. Such a relationship could be presumed to exist between parents, children and spouses. However, that presumption could be rebutted by evidence to the contrary. More remote relationships could also satisfy the element of \(P(R)\) if it were proved that they were particularly close. Nolan L.J. was even prepared to include friends as well as remoter relatives.

"But I see no difficulty in principle in requiring a defendant to contemplate that the person physically injured or threatened by his negligence may have relatives or friends whose love for him is like that of a normal parent or spouse, and who in consequence may
similarly be closely and directly affected by nervous shock where the ordinary bystander would not. The identification of the particular individuals who come within that category, like that of the parents and spouses themselves, could only be carried out ex post facto, and would depend upon evidence of the 'relationship' in the broad sense which gave rise to the love and affection."\(^{10}\)

The Court of Appeal unanimously reversed the trial judge's finding that live TV coverage satisfied the element of \(P(E)\) in the instant case. However, while Parker and Stocker LL.J. both did so without qualification, Nolan L.J. added an important rider which left the door open for future cases.

"I bear in mind, of course, that the sight and sound of an incident can be transmitted and reproduced with a vividness which can equal, or even exceed, that experienced by those on the spot. In the present case, however, the element of immediate and horrifying impact on the viewer does not seem to me to have been established either as being reasonably foreseeable or as having happened. ... I would not exclude the possibility in principle of a duty of care extending to the watchers of a television programme."\(^{11}\)

When the Alcock case reached the House of Lords\(^{12}\), the liberal interpretation of the law of nervous shock adopted by the Court of Appeal was not only endorsed, but slightly extended.

To begin with, the law lords also rejected the notion of using fixed categories to set the limits of \(P(R)\). They took their cue from the Court of Appeal and opted unanimously for an open-ended approach based on the actual closeness of the plaintiff's relationship to the victim. In light of this, our conceptual structure would have to be modified to test for the de facto closeness of any relationship.
But the House of Lords went even further than the Court of Appeal in extending the boundaries of \( P(R) \). Three of the four law lords who wrote judgments—Lords Keith, Ackner and Oliver—seriously eroded the time-honoured legal fiction of the phlegmatic bystander. All three agreed that, in principle, a bystander could have a valid claim for nervous shock if the circumstances of the accident were sufficiently horrific. Lord Ackner gave a graphic example.

"In the course of argument, your Lordships were given, by way of example, that of a petrol tanker careering out of control into a school in session and bursting into flames. I would not be prepared to rule out a potential claim by a passer-by so shocked by the scene as to suffer psychiatric illness."\(^{13}\)

Lord Lowry did not write a judgment. Lord Jauncey refrained from expressing an opinion on the bystander question. However, his manner of side-stepping the issue seemed to suggest that he did not agree with the views of his brethren.

"However, the suggested inclusion of the bystander has not met with approval in this House. ... While it is not necessary in these appeals to determine where stands the ordinary bystander, I am satisfied that he cannot be prayed in aid by the plaintiffs."\(^{14}\)

The majority dicta on the status of bystanders adds another exception to rescuers in the category of strangers that can potentially recover for nervous shock. The existing conceptual structure shown in Figure 9 could easily be modified to allow strangers who are not rescuers to recover, if the shocking event was especially horrific. The example of the exploding tanker truck given by Lord Ackner suggests that there would have to be both multiple victims and gruesome injuries. The football
stadium disaster does not satisfy those requirements. While the number of victims was certainly great, they all died from asphyxiation or crushing injuries that did not leave their bodies looking awful. Something like an airplane crash in which numerous victims were mangled, dismembered or terribly burned would be needed to bring bystanders within the ambit of $P(E)$.

The House of Lords upheld the Court of Appeal's finding that live TV coverage of the disaster in the instant case did not satisfy the element of $P(E)$. However, Lords Ackner and Oliver expressly agreed with Nolan L.J. that there might be cases in which live TV coverage would suffice. Lord Ackner simply said, "The viewing of the television scenes did not create the necessary degree of proximity."\(^{15}\), and left it at that. Lord Jauncey, the most conservative voice on the court, made it quite clear that he had advertently refrained from speculating on the matter.

"I say nothing about the special circumstances envisaged by Nolan L.J. in his judgment in this case. If a claimant watching a simultaneous television broadcast does not satisfy the requirements of proximity, it follows that a claimant who listens to the wireless or sees a subsequent television recording falls even further short of the requirement."\(^{16}\)

Is reasonable foreseeability of the risk the only test that need be applied to determine liability for nervous shock or do policy considerations play a part? The law lords all spent some time discussing this issue and expressing their own views on the subject. The one thing they all agreed on was that reasonable foreseeability in itself is not enough. But each of them put a slightly different spin on the issue. Reading these discussions
makes it clear how fruitless it would be to rely on this kind of reasoning as the starting point for building a KBS. Lord Keith, for example, has this to say.

"So I am of the opinion that in addition to reasonable foreseeability, liability for injury in the particular form of psychiatric illness must depend in addition upon a requisite relationship of proximity between the claimant and the party said to owe the duty."

Later on he had this to say about how these relationships should be identified.

"As regards the class of persons to whom a duty may be owed to take reasonable care to avoid inflicting psychiatric illness through nervous shock sustained by reason of physical injury or peril to another, I think it sufficient that reasonable foreseeability should be the guide."

There is an element of circularity to this reasoning. Reasonable foreseeability is not enough, says Lord Keith. In addition, there must be a proximate relationship. But reasonable foreseeability itself, the very concept that is to be modified, is to be used as the guide in determining which types of relationships will modify it.

Lord Oliver was far more candid than Lord Keith on the subject of how one might determine $P(R)$.

"And in the end, it has to be accepted that the concept of 'proximity' is an artificial one which depends more upon the court's perception of what is the reasonable area for the imposition of liability than upon any logical process of analogical deduction."

Lord Oliver went on to stress the importance of policy considerations and common sense in judicial decision making. He ended up by saying, "I would only add that I cannot, for my part, regard the present state of the law [of nervous shock] as either entirely satisfactory or as logically defensible."
Lord Oliver's remarks make it plain that there are limits on how far one can apply formal logic to legal reasoning. Other factors that defy formal definition, like common sense reasoning and policy questions, play a determinative role. The judgment as a whole also shows that the concept of reasonable foreseeability has no real predictive value. It is essentially a judgment that the court makes about a situation after the fact. Something is only reasonably foreseeable once a court has deemed it to be so. And that is why the facts of the case, and of the hypothetical situations the courts use as examples, are the only solid foundation on which to build KBS's.

The House of Lords' decision in Alcock et al v. Chief Constable of South Yorkshire Police has now supplanted McLoughlin v. O'Brian as the leading case on nervous shock - at least in England. The judgment is likely to find favour in Canadian courts because it is thoroughly in tune with the times.

For one thing, the decision in Alcock recognizes the reality of relationships in the nineties by refusing to be limited to traditional categories. Instead, it places the emphasis where it really belongs, on the closeness of the relationship. Neat categories are appealing because they provide the law with an easy way of drawing the line. However, to their credit, the Law Lords did not allow themselves to get locked into a set of outdated categories that fail to do justice to existing social reality.
Furthermore, the *Alcock* case brought the law of nervous shock into the so-called Information Age by acknowledging the prevalence of live TV and the powerful impact it can have on the senses. In doing so, the court laid the groundwork for a subsequent case that would be an exception to the longstanding rule that the law will not compensate nervous shock caused by a communication from a third party.

As we have seen, the decision of the House of Lords in *Alcock et al v. Chief Constable of South Yorkshire Police* calls for some minor modifications to the conceptual structure of nervous shock. The technical changes required to update the KBS would be equally minor. For the most part, the original conceptual structure, created to give some fact-based substance to the nebulous language of the law of negligence, remains intact.


3 *Supra*, Ch. 4, note 67.

4 *Supra*, Ch. 4, note 82.

5 *Supra*, Ch. 4, note 36.


8 *Supra*, note 7, p. 819.

9 [1991] 3 All E.R. 88, sub nom *Jones and others v. Wright*.

10 *Supra*, note 9, p. 120.
11 Supra, note 9, p. 122.
13 Supra, note 12, p. 403.
14 Supra, note 12, pp. 421-422.
15 Supra, note 12, p. 398.
16 Supra, note 12, p. 423.
17 Supra, note 12, p. 396.
18 Supra, note 12, p. 397.
19 Supra, note 12, p. 415.
20 Supra, note 12, p. 419.
7.1 Further Comments About Knowledge Structuring

One of the central points of this thesis is that the manner in which legal knowledge is represented conceptually is vital to the success of a knowledge-based system. The same holds true for other domains, like medicine, for example. However, in law, the right components for a conceptual structure can prove more elusive. That is because legal knowledge is a collection of abstractions created by the human mind that do not describe any external physical reality. Medicine, and the hard sciences, on the other hand, deal for the most part with things that do have a tangible existence. The human body, its parts, and the ailments that afflict it, can be identified and described with relative certainty. The things themselves can be referred back to if there are doubts about the adequacy of the conceptual structure. In law, no such reality check is available. One of the useful results of conceptually structuring legal knowledge to build
KBS's is that it presents the knowledge in a more graphic fashion that is easier for the mind to grasp and retain than more traditional verbal descriptions.

No amount of technical ingenuity can compensate for a fundamental flaw in the conceptual structure of the knowledge. It is only when the knowledge has been represented in some conceptually appropriate way that it can benefit from the automatic manipulation that computers do so well. The knowledge representation formalism that is used to represent the knowledge for computational purposes is certainly important. Some have definite advantages over others. However, when all is said and done, knowledge representation formalisms are of secondary importance. They are simply placeholders, frameworks into which substantial legal knowledge is slotted. If the conceptualization of the knowledge is faulty, then technological solutions are not going to correct the defect.

Unfortunately, there is no universal method for determining how knowledge should be conceptually structured. The notion that information is simply "out there" to be discovered in some objective sense is profoundly mistaken. There is no doubt that the external world needs to be divided into general categories in order for human beings to be able to make sense of it or even talk about it. It would be impossible for us to communicate with one another if all objects and events were treated as being unique, as in reality they are. Each thing would have to be given a unique name like those assigned to the individual trees
on some Pacific Islands where the inhabitants had no general word for tree. Only the small number of people with a first-hand knowledge of the thing itself would be able to talk about it. Furthermore, each event would be treated as a unique, unrepeatable occurrence in time and space. Indeed, Carl Jung's concept of synchronicity was founded on this very notion.

While looking at things as unique seems bizarre to us because we have been conditioned to dwell on their sameness rather than their differences, it is an equally valid point of view. In fact, it is more so because the unique "is-ness" of a particular thing is the natural and undeniable state of the thing itself in all its aspects. It is this clear, child-like perception of things as they really are, unclouded by any preconceived ideas about them, that Zen enlightenment seeks to achieve. On the other hand, attempts to fit a thing into a general category are artificial to the extent that we are forced to overlook some details and to generalize about it in order to get it to fit into the category. However, the fact remains, that in order to be able to manage the world around us more efficiently, we classify events and objects according to the categories they fall into. But the categories have no independent existence of their own. They are simply a phenomenon that seems to reflect the structure of the human mind in the same way as the archetypal symbols and images we produce. The world is unlabeled. The categories we use and the descriptive terms we give to the things that we put into those categories are projected onto the world by our minds. Furthermore, even the terminology we use to describe the
categories and the things in them adds another layer of distortion. The so-called Whorfian Hypothesis, advanced by the linguist Benjamin Lee Whorf, asserts that the language we use affects the way in which we perceive things. Since our perceptions are limited by what the language is able to express, we are channeled in certain predetermined directions when we look at the world. The much-quoted example is that the Inuit language has over twenty different words to describe snow whereas English has only one in general usage. Although the Whorfian Hypothesis was based on a comparative study of different languages, within a single language, the jargon of a particular profession produces a similar effect. Thus, lawyers tend to resort to standard legal terminology when attempting to describe something because certain words have gained wide acceptance within the discipline over time.

Not only do categories have no real existence, but also the question of which categories to use in any given instance is entirely dependent on the context within which we are operating and the purpose that we wish to achieve. For example, a botanist from UBC doing research in the Amazon would classify plants one way and an Indian living there would classify the same plants in a completely different fashion. The botanist's classification would probably be based on family membership and structural similarities following along the lines of the system developed by Linnaeus. An Indian would be more interested in the plant's utility. For example, whether it could be used for food, clothing, making poison for smearing on arrows, or whatever. The
point to bear in mind is that categorization is in the eye of the beholder.²

7.2 Scripts As Knowledge Structures

In contrast to case law, statute law has a ready-made framework. Therefore, it does not call for a deep-structure approach as a means of imposing some order on it. While case law requires the compass of deep-structure to guide one through the maze of cases, a statute when it comes into force provides a rough map of the territory it covers. However, the guidance a statute gives is only an outline. It is not possible to know ahead of time precisely what the effect of the statute will be in practice. Only when the statute is applied to the area of law it governs does it take on a more definite shape. Procedures become routinized and ambiguities are gradually resolved by the gloss that decided cases put upon the statute. In time, the bare bones of a frequently applied area of statute law become fleshed out and it acquires a well-defined, almost ritualized character.

When it comes to the conceptual structuring of legal knowledge for knowledge-based systems, it is my contention that frequently applied areas of statute law lend themselves very nicely to a script-based approach of the kind developed by Roger Schank while he was working on natural language understanding programs at Yale. Of course, this approach to modelling legal knowledge has nothing to do with trying to implement natural language
understanding programs. Only the general idea of structuring knowledge in a script-based way has been borrowed from Schank. A little later on, I shall discuss in more detail how this can be implemented in an area of statute law. However, beforehand, a general explanation of Shank's ideas is called for.

Scripts are used to represent stereotyped situations that we encounter repeatedly in everyday life. The speculation is that we carry a whole range of scripts around in our minds. Each script has been learned by doing the same sort of thing over and over again to the point where it becomes a highly ritualized activity. When we find ourselves in a situation that we recognize as corresponding to a particular script, we activate the script in order to deal with the situation. The key idea is that we have certain expectations about how the event will unfold based on our past experience of similar events. The script may not follow exactly the same sequence of steps every time it is invoked because at certain points there may be a choice to be made between a number of possible sub-scripts. The sub-scripts are subsumed by the main script and are variations on the overall theme.

Schank used the activity of eating in a restaurant as the basis of much of his work on scripts. He tried to anticipate most of the common restaurant scenarios and program them into a computer. His purpose was to enable the computer to understand stories about restaurants by using its knowledge to read between the lines, so to speak, and draw inferences about what had happened,
even though certain information had been omitted. For example, when asked about whether someone had enjoyed a meal, in the absence of any specific information on the point, the computer could answer negatively if the person had deliberately failed to leave a tip, because it would know that a tip is the customary sign of appreciation. Schank's approach was a way of attempting to overcome the lack of real-world knowledge which is one of the major limitations of natural language understanding (NLU) programs. His work was part of a general trend in NLU towards highly domain-specific programs. These programs relied on specialized knowledge as a means of overcoming the brittleness of general purpose programs that attempted to cover the whole spectrum of natural language usage.³

However, the distinctive contribution to NLU for which Schank is best known is his so-called theory of conceptual dependency. Schank maintained that concepts not words should be the primitives of any NLU system. He focussed on underlying meaning rather than the plethora of different ways in which words can be used to describe something. He argued that, if two sentences mean the same thing, they should be represented in only one way, regardless of the differences in the language used. For example, PTRANS was the primitive to be used in all cases when a physical object was moved from one place to another. Thus, to represent a visit to the washroom, I would show myself being PTRANS'd by myself from my office to the washroom. The idea is appealing because Schank attempts to cut through the mass of endless variations that can be used to express something using language
and to capture the very essence of the communication. Unfortunately, while the approach is attractive because it scales down the NLU problem to manageable proportions, it bypasses the problem rather than solving it. Conceptual dependency creates a laconic compu-speak that seeks to make natural language intelligible to machines by impoverishing it. The language is tailored to the computer rather than vice versa. Robbed of all its richness and reduced to a small set of generic terms, this type of language does not tell us a great deal. How did I PTRANS myself from A to B? Did I walk, jog, run, crawl, hop, stagger? If I walked, how did I do it, fast, slowly, at a moderate pace? Was there some peculiarity to my gait? PTRANS cannot capture any of these possibilities. All it can do is represent the bare fact that I somehow covered the intervening space between A and B. Sophisticated NLU programs would certainly be useful, especially in law since the discipline is primarily concerned with the meaning of language. However, legal issues often depend on subtle shades of meaning. Any NLU program that is incapable of capturing the nuances of language would be of limited usefulness to lawyers. There is a huge debate about whether full NLU programs will ever be possible because of the many complex factors that are involved in the understanding of language by human beings. However, while one cannot really talk about Schank's idea of scripts without also mentioning conceptual dependency because of the common NLU context in which they both arose, only the former is pertinent to this ongoing discussion.
We do not realize the extent to which our behaviour may be governed by script-like expectations until we run into an unexpected deviation from a script we have learned or are faced with a novel situation for which we have no script. A change of cultural context is a common way in which this can happen. In France, for example, unlike here, tipping is the exception rather than the rule. The tip is usually included in the price of the meal. In that context, Roger Schank's restaurant script would need to be amended because no negative inference about the quality of the service could be drawn from a failure to tip.

In short, if we find ourselves in a situation that appears to fit one of our scripts, the appropriate script gets triggered unconsciously and a whole host of assumptions are made about what we can expect will happen.

7.3 Statutory Provisions as the Basis of Scripts

As I stated earlier, areas of statute law that have become extremely well-defined in the details of their application through constant usage, fit nicely into a script-based format. That is because the cases they give rise to have the flavour of being "the same old story". Much of what happens in such cases is highly repetitive and therefore predictable. However, just because the area of law that one is dealing with is statute based does not in itself guarantee that it would be suitable for being treated like a script. The wording of the statutory provisions
may be so broad in its scope that they could apply to a whole range of different possible circumstances. An example is the theft provisions of the Criminal Code. Theft can be committed in a wide variety of different ways. The high-level conceptual ingredients that have to be proved in order to establish the offence of theft are always the same. But they may be satisfied by an array of vastly different fact situations that cannot be blended into a single storyline.

On the other hand, a particular kind of theft may very well have script-like characteristics. An obvious example, is shoplifting. Because of similarities in the set-up and mode of operation of most businesses, especially large stores, shoplifting cases all sound remarkably similar - as anyone who has sat through a number of them can attest. In most cases, shoplifters are apprehended by store detectives whose evidence sounds like a catechism they have learned by rote. The story usually unfolds as follows.

1. **The suspect is observed acting suspiciously.**
   The suspicious behaviour may take various forms: glancing around surreptitiously, wandering around the store without any apparent purpose, loitering in a particular part of the store until other customers have left etc.

2. **An item is taken and concealed.**
   This is usually done by slipping it into a pocket or hiding it somewhere else on the suspect's person (e.g. inside a shirt or blouse, down the front of the pants etc.). Sometimes the item is
put in a purse or a bag of some kind. Bags with store names on them containing merchandise that appears to have been purchased somewhere else are commonly used (e.g. An Eaton's bag in The Bay and vice versa.) In the case of clothing, it is sometimes put on by the suspect in a changing room and worn out of the store. Several items are taken into the changing room and only some of them are returned to the racks.

2a. **Labels are switched.**
Label swapping is a variation on the taking theme. The price label is removed from the goods and replaced with a label taken from an item with a substantially lower price. This is done with items from the same department so as not to alert the cashier through an obvious discrepancy. For example, labels are often switched between different cuts of meat. Obviously, there is no need for concealment after the switching has been accomplished.

3. **More suspicious behaviour is observed.**
After the item has been taken, the suspect attempts to ensure that the action has gone undetected. This takes the form of more surreptitious looking around, and sometimes protracted wandering around the store to make sure that nobody seems to be following.

4. **No offer is made to pay for the stolen merchandise.**
The suspect leaves the store without offering to pay for the stolen item, except in the case of label swapping where payment is offered for the lower amount. In some instances, the suspect will go through the cashier's desk and pay for some other items,
but not for the stolen one(s). Otherwise, the suspect will leave
the store directly if no other goods are being carried openly.
Evidence of there having been a short lapse of time between the
taking of the stolen item and the suspect's departure from the
store is often given to anticipate claims of forgetfulness which,
if believed, would negate intent.

5. The suspect is allowed to leave the premises and apprehended
outside.
The suspect should be allowed to leave the premises and be
apprehended outside. Otherwise it is virtually impossible to
prove theft. Cases in which an over-zealous detective jumps the
gun and detains a suspect prematurely inside the store are not
approved by the crown for prosecution.

6. Arrest.
The detective identifies herself and explains why the suspect is
being detained. At this point the suspect's behaviour may
provide evidence of consciousness of guilt, such as resisting
arrest, attempts to flee or to get rid of the stolen goods. Upon
being apprehended, the suspect may also make inculpatory
statements. Pleas for leniency and belated offers of payment are
extremely common.

7. Detention at the store.
The suspect is escorted back to the store and detained pending
the arrival of the police. At this point, the suspect may
voluntarily surrender the stolen goods when confronted with what
the detective has observed. If there is any resistance to being searched on the part of the suspect, the store employees will usually await the arrival of the police.

8. **The arrival of the police.**

When the police arrive, the detective will tell the officer(s) what she saw in the presence of the suspect. If the stolen goods have already been recovered and identified as belonging to the store, they will be shown to the police. The police will inform the suspect of his rights to remain silent and to speak to a lawyer. The police will then ask the suspect if he wishes to say anything in response to the allegations made by the store detective. Any response the suspect makes will be noted by the police. If the goods have not been recovered because the suspect has resisted being searched by the store employees, the police will search the suspect themselves if they are satisfied on the evidence that the offence has been committed. If stolen goods are recovered, they will be identified as the property of the store and marked for court purposes.

9. **Release from Custody.**

The suspect may either be released by the police there and then on an Appearance Notice requiring his attendance at court on a particular date, or taken into police custody, depending on the circumstances relevant to pre-trial release.

The narrative above shows the extent to which the average shoplifting investigation follows a prescribed course through a
series of well-defined phases. What happens in each phase of the investigation may vary in its specifics, but the overall picture remains the same.

Scripts are not the same as checklists, even though they seem to bear some conceptual resemblance to one another. A checklist operates at a higher level of abstraction. Its components are general categories that all need to be satisfied in some factual way in order for a complete offence or cause of action to be made out. The elements of theft referred to earlier are a good example. Checklists are commonly used by prosecutors to ensure that, as part of their case, they have not failed to prove some essential ingredient of the offence charged. Needless to say, there are countless different factual ways in which the abstract elements of an offence like theft can be established.

Scripts, on the other hand, deal with concrete sets of circumstances rather than abstract conceptual elements. Scripts are typical scenarios that show how a much-used piece of legislation gets translated into standardized procedures in the real world.

Shoplifting was taken as an example of how certain areas of the law can be usefully looked at as scripts. However, while shoplifting clearly illustrates the point, it is too straightforward to be worth implementing as a system in order to prove the concept. Unlike shoplifting, impaired driving is an important and complex area of the law that is also amenable to
being treated as a script. For this reason, impaired driving has been chosen as the domain with which to demonstrate the validity of a script-based approach to structuring legal knowledge. Another area of the law would have served equally well, as long as it was a highly active one that had acquired the stereotypical quality that is characteristic of scripts.4

7.4 Preliminary Issues

7.4.1 The Statutory Basis of Impaired Driving Advisor's (IDA) Domain

The domain that IDA covers is what lawyers loosely refer to as "impaired". This is generally taken to mean an offence under Section 253 of the Criminal Code. The wording of the section is as follows.

"253. Every one commits an offence who operates a motor vehicle or vessel or operates or assists in the operation of an aircraft or of railway equipment or has the care or control of a motor vehicle, vessel, aircraft or railway equipment, whether it is in motion or not,

(a) while the person's ability to operate the vehicle, vessel or railway equipment is impaired by alcohol or a drug; or

(b) having consumed alcohol in such a quantity that the concentration in the person's blood exceeds eighty milligrams of alcohol in one hundred millilitres of blood,"5

What follows is a brief description of the limits of IDA's domain, what the offences under Section 253 involve, and the
combinations of charges that are typically laid as a result of an impaired driving investigation.

At present, IDA's domain encompasses only charges under Subsections (a) and (b) of Section 253 involving motor vehicles, not the other forms of transportation mentioned. Subsection (a) deals with impaired driving. IDA deals only with cases of impairment by alcohol because, relatively speaking, charges of being impaired by a drug are uncommon. Subsection (b) describes the offence commonly called "over 08" (pronounced "Oh eight"). Most of the time, a reference by a criminal lawyer to someone having been charged with "impaired" will be taken to mean that a charge of "over 08" has been laid as well. In fact, both offences are usually charged in tandem on the same information. A conviction may be entered on one or other of them, but not both because of the rule laid down in the Kienapple v. The Queen\(^6\) case against multiple convictions arising out of the same delict. In effect, the defence lawyer has to jump two hurdles and beat both charges in order to get the client off scot free, for even if the crown fails to prove one charge, it may succeed on the other.

The two charges entail very different evidentiary considerations. The proof of "over 08" is more clearcut than impaired because it is quantified with reasonable precision. All that need be established is that the accused's blood/alcohol content was over the legal limit at the relevant time. There are a number of procedures that must be strictly complied with in order to accomplish this. However, in essence, that is what has to be
proved. What constitutes proof of impairment is much more vaguely defined. A definition which is often quoted in practice is that it is "evidence of a marked departure from the norm". This is taken from R. v. MacKenzie. Over time, certain kinds of driving such as weaving from side to side, and stopping and starting abruptly, have come to be recognized as classic signs of impairment. However, in the context of any given case, it may be difficult to decide whether impairment has been proved because the evidence is much more susceptible to some innocent explanation than a breathalyzer reading. I hasten to add that the accuracy of the breathalyzer has been successfully challenged in certain circumstances. However, the bottom line is that symptoms of impairment are easier to explain away than a breathalyzer reading.

Although, as I have said, impaired and over 08 are usually charged together, there are exceptions. The most common one arises where the accused has failed or refused, without reasonable excuse, to provide a breath sample. In those cases, a charge under Section 254(5) of the Code, usually referred to as "refusal to provide a breath sample", is laid in addition to the count of impaired. The rule in Kienapple does not preclude convictions being registered for both offences. In practice, however, the crown is generally prepared to accept a guilty plea to one charge, preferably the impaired, and drop the other. Defence counsel have a tendency to prefer pleading their clients guilty to the refusal rather than the impaired, even though the penalties are exactly the same for each of them. The motivation
seems to be that there is less of a stigma attached to a conviction for refusal because it is always open to the accused to insist that he was not really impaired, simply misguided in refusing to give a breath sample. Although this outcome may provide some psychological comfort to the person convicted, legally it is inconsequential. Indeed, notwithstanding the fact that the two offences are technically separate delicts, in practice most judges tend to impose a single overall penalty regardless of whether there is a conviction on one or both. In cases where a double conviction is registered, an appropriate total fine is apportioned between the two offences.

IDA does not deal with charges of refusal, only with impaired and over 08. The potential for incorporating a module that deals with refusal to provide a breath sample will be discussed in some detail later. I acknowledge in passing that, from a practical perspective, it would be desirable to cover refusals because they are such a common occurrence. However, my present purpose is to demonstrate the viability of a script-based approach to structuring legal knowledge. While a module dealing with refusal would certainly enhance the system's usefulness, it does not significantly add to the weight of my theoretical argument. I maintain that enough of the system has been built to demonstrate the validity of the latter.

Still on the subject of exceptions, there are cases where only an impaired charge is laid. This occurs where a breath sample has not been taken, but where there are no grounds on which to
proceed with a charge of refusal. For example, cases where the accused was so incapacitated from illness, injury or even drunkenness as to be physically unable to provide a breath sample.

There are also cases where only an 08 charge is laid. This happens where the breathalyzer reading is over 08, but the evidence of impairment is not strong enough to warrant laying a charge of impaired. On the face of it, this situation may seem anomalous. However, it occurs because the evidence needed to sustain a conviction for impaired is much greater than the evidence of reasonable and probable grounds that a police officer needs to have in order to be justified in making a demand for a breath sample. This logically gives rise to the possibility of only a charge of refusal being laid in circumstances where a proper demand is made, a breath sample is not provided, but the evidence of impairment is too weak to warrant proceeding with an impaired charge.

On a more pragmatic note, I should add that, in some cases, even when the evidence is thin, an impaired charge may nonetheless get laid. There are a number of reasons why this kind of overcharging can happen, all of them essentially tactical in nature. For example, a weak charge can be dealt away later as part of a plea bargain. Both sides may appear to benefit in these circumstances. The prosecutor can justify entering a stay of proceedings because the evidence was unlikely to support a conviction in the first place. The defence lawyer can also have
some accomplishment to show the client and perhaps make entering a guilty plea on the stronger charge seem more palatable.

Another reason why a shaky impaired charge may be laid is the bureaucratic inclination to play it safe and avoid having to make a potentially controversial decision. If a charge is dismissed in court, it is much less likely that anyone will call the outcome into question. Judges are not exposed to criticism to the same extent as lesser mortals. The fact that the matter has been pursued as far as possible also serves to mollify potential critics. However, the refusal to lay a charge in the exercise of prosecutorial discretion can always be subject to criticism from the police or other interested parties. Because of their failure to appreciate the difficulties of proving a criminal case, it is sometimes difficult to persuade non-lawyers that there is no point in proceeding with a charge when it is a foregone conclusion that it will get thrown out by the court. The temptation to avoid flak by passing the buck may occasionally lead to an impaired charge being laid where the evidence leaves a lot to be desired.

Occasionally, the peculiar circumstances of an impaired driving investigation may lead to spin-off charges being laid. These other charges are often related to the accused's driving conduct. For example, failing to remain at the scene of an accident, dangerous driving, criminal negligence causing death, and so on. The spin-off charges may also stem from violent behaviour attributable to the accused's consumption of alcohol. Typical
examples are resisting arrest, assaulting a peace officer and mischief. The mischief usually involves damage to public property such as the windows of police cars, telephones in police stations, breathalyzer machines, and the like. In short, anything within reach on which a belligerent suspect has the opportunity of venting his rage. IDA does not deal with spin-off charges because they fall into a category that is not logically part and parcel of the standard impaired driving scenario.

In summary, an impaired driving investigation usually leads to one or other of three different charges being laid: (1) impaired, (2) over 08, and (3) refusal to provide a breath sample, for the reasons and in the combinations outlined above. IDA deals only with the first two.

7.4.2 The Importance of the Domain

I mentioned earlier that, in contrast to shoplifting, impaired driving is an important and complex domain which is well worth using to demonstrate how a script-based approach to structuring legal knowledge can be used to build a knowledge-based system (KBS). I shall now elaborate upon that assertion.

To begin with, impaired driving is an important area of the law simply because of the sheer volume of impaired charges (in the broad sense of the term) that the courts have to deal with every day. Countrywide in Canada, no other type of criminal charge
even comes close to matching the number of impaireds. A glance at the list of cases to be heard in a provincial courthouse on any given day will reveal that a sizeable proportion of them are impaireds. Furthermore, a great many of those cases go to trial.

The reason why so many cases are taken to trial lies in the drastic consequences that result from conviction. These include loss of driver's licence (on which the accused's livelihood may depend), large fines, mandatory gaol terms for subsequent offences and potentially ruinous civil liability where property damage or injury is caused. In fact, a lot of people cannot afford not to defend the charge, even if the chances of getting off seem remote. The expense of hiring a lawyer pales into insignificance compared to the cost of a conviction. The net result is that the tenacity with which these charges are defended on the most tenuous of grounds has spawned a vast body of law in which the pickiest and most technical of details have been parlayed into defences. The extensive annotations to the impaired driving sections of Martin's Annual Criminal Code as compared to the annotations to other sections give a good indication of just what a hotly contested realm of the criminal law this is.

A typical example of the kind of quibble that gets raised in an impaired case is as follows. Section 254(3)(b) of the Code empowers the breathalyzer operator to take such samples of a suspect's breath as
"are necessary to enable a proper analysis to be made in order to determine the concentration, if any, of alcohol in the person's blood".

The standard procedure adopted by the police, in keeping with the practice in other jurisdictions, is to take two breath samples. Section 258 lays out a whole series of steps that have to be scrupulously followed in order for the crown to be entitled to rely on the statutory presumption created by Section 258(1)(c)(iv) that the reading given by the breathalyzer indicates the suspect's blood/alcohol level at the time the offence was alleged to have been committed. However, the presumption section states that the "lowest" breathalyzer reading should be deemed to be the blood/alcohol level at the material time. Because the section uses the superlative "lowest" instead of the comparative "lower", it was argued in R. v. Schultz, that the legislation necessarily implied that at least three samples should be taken. However, the court held that it was not necessary that three or more samples should be taken in spite of the grammatical implications of the wording. The wording is anomalous, but it was clearly intended to cover situations where more than two breath samples are taken, as sometimes happens. In some cases, the breathalyzer operator will consider it necessary to take three breath samples. This commonly happens for two reasons. First, where the operator is not satisfied that the machine is working properly for some reason or another. Secondly, where the suspect does not provide an adequate breath sample. In an effort to beat the breathalyzer, suspects sometimes give a shallow puff of breath rather than a proper sample of deep-lung air. An operator will
not usually bother to analyze a sample that is clearly inadequate. However, some people are good at faking it and can fool an operator by blowing just hard enough to activate the breathalyzer intake light. Where there is discrepancy of more than 20 milligrams percent between readings, police breathalyzer operators are trained to take additional samples. Although I have taken the police breathalyzer training course myself and witnessed countless breathalyzer tests being administered, I have never been officially designated as a "qualified technician" and worked as a breathalyizer operator.

*R. v. Schultz* was a reported case. However, nit-picking arguments of this kind are made in court on a daily basis and often never reported. To make the point, I offer just one example of a successful technical defence I raised in an over 08 case during my own practice as defence counsel that was never reported. Section 258 (1)(c)(iii) of the Code requires that the breath samples be

"received from the accused directly into an approved instrument operated by a qualified technician".

I was able to exclude the certificate of analyses which the crown usually relies on to prove the breathalyzer reading because of some procedural defect. In order to patch up its case, the crown then called the breathalyzer operator (ie. "qualified technician") to prove the reading through his viva voce evidence. The officer testified that he had taken two samples of the accused's breath, that he had subsequently analyzed each of them using a Borkenstein Breathalyzer (ie. An "approved instrument"),
and that the readings had both been in excess of the legal limit. When the crown closed its case, I made a no evidence motion on the grounds that there was no evidence that the samples had been received "directly into" the breathalyzer. I pointed out the fact that an assertion that this procedure has been followed forms an essential part of the standard wording of every certificate of analyses. That being the case, the viva voce evidence therefore fell short of the documentary proof that the crown customarily adduces in cases of this kind. I conceded that, in all likelihood, the procedure had indeed been followed. However, I argued that, in the absence of any direct evidence on the point, the court was not entitled to draw that conclusion. To do so would be to indulge in conjecture. Since the rules of statutory interpretation prescribe that a criminal statute must be strictly construed, it was not open to the judge to speculate in the absence of specific proof. The argument succeeded because, in that context, the logic was inescapable, even though a commonsense interpretation of the evidence would have allowed the inference I challenged to be made. Since the other evidence of impairment was inconclusive, the accused was acquitted. This was the kind of highly technical argument that characterizes impaired driving law and makes laypeople shake their heads in disbelief. As I indicated earlier, the case was never reported. In fact, it happened so long ago that, although I can still remember the venue and who the presiding judge was, I cannot recall the accused's name.
The principal reason why only a fraction of these intricate legal arguments get reported is because the flood of impaired cases is handled on a summary conviction basis in Provincial Court, the workhorse of the criminal justice system. Although Section 255(1) of the Code makes offences under Section 253 so-called "either/or" offences in which the crown has the option of electing to proceed by indictment, in reality such an election is virtually never made. There is no point in digressing to canvass the different circumstances under which it might happen, for such an eventuality is so rare that it is academic. For all practical purposes, Provincial Court can be regarded as the place where impaired cases are tried. However, decisions of the Provincial Court do not excite a great deal of interest because the court is at the lowest level of the court hierarchy. Its decisions are not binding on any other court and only persuasive at the same level. Therefore, it is usually only when Provincial Court decisions are affirmed on appeal by a higher court that they acquire sufficient status to make the major law reports consider them worth reporting. Furthermore, for a variety of different reasons, relatively few cases are appealed. In short, the mass of reported impaired cases, large as it is, merely represents the tip of a very large iceberg. The reality is that there is not a more well-trodden path in the criminal law, which explains, of course, why the domain has become so finely scripted.

Another reason why impaired driving deserves attention is because it is an important social issue. The cost to society, both financially and in terms of human suffering, is enormous.
Statistics show that the consumption of alcohol is involved in a very high proportion of motor vehicle accidents. The carnage on the highways caused by drinking drivers has caused a widespread public outcry. Lobby groups like MADD (Mothers Against Drunk Drivers) have been effective in pressuring governments to get tougher with offenders. The federal government's recent amendments to the Criminal Code which introduced stiffer penalties and longer periods of licence suspension were a clear response to public outrage. At the provincial level, the government's concern is seen in aggressive enforcement policies like the Counter Attack program, and the extensive advertising campaigns on TV and radio designed to increase people's awareness of the dangers and the consequences of impaired driving.

7.4.3 IDA's Source of Expertise

Unlike NSA, which was based on Professor Smith's expertise, IDA has been built using my own expert knowledge of the domain. It is therefore an example of a system in which the roles of expert and knowledge engineer have been combined.

Furthermore, my expertise is applied rather than theoretical. It is based on extensive practical experience of the conduct of impaired driving cases. What is more, the knowledge I have acquired encompasses three very different points of view: those of police officer, defence counsel and prosecutor. That is
because, at different times in my life, I have been involved in impaired driving cases in each of those roles.

My first exposure to impaired driving was as a member of the Royal Canadian Mounted Police. I served in the RCMP for 5\frac{1}{2} years from February, 1966, until September, 1971. During that time, I would estimate that I arrested or assisted in the arrest of at least 200 impaired driving suspects. A good many of those cases went to trial, although I hesitate to estimate how many.

I was next involved in the area as defence counsel. In that capacity, over a period of roughly 5 years, from May, 1976, until June, 1981, I defended at least 200 people accused of impaired driving offences.

The final and most intensive phase of my dealings with impaired driving was as crown counsel. In my 4 years with the provincial attorney-general's department, from June 1981, until September, 1985, I would guess that I conducted at least 300 impaired driving trials. That does not include all the cases in which the accused pleaded guilty and I was called upon to present the facts of the case to the court and to make submissions on sentence. The number of guilty pleas I handled would probably amount to well in excess of double the number of trials I did, that is to say, 600, to give a conservative estimate.

In addition to trials and guilty pleas, I spent a great deal of time doing charge approval in impaired driving cases. Charge
approval accounts for the bulk of the paperwork that a crown counsel office handles. The police submit written reports about the facts of an incident to the crown. It is then up to the crown to either approve the charges suggested by the police, or to substitute other charges that seem more appropriate to the circumstances of the case and the nature of the evidence. In effect, the crown counsel office acts as a screening mechanism to ensure that no charges are laid unless they are warranted. A huge proportion of these reports to crown counsel deal with impaired driving cases. For over three years, I was the senior crown counsel in the office where I worked. That being the case, I was ultimately responsible for charge approval. Although I delegated some of the work to others, I did most of it myself. In any case, the final decision was mine in the event of any disagreement about what the proper charges should be. I therefore read literally hundreds and hundreds of police reports dealing with practically every imaginable impaired driving scenario.

In fact, it was the charge approval experience that brought home to me more compellingly than anything else the essentially stereotypical nature of impaired driving cases. Even allowing for the descriptive shortcomings of police jargon which, rather than being innovative, tends to make unimaginative use of a limited stock of well-worn phrases to describe every conceivable event, it was clear to me that many of these cases were virtually indistinguishable from one another, except in minor details. I developed the ability to skim through police reports on impaired
cases very quickly. Only details that were out of the ordinary would leap out of the page at me. The circumstances of a standard case became so familiar that, like a backdrop I was accustomed to seeing, I reached the point where I did not consciously notice them any more. Something had to be amiss or at least unusual for it to catch my eye.

Moreover, my experience in the courtroom made me realize that the stereotypical flavour of impaired driving cases extended beyond the investigation itself to include the types of defences that were raised to meet these charges. Apart from a few exceptions, there seemed to be a number of standard defences drawn from a rather limited repertoire. This is not surprising because the nature of the law dictates the nature of the loopholes in the same way that the characteristics of a certain type of weapon will determine those of the weapon which is used to combat it.

Throughout the discussion that follows, I shall be using anecdotal material from the different realms of my own experience with impaired driving to help illustrate the points that I make.

7.4.4 IDA's Slant

My varied experience in the domain allowed me to develop a composite script that would incorporate knowledge from the police, defence and prosecution perspectives, thereby capturing most aspects of a typical impaired driving investigation.
However, while taking advantage of those different knowledge sources, it was essential that the system should have a consistent point of view. Without a unifying thread running through it, there was the risk that it would take on a Frankenstein appearance: a hodgepodge of disparate components cobbled together to form an improbable whole. I ultimately decided that the system should adopt a defence-oriented perspective. Its overall objective would be to suggest all the potential defences that might arise in the context of any particular variation on the impaired driving investigation script.

7.4.5 IDA's Limitations

By their very nature, defences begin as mere possibilities. They need to be explored and amplified before trial. It is therefore impossible to assign certainty factors to their chances of success. The best that any knowledge-based system of this kind can hope to do is to alert a user to possible defences so that they will not be overlooked. It is up to the user to exploit their potential. The system is intended as a tool to assist in pre-trial preparation. The level of knowledge it would assume would be those facts that a lawyer would be in possession of when beginning to prepare for trial. That is to say, particulars supplied by the crown (i.e. the facts alleged in the police report and the evidence in support of them), and full instructions from the client.
At present, IDA does not supply the user with cases to support its conclusions. In many instances, no case is applicable because the advice given is of a tactical nature or too general to have jelled into an issue on which a specific case has been decided. However, there are instances in which the advice given can be related to the outcome of a particular case. Therefore, IDA's effectiveness as a practical tool would be enhanced by linking the knowledge base to a database of cases. This addition would require a considerable amount of work of a rather mechanical nature. But since it would contribute little to the persuasiveness of the thesis, the task was not deemed worth the effort. Besides, our examination of the mechanics of Nervous Shock Advisor (NSA) has already shown how such a database can be implemented. Under the circumstances, it should be sufficient to have identified the practical desirability of such a feature without it being necessary to actually implement it.

In fact, it should be emphasized that IDA is only a partially implemented system. Apart from the case database, there are other improvements that could be made. As we shall see later, some of IDA's component modules could be expanded and new ones added to give full coverage of the domain.

If IDA were intended to be a complete, marketable system these enhancements would be needed. However, the object of the exercise was primarily theoretical. IDA was implemented in enough detail to support the argument that a script-based
approach to structuring legal knowledge is useful in domains where the knowledge has acquired a highly ritualized quality.

7.4.6 IDA's Intended Users

In its present incomplete form, IDA's usefulness is limited. Thus, the remarks that follow should be construed as applying more fittingly to IDA's potential as a fully implemented system.

IDA's purpose would be to give inexperienced lawyers and law students a sense of how the impaired driving provisions of the Criminal Code are applied in practice to real cases. It would assist them both in learning about the domain and also in preparing for real court cases.

Unless a person has actually handled a number of impaired cases or at least sat in court and followed a few trials from start to finish, it is very difficult to envisage what happens during the course of an impaired driving investigation. Simply reading the relevant sections of the Code or an assortment of case reports is not enough to give the neophyte a complete overview. It is difficult to see how the statutory provisions mesh with one another and are applied in practice. Furthermore, the interpretative gloss added to the statute by the cases does not give the big picture either. The cases focus on the narrow issues that gave rise to them.
The crux of the problem is that IDA deals with practical rather than theoretical knowledge. Those two types of knowledge are of a different order. Practical knowledge deals to a large extent with matters of procedure. It is best acquired through doing. Hence the difficulty law students have in appreciating the significance of the material taught in courses like civil and criminal procedure. The importance of procedural niceties is hard to grasp in the abstract. They need to be related to some concrete situation for them to stick in one's mind. It is a bit like riding a bicycle. The technique can be described in minute detail, but it is difficult to learn just from reading a book. In other words, mastering the skill is not purely cognitive; it is to some degree performative.

In marked contrast to NSA, therefore, IDA is a clinical rather than a theoretical tool. Its focus is on the practical aspects of dealing with a certain kind of criminal case rather than on deciding a particular legal issue. The typical scenarios that IDA presents as part of its impaired driving script are designed to give users some idea of what they can expect to encounter in a real case. Figure 30 contrasts IDA with NSA.

The UBC Law Students' Legal Advice Clinic springs to mind as a place where a fully developed version of IDA would prove useful. Impaired driving is one of the few criminal charges that law students taking the clinical semester are permitted to handle, under the guidance of a supervising lawyer. Hands-on experience with IDA could help them get a better feel for the domain
### Figure 30

<table>
<thead>
<tr>
<th>NSA</th>
<th>IDA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type of Law</strong></td>
<td><strong>Statute law</strong></td>
</tr>
<tr>
<td>Case law</td>
<td>Criminal</td>
</tr>
<tr>
<td>Civil</td>
<td></td>
</tr>
<tr>
<td><strong>Type of Domain</strong></td>
<td><strong>Commonplace</strong></td>
</tr>
<tr>
<td>Obscure</td>
<td></td>
</tr>
<tr>
<td><strong>Type of Knowledge</strong></td>
<td><strong>Practical</strong></td>
</tr>
<tr>
<td>Academic</td>
<td></td>
</tr>
<tr>
<td><strong>Structural Foundation</strong></td>
<td><strong>Scripts</strong></td>
</tr>
<tr>
<td>Deep Structure</td>
<td></td>
</tr>
<tr>
<td><strong>Source of Expertise</strong></td>
<td><strong>Designer acted</strong></td>
</tr>
<tr>
<td>Third-party expert used</td>
<td>as expert</td>
</tr>
<tr>
<td><strong>Orientation</strong></td>
<td><strong>Clinical</strong></td>
</tr>
<tr>
<td>Theoretical</td>
<td></td>
</tr>
<tr>
<td><strong>Goal</strong></td>
<td><strong>To give tactical advice about how to handle a whole case</strong></td>
</tr>
<tr>
<td>To resolve a specific legal issue</td>
<td></td>
</tr>
</tbody>
</table>

Contrasting Nervous Shock Advisor (NSA)  
With Impaired Driving Advisor (IDA)
generally and also to prepare the particular cases they are assigned for trial.

IDA would be of little use to lawyers who specialize in impaired driving cases. They have learned the script by heart and are familiar with all the twists and turns an investigation can take. At best, they might be interested in using IDA as a means to double checking to ensure that they had not overlooked some weakness in the prosecution's case. The most likely use that lawyers experienced in the domain might find for a fully implemented version of IDA would be as a tool for case research. Even then, they would not have a pressing need for the system. Lawyers who handle a lot of impaired driving cases rarely have to resort to case research. They may not be able to trot out all the case names, but they have a good overall grasp of the current state of the law. If pressed, they can always find a case to support a particular proposition. However, that is rarely necessary. There is general agreement about what the law is among judges and lawyers who are well versed in the area. When a new decision of importance is handed down, word spread quickly through the grapevine. For a while, it may be necessary to produce a copy of the decision in court to verify the proposition it stands for. However, unless the case is reversed on appeal, the case rapidly becomes incorporated into the received body of impaired driving law.

Given the socially irresponsible nature of the behaviour that usually leads to someone being arrested for impaired driving, one
might arguably question the morality of going to the trouble of building a knowledge-based system that seems specifically designed to help offenders get off. However, the fact is, that IDA would be an equally useful learning tool for novice police officers and prosecutors as as well as defence counsel. Forwarned is forearmed, as the saying goes. By making those on the prosecution side aware of where the possible loopholes in a case are to be found, IDA helps to ensure that they will be plugged. The fact that the design of IDA reflects a defence point of view does not restrict its potential users to those on the defence side.

1 *Supra*, Ch. 2, note 1, p. 21.

2 There is an extensive literature in AI on the subject of categorization. For a general discussion, see: George Lakoff, *Women, Fire and Dangerous Things* (Chicago: Univ. of Chicago Press, 1987).


4 Family law is a good example. Barbara J. Nelson, Q.C., was good enough to read the sections of this thesis dealing with scripts and the conceptual structuring of the law of impaired driving. Ms. Nelson has specialized exclusively in family law for over 16 years. She is a past president of the B.C. Bar Association and of its Family law sub-section. She has taught courses in advanced family law topics for the Continuing Legal Education Society of B.C. and sat on numerous panels and committees concerned with family law matters. Ms. Nelson was of the view that a script-based approach to structuring legal knowledge would work for family law, as it does for impaired driving.

5 Criminal Code, R.S.C. 1985, c. C-46, as amended. Note: Numerous references are made to the Criminal Code throughout this
section of the thesis. However, no useful purpose would be
served by repeating the footnote reference.

6 (1974), 15 C.C.C. (2d) 524, 26 C.R.N.S. 1, [1975] 1 S.C.R. 729,
44 D.L.R. (3d) 351, 1 N.R. 322.

7 (1955), 111 C.C.C. 317, 20 C.R. 42 (Alt. Dist. Ct.).


9 There are, however, other fertile sources of useful cases that
are not included in the mainstream series of law reports.
Cases (Vancouver: Western Legal Publications); and Keith
Hamilton, Impaired Driving and Breathalyzer Law: Recent Case Law
(Vancouver: Butterworths, 1980-93).
CHAPTER 8

THE CONCEPTUAL STRUCTURE OF IDA

8.1 IDA's Overall Structure

IDA is divided into 9 different modules, each of which represents a significant aspect of a typical impaired driving case. The modules are as follows:

1. Control of Vehicle.
2. Erratic Driving.
3. Physical Symptoms.
6. Right to Counsel.

With the exception of modules 1 and 9, the sequence represents a chronological progression through the different phases of an investigation. The logic of the exceptions is as follows. Module 1 comes first because legally sufficient proof of control of the vehicle by the accused is the foundation upon which all the other elements of the case are based. If this primary element can be successfully attacked, the whole case collapses in ruins. Hence, one should begin by examining it first. Module 9 comes last because it is only by looking at the entire
investigation in retrospect that one is able to make a conclusive assessment about whether there have been any significant delays along the way. Time is of the essence with respect to the over 08 charge. If it can be shown that there was any unnecessary delay during the course of the investigation, up to and including the taking of the breath samples, the results of the breathalyzer tests lose their probative value and the charge will fail. It makes sense, therefore, to tack the Delays module onto the end as a kind of catch-all. Even though delays cease to be critical after the tests have been taken, it would not make sense to put it right after the Breathalyzer Tests module because the preparation and service of the certificate of analyses is regarded as part and parcel of the breathalyzer testing procedure. Figure 31 shows the overall structure of IDA.

8.2 A Detailed Analysis of IDA's Structure

I shall begin by giving a thumbnail sketch of how a typical impaired driving investigation is conducted. After that brief overview, I shall describe IDA's script-like structure in detail, module by module.

An impaired driving investigation begins with the police being alerted to a possible offender as a result of either their own observations or of receiving a complaint from a member of the public. The suspect is stopped and questioned if this seems to be justified in the circumstances. During their interaction with
Figure 31
Overall Structure of IDA (Impaired Driving Advisor)

- Control of Vehicle
- Erratic Driving
- Physical Symptoms
- Sobriety Tests
- Charter Rights
- Right to Counsel
- Breathalyzer Tests
- Certificate of Analysis
- Delays
- Advice
the suspect, the police are on the lookout for signs of impairment. If none are apparent, the investigation will end then and there, at least insofar as the drinking driving aspect is concerned. There may be other consequences, such as a traffic ticket, if a piece of bizarre driving turns out to be unrelated to the consumption of alcohol. However, if signs of impairment are apparent, the suspect will be asked to step out of the vehicle and to perform some sobriety tests. After the tests have been conducted, the investigating officer will decide whether there are grounds to make a breathalyzer demand. The decision will be based on the totality of the evidence up to that point. If a demand is made, the suspect will be read his Charter rights ("Charterized", as the police say), and taken to the police station. At the police station, he will be given the opportunity of phoning a lawyer before being asked to provide two samples of his breath. If at least one sample produces a breathalyzer reading of below .08 milligrams percent, the suspect will be released without charge. If both readings are over the limit, the breathalyzer operator will prepare a Certificate of Analyses attesting to the results of the procedure, and a copy will be served on the suspect. The suspect will then be released unless, in the opinion of the police, he is too drunk. In the latter case, he will be detained in custody until he sobers up a little.

The foregoing is a barebones outline of how an investigation proceeds. It is now time to consider each phase in detail.
8.2.1 Control of Vehicle

In this context, the key wording from Section 253 of the Code, the offence-creating section cited earlier, is

"operates or assists in the operation of ... or has the care or control of a motor vehicle ... whether it is in motion or not".

It is worth noting in passing that the section does not stipulate that this should happen in a public place. In other words, the offences thereunder can be committed on private property.

The Code differentiates between operating a vehicle and having the care or control of it. However, as will become apparent shortly, for practical purposes, the key concept is that of care or control. The important distinctions to be drawn between "operating" and "care or control" are twofold. First, operating involves a much higher degree of control over the motor vehicle than care or control. In effect, operating can be considered synonymous with driving. Secondly, operating subsumes care or control, but not vice versa. That is to say, a person who operates a motor vehicle is necessarily in care or control, but a person who is in care or control of a vehicle is not necessarily operating it. This asymmetry has had important practical consequences, in that it has led the crown to adopt the practice of wording all its informations to allege "care or control" rather than "operating", regardless of the circumstances of the case. The reason is simple. In the past, the crown would charge "operating" in the information in cases where there was alleged to have been actual driving on the part of the accused, and "care
or control" where there had supposedly been something less. However, sometimes where the crown alleged "operating", it was only able to prove what amounted to "care or control". In those circumstances, the case would fail because an essential averment of what had been alleged had not been proved and there was nothing to fall back on by way of an included offence. By charging "care or control" in all cases, the crown ensured that it would cast a wider net and catch instances that could more accurately be described as "operating". It thereby avoided running the risk of losing a case if the evidence fell short of proving actual operating.

Figure 32 shows the conceptual structure of IDA's Control of Vehicle module. The name given to the module emphasizes the fact that control is the important all-inclusive concept, in keeping with the point made in the preceding discussion. Defects in the prosecution's case are shown as shaded boxes in this and all subsequent module diagrams. Although the labelling of the boxes makes the diagrams largely self-explanatory, I shall elaborate on the content of each module in order to clear up any ambiguity.

The Control of Vehicle module draws a top-level distinction between situations in which the suspect's vehicle was stopped and those in which it was in motion. Section 253 also makes such a distinction by stipulating that the offences thereunder are committed with respect to a vehicle "whether it is in motion or not". However, practical considerations prompted the separation of the two instances rather than any desire to be consistent with
Structure of the CONTROL of VEHICLE Module of IDA

Figure 32
the wording of the section. As a glance at the diagram will show, in cases where the vehicle was in motion, an inference of care or control is much more difficult to overcome, than in those where it was stopped.

Where the vehicle was in motion and the driver was alone, the evidence of care or control is irrefutable. Vehicles do not drive themselves. It is possible to dream up a situation where the suspect was involuntarily intoxicated and then forcibly put behind the wheel of a vehicle that was then set in motion, like Cary Grant's plight Alfred Hitchcock's classic movie North by Northwest. However, such a possibility is so farfetched that it has no place in a standard script.

In cases where there were passengers in a moving vehicle, it is possible that the person whom the police found in the driver's seat may have switched places with someone else just after the police pulled the vehicle over. This has been known to happen under cover of darkness before the police actually approach a vehicle. Unless there are several people in the front, a bench-type seat and no console to clamber over, a switch like this is virtually impossible to pull off undetected, even in darkness. The switch is usually made to protect the real driver who is perceived to be more impaired than the passenger who takes his place. It usually comes as a surprise when the passenger gets arrested. The switch defence was more useful in the days when the crown used to charge an accused with "operating" the vehicle in such circumstances. The trial of the case could be delayed
until after the 6-month limitation period for laying summary conviction charges. The real driver could then be called to testify in the accused's defence without risking prosecution himself. Now that the crown invariably charges "care or control", it is doubtful whether this defence would succeed. The prosecution would argue that the driver was in care on control of the vehicle when encountered by the police. The counter argument, which is admittedly weaker, is that the accused was at all times under the control of the police while behind the wheel, and therefore unable to exercise care or control himself. Nowadays, the real benefit of such a defence goes to the case as a whole rather than the single issue of care or control. If the defence testimony is believed, none of the erratic driving observed by the police before stopping the vehicle can be attributed to the accused. Therefore, the evidence of impairment against the accused is considerably weakened.

It may seem odd to consider the possibility of a passenger in a moving vehicle being in care or control. Indeed, in most cases, that possibility does not arise. However, there is an exception when the passenger is the registered owner of the vehicle and directs the actions of the driver. The courts have held that this can amount to care or control in law. In practice, this would not lead to charges being laid unless the driver of the vehicle were also impaired. It would be shortsighted to adopt a policy that discouraged people from getting someone else to drive when they knew that they themselves were impaired.
Establishing care or control in situations where the suspect's vehicle was in motion is straightforward. The real difficulties arise when the vehicle was stopped.

Where the suspect's vehicle was stationary, a top-level distinction is drawn between situations where the suspect was found in the vehicle, and those where he was found outside it. The reason for differentiating between those two states lies in dissimilarities in the type of proof that is required to establish care or control in those two fundamentally different circumstances.

In cases where the accused was in the vehicle, it is important to determine right away whether the suspect was found occupying the driver's seat or whether he was elsewhere inside the vehicle. In the former case, the suspect has a more difficult evidentiary burden to overcome because he must rebut the statutory presumption of care or control created by Section 258(1)(a) of the Code. The provision reads as follows.

"where it is proved that the accused occupied the seat or position ordinarily occupied by a person who operates a motor vehicle ... the accused shall be deemed to have had the care or control of the vehicle ... unless the accused establishes that the accused did not occupy that seat or position for the purpose of setting the vehicle in motion ..." [The portions omitted deal with forms of transportation that are not motor vehicles]

The presumption is a topic in itself that is not appropriate to deal with at length here. The idea is simply to make the user aware of its existence because it presents a major obstacle to overcome at trial.
The presence of somebody else in the vehicle apart from the suspect is significant because it raises the possibility that the other person may actually have been the one in care or control. That possibility should be explored thoroughly before trial. The police may have made a mistaken assessment of who was in control of the vehicle when they conducted their investigation.

The other factors shown in Figure 32, such as whether the engine was running, where the ignition keys were and how the vehicle was parked, all go to the issue of whether there was a risk of putting the vehicle in motion. This overriding consideration is the test laid down by the Supreme Court of Canada in what is currently the leading case on care or control, *R. v. Toews.*²

The defence of necessity arises only in exceptional circumstances. In effect, it is incumbent upon the accused to show that it was necessary to use the vehicle for shelter because there were no other viable options available.

In cases where the police find the accused outside the vehicle, care or control is generally more difficult to prove. In those cases, it is necessary to show prior operation of the vehicle on the part of the accused in order to prove care or control. Such proof must either come from eyewitness testimony or admissions by the accused. The key elements that must be proved are (a) identity, (b) driving, and (c) the time of driving.
Identity is not in issue when the crown is relying on the accused's admissions to prove the prior driving. However, when the crown is relying on eyewitness testimony, there is often a problem putting the accused behind the wheel. Witnesses may have seen the vehicle being driven, but not have got a good enough look at the driver to enable them to make an identification. In such cases, it is particularly difficult to prove that the accused was the driver if he manages to put some distance between himself and vehicle before the police arrive at the scene. Proving identity in cases of this kind usually boils down to a process of elimination. The crown tries to show that no one other than the accused could have been driving. It is impossible to specify all the ways in which this can be done. That depends on the particular circumstances of the case. If a drunken suspect is discovered by the police standing all alone on a freezing night in the middle of nowhere beside a still-warm vehicle upside down in the ditch, a court is likely to infer that he was indeed the driver. However, that is an extreme case. The following kinds of factors tend to be relevant: the accused was the only person found in the vicinity of the vehicle; he was located shortly after the time when the vehicle was observed being driven; he can be linked to the vehicle in some way, such as by being the registered owner or having the ignition keys in his possession. The list is not exhaustive, but it does give a sense of the sort of evidence that is needed. The fact is, that proving that a suspect was the driver of a vehicle once he has abandoned the vehicle is frequently problematical. A suspect who
manages to get away from the vehicle unobserved is often home
free if he keeps his mouth shut.

Even in cases where the crown particulars allege that the accused
was clearly identified by a civilian witness, the defence should
not be too ready to fold up its tent and concede the validity of
that identification. Eyewitness testimony can often be
successfully attacked in court. While it may seem somewhat
cynical to point this out, a witness's memory fades with the
passage of time. Impaired driving cases can take anywhere from
three to six months to get to trial, depending on how busy the
local court system is. The lapse of time itself may be
sufficient to destroy the witness's ability to make an in-court
identification. It may also be possible to successfully
challenge the reliability of the identification because of
questionable police practices. For example, it is improper for
the police to confront a witness with a lone individual whom they
have just arrested in order to confirm that the suspect was the
person whom the witness observed. The proper procedure is for
the police to conduct a formal line-up or to show the witness an
assortment of photographs of people resembling the suspect and to
ask whether the suspect is among them. Nevertheless, whether
through inexperience or overzealousness, the police occasionally
employ the dubious tactics described previously. If they do, it
renders any subsequent identification of the suspect unreliable.
The risk is that witnesses will identify the suspect the police
have presented to them rather than the person they actually saw
themselves. Consequently, the courts will not attach any
evidentiary weight to an identification that has been contaminated in this fashion.

The contamination of an identification can sometimes be quite subtle. By using body language or other cues, the police may steer a witness's attention towards a particular person in a line-up or to one of a selection photographs. Similar signals can draw a witness's eyes to the accused in the waiting area outside the courtroom before the trial begins. I do not wish to impute sinister motives to the police. Most of the time, telegraphing of this kind is done unconsciously.

When identification is in issue, defence counsel will sometimes apply to the court for permission to have the accused seated in the body of the courtroom, among the members of the public. This is done to eliminate any risk that a witness will be influenced in making an identification by where the accused is sitting in court. The fear is that, because the accused is seated where an accused person normally sits, the witness will jump to the conclusion that the accused must necessarily be the person the police arrested. It is within the court's discretion to decide whether such a request should be granted. Defence counsel will usually have arranged for the client to have slipped into court unobtrusively beforehand and buried himself in the midst of the public gallery. If the request is granted, the court will make an order excluding witnesses from the courtroom until they are called upon to testify. When the witnesses have left, the accused will come forward briefly to enter a plea and then return
to sit in the public gallery again. During the trial, the witnesses will be required to pick out the accused from amongst the other people in the courtroom.

In deciding whether to permit the above procedure, the court will usually be influenced by the assurance of defence counsel that identification is squarely in issue. While the tactic can be a useful way of testing the validity of an eyewitness identification, it should not be employed indiscriminately. In some circumstances, it can be an exercise in futility. For example, there is nothing to be gained from seating the accused in a public gallery that is virtually empty. Nor is it worth trying to conceal an accused in a small town where everybody knows everybody else and the only spectators in the courtroom are a handful of locals. There are less obvious cases where the exercise is equally pointless. For instance, where there is a solid chain of identification linking the accused to the offence. In such cases, it does not matter that the eyewitness is unable to positively identify the accused, as long as there is no break in the continuity of the chain. This typically happens when a civilian witness keeps a suspect they cannot clearly identify under continuous observation until the police arrive at the scene. As a result of observing the arrival of the police and their dealings with the suspect, the witness is able to testify that the person they had been watching was the same person that the police took into custody. The positive identification of the accused by the police completes the picture because their evidence dovetails with that of the civilian witness.
Eyewitness evidence seems to have more impact than other kinds of evidence because of its seemingly unequivocal nature. However, cogent as it may appear at first glance, it is unwise to accept such evidence at face value because it is not without its frailties.3

Proving the driving itself is rarely a problem. However, proving exactly when it occurred sometimes is. The time of driving is crucial for two reasons. First, under Section 254(3) of the Code, a police officer's authority to make a demand for breath samples is limited to situations

"Where a peace officer believes on reasonable and probable grounds that a person is committing, or at any time within the preceding two hours, has committed, as a result of the consumption of alcohol, an offence under section 253".

In other words, the investigating officer must have some evidence of when the driving took place before being in a position to make a proper demand. For the purposes of the demand, knowledge of the precise time is not crucial as long as there is reason to believe that the driving was within the preceding two hours.

However, the accuracy with which the time of driving can be pinpointed assumes critical importance later on with respect to the breathalyzer testing procedure. Section 258(1)(c)(ii) stipulates that the first breath sample must be taken within two hours of the time that the offence was alleged to have been committed. Otherwise, the crown cannot avail itself of the presumption under Section 258(1)(c)(iv) referred to earlier, whereby the "lowest" breathalyzer reading is deemed to represent
the accused's blood/alcohol content at the time the offence was committed. Knocking out this presumption is a big step towards winning the case for the defence. It raises all kinds of proof problems for the crown. In fact, the crown may well decide to throw in the towel there and then rather than attempt to salvage its case. It may not be feasible to call an expert witness to extrapolate the blood/alcohol level at the time of driving by working backwards from the breathalyzer reading.

It is worth noting in passing that, as originally drafted, the breathalyzer provisions of the Code required that both breath samples be taken within the two-hour period. When it became obvious that the requirement placed too onerous a burden on the police, particularly outside urban areas, it was amended to include only the first sample. Formerly, if an impaired driving suspect was picked up out in the boondocks, it would take some time for the investigating officer to transport them to the nearest police station. Furthermore, chances were that there was no breathalyzer operator permanently on duty, as would have been the case in a larger centre. This was all the more likely to happen after the hours of nine to five when most impaired driving offences are committed. By the time the breathalyzer operator had been called in and prepared the machine, a large chunk of the two hours would have elapsed. Add to all this the accused's right to phone a lawyer, as well as the stipulation under Section 258(1)(c)(ii) of the Code that there be an interval of at least 15 minutes between the taking of each breath sample, and it was often impossible for the police to beat the clock.
Attempting to cast doubt on the time of driving is a good defence tactic in borderline cases. Moreover, the borderline cases are usually ones like those we are considering in which the suspect is located outside the vehicle. As far as the 2-hour period is concerned, the clock starts running as soon as the driving is finished and the suspect leaves his vehicle. If it takes some time for the police to link him to the vehicle and track him down, it may be close to the deadline before the first breath sample is taken. Furthermore, these tend to be cases in which the police have to rely on civilian witnesses to establish what happened up to the point where the suspect parted company with the vehicle. The police come into the picture after the fact as the result of receiving a complaint about the prior driving. The testimony of civilian witnesses is often vague when it comes to fixing the exact time at which an event occurred. Unlike police officers, members of the public are not trained to record times accurately for future reference. Furthermore, the uncertainty is compounded by the excitement of being involved in an unusual and perhaps traumatic event. The emotional impact of the experience has the capacity to throw people off balance and to add to their confusion. If, as is commonly the case, the best a witness can say is that an event took place within a certain timespan, it may give the defence enough leeway to work with. A skillful counsel may succeed in nudging the time beyond the deadline, or at least in raising a reasonable doubt on that score, which is all that is necessary to defeat the presumption.
If the crown is relying on admissions made by the accused in order to prove care or control in situations where the accused was found outside the vehicle, the defence must take a different tack. The statement is the linchpin of the prosecution case. Therefore, the defence must attempt to exclude it by challenging its admissibility on a voir dire (ie. Trial within a trial). The admissibility of statements is a major topic in itself. However, in a nutshell, the defence must raise a reasonable doubt about whether the statement was voluntary in the legal sense of the word. The onus is on the crown to prove voluntariness beyond a reasonable doubt. Basically, a statement is considered voluntary if it was made under circumstances in which it can be shown that no person in authority (usually a police officer) made any threats or promises, or held out any inducements of any kind to the suspect in order to obtain the statement. In determining voluntariness, the court will consider all the surrounding circumstances. This means, for example, that evidence that a police officer adopted a menacing demeanour towards the suspect or that questioning was conducted in oppressive and intimidating surroundings can lead to a statement being ruled involuntary, even though the words that were actually uttered may seem innocuous. It is important, therefore, for defence counsel to explore the whole context in which the statement was obtained. Prosecutors screen statements before trial. They have no desire to damage their own credibility with the court by attempting to enter a statement which is clearly involuntary. Chances are, therefore, that the defence will rarely be confronted by a statement that is blatantly involuntary.
There is no cut-and-dried formula for deciding whether a statement should be admitted into evidence. Factors that the court will invariably consider are whether the accused was warned by the police that he was not obliged to say anything, and whether he was read his rights under the Charter. However, these factors are not necessarily determinative of the issue. A great deal depends on the timing of the statement. A statement that is made early on in an investigation when a police officer is trying to figure out exactly what happened will probably be ruled admissible even if a warning and Charter rights were not given, assuming the statement was otherwise voluntary. Once the officer has accumulated enough evidence to decide that the accused will probably be charged with an offence, things are on a different footing. Failure to warn and give Charter rights from that point onwards is much more likely to tip the balance against the statement being admitted.

When dealing with statements, the defence should always be careful to ascertain the exact wording of the alleged admission. The police reports to crown counsel from which particulars are given can be misleading. A terse assertion that "the accused admitted driving the vehicle", or words to that effect, can create the impression that all the necessary ingredients of the offence have been admitted, when that may not necessarily be the case. Inexperienced officers sometimes ask the suspect whether he was driving the vehicle, and then leave it at that when they receive an affirmative answer. They neglect to establish definitively when the driving took place, either through
oversight or because the surrounding circumstances lead them to assume that it was very shortly beforehand. In fairness to the police, it should be pointed out that assumptions of this kind are often eminently reasonable from a common sense point of view. The whole look and feel of a situation can make it seem obvious that the driving just happened. Unfortunately, there is a world of difference between a reasonable assumption and what constitutes strict proof in a criminal case. Unless the time of driving has been nailed down as part of the accused's admission, there may be a fatal defect in the case.

So much for IDA's Control of Vehicle module. It has been dealt with at some length because the element of control represents such a fundamental part of the case and some of the ingredients that go towards establishing this element are not intuitively obvious.

8.2.2 Erratic Driving

The attention of the police is usually attracted to an impaired driving suspect by some form of erratic driving. Weaving from side to side in the roadway to some degree or another is undoubtedly the most common form this takes. There are other types of peculiar driving behaviour typically associated with impairment. For example, waiting an inordinately long time before moving away from a traffic light or a stop sign, jerky starting (i.e. The so-called kangaroo effect), coming to a
sudden, belated stop, and so on. Weaving is the only type of erratic driving IDA deals with at the moment. The intention is simply to illustrate this aspect of the investigation fits into the overall picture. There is no reason why this part of the system should not be expanded later by having all the other common forms of erratic driving should added to it.

An enlargement of this component of the system could also include a parallel sub-module dealing with stationary vehicles. It would deal with the kinds of things that attract the attention of the police to stationary vehicles that often turn out to be occupied by someone who is impaired. Such a sub-module could be called Erratic Parking, although that is somewhat of a misnomer. The word "parking" has a static connotation. The tell-tale signs often go beyond the manner in which the vehicle is parked. The classic scenario is where the police find a vehicle parked at an odd angle in a strange place, perhaps with the lights on and the windshield wipers going, and the driver passed out behind the wheel. There many variations on this theme. The common factor is that something odd about the stationary vehicle motivates the police to investigate further. Erratic Parking and Erratic Driving could be made the two main branches of a single module called Erratic Control of Vehicle. The names are a little clumsy, but they manage to get the general idea across.

A diagram of IDA's Erratic Driving model is shown Figure 33. This diagram is much more straightforward than the one depicting Control of Vehicle. It decomposes into three branches that each
Figure 33
Structure of the ERRATIC DRIVING Module of IDA
represent a general way in which the weaving could potentially be explained away innocently: Mechanical Defect; Road Surface Problem; Visibility Problem. The three-part classification is culled from my own experience. The sub-categories beneath are sufficiently general to capture a wide range of specific instances, while at the same time being descriptive enough to make it clear what is intended. For example, under Road Surface Problem, Obstacles in Road is precise enough in its meaning, but the set of potential obstacles is very large. The obstacle could be something that has fallen off a truck, a rock that has tumbled or been thrown onto the highway, a manhole cover that has become dislodged and tilted upwards, and so on. Striking the right level of generality is always difficult, but of fundamental importance. The rest of the diagram requires little comment.

In connection with the Mechanical Defect category, I should perhaps mention, that a steering problem is the most common mechanical defect advanced as an excuse for weaving from side to side. The bare assertion by an accused that this was the case is unlikely to be accorded much credibility by a court unless it is corroborated by the evidence of a qualified mechanic. Furthermore, the mechanic's evidence should be based on an inspection of the vehicle made as soon as possible after the time of driving.

The list of possible excuses for erratic driving or, for that matter, any other abnormal behaviour alleged to stem from impairment, is virtually endless. Like the categories of
negligence, it is never closed. Each of IDA's modules has room for expansion. For example, it is frequently asserted that the weaving from side to side happened because the driver's attention was distracted. Thus one could create a whole new category under this particular module called Distractions. My experience suggests that the category might usefully be divided into two sub-categories: Distractions Inside the Vehicle, and Outside the Vehicle. Inside the Vehicle, at the lowest level of generality there could be a branch called Fiddling with Fixtures, or something like that. This terminal branch would be intended to capture the following sorts of behaviour: tuning the radio; inserting a tape into or removing a tape from a tape deck; adjusting the car seat; adjusting the heating control; lighting a cigarette with the dashboard lighter; rummaging around inside the glove box for something; pulling on a seatbelt while driving as a result of having seen the police. All these activities have been used to explain away the weaving. There would have to be a catch-all branch to trap the excuses that are so bizarre that no general label seems adequate to describe them. This might aptly be called Unusual Distractions. Under this heading would fall things like attempting to swat a bee that had flown in the window and was buzzing around the driver's head. It would also include cases where the driver was supposedly being distracted by amorous advances from a passenger.

While occurrences like the latter seem improbable to the point of being laughable, they really do happen. I have in mind an actual case that was the subject of a police report I once received. In
typical matter-of-fact language, the investigator related having followed a car that was weaving from side to side. The vehicle apparently contained a single occupant. As the vehicle was being observed by the police officer, it ran smack into the rear end of a transit bus without making any attempt at braking. Immediately after the impact, a second head popped up beside the driver. It was that of a female companion. When the officer approached the vehicle, the dishevelled state of the driver, and certain other evidence I shall omit for reasons of delicacy, lead him irresistibly to the conclusion that a sexual act had been in progress when the car struck the bus. The accused showed obvious symptoms of impairment and was eventually arrested. He turned out to be highly antagonistic towards the police, no doubt because of their untimely intervention, and adamantly refused to provide samples of his breath. As a result he was charged with impaired and refusal.

During my discussions with defence counsel, I suggested tongue in cheek, that it might be open to his client to claim that the erratic driving was attributable to impairment by sexual frenzy rather than alcohol. The case was unusual in that the defence very readily conceded that the client was impaired. The accused entered a guilty plea on the charge of impaired driving in return for a stay of proceedings on the refusal. Defence counsel was at pains to insist that the weaving was solely caused by alcohol. He suggested, therefore, that whatever else was going on in the vehicle at the time was not relevant to the issue of sentencing and need not be mentioned. In the interests of justice, I was
prepared to accommodate him, because he in turn was prepared to stress his client's gross impairment by alcohol. The fact that the lady in question was not the accused's wife acted as a strong incentive for him to be so forthcoming. The fact remains that, in circumstances where a liaison is not illicit, and the amorous behaviour is less extreme, it could afford a plausible, innocuous explanation for the erratic driving.

There is no need to dwell on the distractions that might fall under the heading of Outside the Vehicle. The kinds of things that come readily to mind are gazing at the scenery (although this would strain the court's credulity if it happened at night time), and looking for an unfamiliar address. The latter example shows how categories tend to blur at the edges because, when coupled with darkness, it is included in Figure 33 under Visibility Problem as Unfamiliar with Area.

The possible additions to this module that I have posited under the rubric of Distractions are a good illustration of the essentially relative nature of the process of categorization. Form follows function. The categorization flows from the context (ie. A moving vehicle.) and the purpose (ie. To find an excuse for erratic driving).

Nothing more need be said about the rest of the components in this module. The diagram speaks for itself.
8.2.3 Physical Symptoms

The police attach a great deal of significance to the physical symptoms displayed by a suspect when first confronted, usually inside his vehicle. This part of the investigation is really the watershed. Depending on how the initial encounter with the suspect goes, the investigating officer will usually decide then and there whether to let the person go or take things one step further. The effectiveness with which the police are able to spot impaired drivers at this stage explains why roadblocks are such a popular enforcement tool. In any event, once the investigation moves ahead from here, it usually leads all the way to the breathalyzer.

For the sake of completing the picture of how a typical investigation unfolds, I should mention in passing that there is a middle-of-the-road (forgive the pun) option. In some cases, the officer may exercise her discretion to hand out a 24-hour roadside suspension under the provincial Motor Vehicle Act. This means that the suspect is obliged to surrender his driver's licence and either leave the vehicle parked where it is or have it moved elsewhere by some other person. By opting for this course of action, the officer is precluded from pursuing the impaired driving investigation. A suspension is appropriate in cases where it is obvious that the suspect has been drinking and should be taken off the road, yet the symptoms of impairment are not extreme enough to require that criminal charges should be laid. The decision to suspend is entirely within the discretion
of the investigating officer. In effect, the suspect gets a break. There is no penalty attached to the suspension over and above the prohibition against driving for 24 hours; unless, of course, the person is foolish enough drive within that period, thereby running the risk of being charged with driving under suspension. The driver's licence of a person suspended pursuant to this procedure is filed at the local police station with the original copy of the Notice of Suspension. The suspended driver can reclaim his driver's licence after the expiration of the suspension period by presenting his copy of the Notice at the police station. The 24-hour suspension option does not form part of the structure of IDA because the impaired driving investigation is aborted and no charges are laid.

When the police describe the symptoms of impairment exhibited by a suspect it sounds as though they are reciting a litany. I have heard the words "his eyes were bloodshot, his speech was slurred and his breath smelled strongly of alcohol", given in evidence verbatim by literally hundreds of different officers. It seems obvious that they have all learned the same formula by heart. However, one can hardly fault them for adhering to the tried and tested wording. Indeed, there is a strong impetus in the direction of standardization. Officers are issued with laminated cards bearing a standard form of breathalyzer demand and statement of Charter rights. They are trained to read both texts from the card. The approved version is designed to obviate any suggestion on the part of defence counsel that the demand was not properly made or the rights not properly given.
Make no mistake about it, the risk of screwing up by trying to be creative is real, as I discovered myself when I was working as a uniformed police officer in the early days of the breathalyzer legislation. In those days, procedures had not yet become etched in stone. In an effort to be polite, I once said to an impaired driving suspect "I'm afraid I'll have to ask you to come down to the police station with me and take a breathalyzer test." In spite of my diplomatic approach, the accused adamantly refused to provide breath samples. At trial, defence counsel argued that there had been no "demand" as required by the legislation because I had asked rather than demanded that the accused accompany me. I was a little put out at being criticized for having behaved in a civilized manner. At the time I thought naively that the lawyer failed to appreciate that a heavy-handed approach can get a suspect's back up, especially if he has been drinking. It seemed unfair to penalize me for trying to be tactful. I realize now that defence counsel could not have cared less one way or the other. He was just looking for an opportunity to exploit for the benefit of his client. The defence argument was ultimately rejected by the judge, but only after it had been given serious consideration. Ironically, many years later, there has been a decision that indicates that the case would probably go the other way now under the same set of circumstances. In R. v. Boucher, it was held that the demand must be unequivocal and should not leave the accused with any doubt that he must comply, and that it is not a mere request or invitation. The moral of the story is that the police should not be judged too harshly if they
sometimes seem to be a trifle lacking in creativity. There may be good reasons for their conservatism.

Anyhow, let us return to the litany of symptoms. Although they sound trite, the fact is that these are the "usual" symptoms of impairment. Indeed, they are often referred to as such by people who deal with a lot of impaired driving cases. Prosecutors use the term when giving out particulars over the phone or presenting a brief summation of the facts of a case to the court on a guilty plea. I once received a police report in which the investigating officer stated that the suspect had shown "the usual symptoms of impairment", period. The report did not elaborate. Needless to say, I was obliged to send it back for clarification, if only as a formality. I knew full well what the addendum would say. Sure enough, I was not disappointed. It informed me that the suspect's "eyes were bloodshot, his speech was slurred and his breath smelled strongly of alcohol".

In Figure 34, a diagram of IDA's Physical Symptoms module, I bow to the inevitable and adopt the time-honoured terminology to describe three of its four main branches. I have made one slight change by substituting the word "liquor" for "alcohol". Even though police officers customarily testify to having detected a smell of alcohol on an accused's breath, strictly speaking alcohol itself has no smell. The smell comes from flavouring agents. Some defence counsel take a perverse delight in taking officers to task on this point. In effect, it is a cross-examination trick used to throw the witness off guard by wringing
Figure 34

Structure of the PHYSICAL SYMPTOMS Module of IDA

LEGEND

- No Defect
- Defect

Flashtight
Interior light
Streetlight
Good lighting
Nervous

Defect
No Defect

Evidence of Fumbling
No Evidence of Fumbling

No Normal Manner
Knows Normal Manner

Warning
No Warning

Eye Injury
Injury in Smoky Place

Boots and Shoes

Physical Symptoms

Sore Throat

Speech

Recent Spoken
Dentures

Police
Admission

Liquor Sneeze

Excessive Drinking

Not Fitting Braces
Impaired Hearing

Speech Impaired
Malformed

Contributions

Recent

Boots and Shoes

Physical Symptoms

Sore Throat

Speech

Recent Spoken
Dentures

Police
Admission

Liquor Sneeze

Excessive Drinking

Not Fitting Braces
Impaired Hearing

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Liquor Sneeze

Excessive Drinking

Not Fitting Braces
Impaired Hearing

Speech Impaired
Malformed

Contributions

Recent
a concession from him that the earlier evidence was not meticulously accurate. Except for its ability in rare cases to fluster a witness, it is a useless tactic. Nothing really turns on the point. The court knows very well what the officer means because it is common parlance to refer to the smell of alcohol. Nevertheless, in the interests of absolute accuracy, as well as to avoid criticism from nitpickers, I have altered the wording of the verbal formula slightly.

The fourth branch of the Physical Symptoms module is entitled Fumbling with Documents. In order to appreciate its significance, one must understand exactly how the impaired driving script goes at the point when the police first approach a suspect in his vehicle. The investigating officer's opening gambit is to make some banal remark in order to get the accused talking. "Good evening, sir. How are you tonight?", is a classic. The idea is to get the person talking so that the officer can smell his breath for traces of liquor and see whether his speech is at all slurred. The initial conversation is ad libbed to suit the circumstances. It often includes a direct question about whether the driver has had anything to drink. How things progress after the first contact depends on what the officer observes and her own personal style. If it is perfectly obvious that the driver is not in the least bit impaired, the officer may let the matter drop right there. The driver will be allowed to depart with an explanation for having been stopped and a thank you. If there was some erratic driving, this will be pointed out and a word of warning may be given or a traffic
ticket issued. At a roadblock, "Just a routine check", is the standard explanation.

In some cases, even if the driver does not seem to be impaired, the officer will request that he produce his driver's licence and registration for inspection just to ensure that the documents are in order. In cases where it appears that the driver might be impaired, the officer will invariably make this request as a means of testing the driver's physical coordination and perceptual ability. If the driver fumbles with these documents or passes over his driver's licence when it is in clear view in his wallet, that behaviour may be construed as further evidence of impairment.

As Figure 34 shows, the potential excuses that can explain these factors away are essentially nervousness and poor visibility. In cross-examination, most officers are prepared to admit that perfectly innocent people often get very nervous when they deal with the police. Nervousness can also explain why people fail to see something that is staring them in the face. Also, the police will usually concede that at night time, when most suspects get pulled over, lighting conditions are often less than optimal. Furthermore, good eyesight is something that police recruits are usually required to have when they enlist. Establishing that many members of the public are not as eagle-eyed as the average police officer is another way of neutralizing this evidence.
Indeed, as a general observation, it is true that most individual pieces of evidence are susceptible to an innocent explanation. It is when piece is piled upon piece, and the cumulative weight of the evidence taken as a whole that it damns the accused.

The three other branches of the module depicted in Figure 34 that deal with the so-called "usual" symptoms of impairment can be dealt with rather quickly. Under Bloodshot Eyes there is a collection of everyday reasons why someone's eyes might be bloodshot that have nothing whatever to do with impairment. The innocent explanations for having slurred speech are equally commonplace. There is one branch of the Slurred Speech category that calls for some comment; namely, the one labelled Police Spoken Before/ Since. If the only occasion on which the investigating officer spoke to the accused was when he arrested him, then it logically follows the officer has no way of knowing how the accused speaks normally. The officer can probably be manoeuvered into admitting in cross-examination that this may well be the accused's normal way of speaking. At the very least, he will be forced to concede that he cannot discount the possibility. To win this concession, it may be helpful to remind the witness that stroke victims and people who suffer from certain types of palsy slur their speech in a way that is indistinguishable from someone who has been drinking.

I learned this the hard way as a young Mountie when I arrested a man I was convinced was impaired, over his strong protestations of innocence. Back at the detachment the suspect blew zero on
the breathalyzer, conclusively proving that he had no alcohol in his system. Needless to say, I was chagrined and profusely apologetic. I discovered that my suspect had suffered brain damage as a result of having been hit over the head with an iron bar in a robbery some years earlier. His speech was so slurred that he was very difficult to understand. He was very charitable about my mistake. Regrettably, he was constantly having to suffer the indignity of being taken for a drunk and had become quite philosophical about it.

I recount the above experience to drive home the point that, without a standard of comparison, one cannot be certain from a single encounter how a person normally speaks. In the most cases, there is only a minor point to be scored for the defence by pursuing this line of cross-examination. However, every little bit counts. The effect of the defence evidence is also cumulative. What is more, unlike the prosecution, the defence is only obliged to raise a reasonable doubt. If it is a foregone conclusion that the accused will be testifying in his own defence, and in fact he has no speech impediment, it is clearly counter-productive to try to suggest that this might be the case when it will inevitably be demonstrated to be false. Unthinking cross-examination that leads nowhere irritates busy judges to no end. Experienced police officers may try to pre-empt the defence from using the tactic I have described by going out of their way to engage the accused in conversation before court when he is presumably sober. This gives them a standard of comparison. They are then able to give evidence in chief to the effect that
the accused does not normally appear to slur his words when he speaks.

There are two points to be made about the branch of the module called Liquor Smell on Breath. First, if the accused admitted drinking excessively to the investigating officer, these admissions must be proved voluntary on a voir dire. Everything that was said earlier about admissions applies with equal force here. In this context, we are talking about admissions that were made at the roadside when the suspect was first spoken to by the officer. As a small digression that fits in neatly here, I shall jump ahead in time a little and mention briefly that, as an adjunct to the breathalyzer testing procedure, the investigating officer fills out a standard form called an Investigative Guide and Report - Alcohol Impairment. The form contains a whole series of questions about whether the suspect had been drinking, and if so, what, how much and between what times? This form will not be mentioned again. However, its contents should be the subject of a separate voir dire. A copy of the form is shown in Appendix 2.

The second point to be made about Liquor Smell on Breath, is that, while the smell is evidence that the accused has been drinking, it is no indicator of how much. A point to hammer home in cross-examination is that a person will smell the same whether he has had one beer or six.
There is no more that need be said about IDA's Physical Symptoms module.

8.2.4 Sobriety Tests

If the observations of the investigating officer in her face-to-face dealings with the occupant of the vehicle appear to indicate he is impaired, he will be asked to step out of the vehicle and perform a series of sobriety tests. The tests may take slightly different forms, yet they are all aimed at testing the suspect's balance and hand-eye coordination.

Perhaps the most common balance test is for the suspect to be required to walk heel-to-toe along an actual or imaginary straight line. Officers will improvise by using whatever straight lines they can find at the scene. The painted lines dividing lanes on the roadway and the grid of cracks in the sidewalk are favourites. The suspect is usually asked to walk away from the officer for four or five paces, pivot on his heel and walk back again. He is allowed to hold his arms out away from his sides to help him balance. If he steps sideways off the line, stumbles or otherwise loses his balance, the officer will make a note of it. Another common balance test is for the suspect to be required to stand at attention, his arms at his sides and to tilt his head backwards with his eyes closed. If he sways back and forth or is unable to hold the position, that will be noted. Finally, the officer may simply ask the suspect to
lift one foot off the ground and balance on one leg. One or more of these tests may be given. There is no hard-and-fast rule. It is up to the investigator.

The classic hand-eye coordination test is the so-called finger-to-nose test. This requires the suspect to touch the tip of his nose with the end of his index finger. It is done standing upright with the feet together, eyes closed and head tilted backwards. The suspect extends each arm in turn sideways at shoulder height and sweeps the hand inwards towards the nose in a wide arc. The object of the exercise is to score a direct hit on the tip of the nose with the end of the finger. The officer will note the extent to which the suspect misses the target. In another coordination test, the officer will simply put three or four small coins on the ground, usually nickels and dimes, and ask the suspect to stoop down and pick them up. If the suspect sways, stumbles, falls over or is unable to grasp the coins, the officer records the fact.

Although there is no statutory requirement that sobriety tests be conducted, they have become an integral part of the standard investigative procedure. In fact, in R. v. Andres, it was argued on behalf of an accused that sobriety tests must be administered in order to establish impairment. The argument was rejected; however, the fact that it was ever made clearly indicates the entrenched status that these tests have acquired over time. Not surprisingly, courts tend to attach a lot of weight to the results of sobriety tests as an indicator of
impairment. So much so, in fact, that it has become incumbent upon the crown as part of its case to explain why sobriety tests were not performed if none were given.

Tests may not be taken for a number of reasons, the most obvious being that the accused simply refused to cooperate. A person is under no legal obligation to perform sobriety tests, although most people do. However, a refusal to take them will be given in evidence by the police and the court may draw an inference adverse to the accused from this fact. An accused's refusal to take the tests need not be the subject of a voir dire in order for evidence of such a refusal to be admissible. The refusal is regarded as a verbal act. Since it is not being adduced to prove the truth of any assertion it contains, it constitutes an exception to the hearsay rule.

A suspect may be physically incapable of performing the tests for one reason or another. For instance, he may be too drunk to be able to comprehend the instructions, let alone do the tests. Evidence of extreme drunkenness more than adequately explains a failure to give tests. It may be obvious that a suspect is very unsteady on his feet as soon as he gets out of his vehicle. Some even find it necessary to hold onto the vehicle in order to hold themselves upright. When I was in the R.C.M.P., a suspect I had pulled over lurched forward without any warning while I was talking to him outside his vehicle. He grabbed hold of the cross strap of my Sam Browne belt in an attempt to keep his footing and almost dragged me to the ground with him. I practically had to
carry him to the police car. Needless to say, I did not find it necessary to conduct any sobriety tests. Whether or not to administer sobriety tests in any particular case is always a judgment call for the officer to make. Since a failure to give tests may leave the officer open to criticism, most tend to err on the side of safety. They will at least make an attempt to give the tests unless the suspect is falling down drunk. The rule of thumb is that, before the tests are dispensed with, the physical evidence of impairment should be so blatant that they would be superfluous.

Tests are also not appropriate in cases where the suspect suffers from some obvious physical handicap that would hamper his ability to perform them and make the results meaningless. For instance, there is no point in testing a suspect who is on crutches with his leg in a cast. For some strange reason I ran across a number of such cases, both as a police officer and a prosecutor. It struck me as odd that a person in that predicament would get themselves picked up for impaired driving in the first place. However, I discovered that there was a strange logic to one case I handled as a prosecutor. As part of a plea in mitigation of sentence, defence counsel pointed out that his client had been drinking to alleviate the depression he felt as a result of the misfortune he had suffered by breaking his leg. The lawyer went on to suggest that the accused had been obliged to drive because that was the only way he could get out and about and thereby relieve the monotony of being cooped up in the house by his
injury. Creative submissions like that show lawyer's talent of making the best of a bad business.

Sometimes an officer may neglect to administer sobriety tests for no apparent reason. If so, the oversight will rightly draw criticism from both defence counsel and the bench. In effect, it amounts to a failure to conduct a full investigation. The tests provide useful evidence that is particularly cogent with respect to the outcome of an impaired driving charge. In cases where the erratic driving and the readily apparent physical symptoms are not extreme enough to be conclusive, the results of the tests can tip the evidentiary balance one way or another. Usually, the results of the tests benefit the crown and militate in favour of conviction. However, there are cases in which the accused performs remarkably well on the tests and the results can be of benefit to the defence.

Figure 35 shows IDA's Sobriety Tests module. The diagram points to factors that the defence can use to weaken the probative force of a poor performance on the tests. One or more of these factors may come into play in any given case. Since the contents of the diagram are easy to understand, I shall simply add a few comments by way of amplification.

Cowboy boots and high-heeled shoes are relatively common types of footwear that clearly make it difficult to do balance tests. The police may overlook or neglect to mention exactly what the accused was wearing at the time. It is therefore incumbent upon
Figure 35

Structure of the SOBRIETY TESTS Module of IDA

LEGEND
No Defect
Defect

Elevated
Heel
Flat
Solid

Footwear

Balance

Taken

Uneven
Surface

Society Tests

Well lit

Daylight

Darkness

Visibility

None

Poorly lit


Injury


Disability


Normal


Physical Condition


Hand-eye Co-ordination
defence counsel to find out whether the client was shod in unconventional footwear. If so, the fact can be used to cast doubt on the reliability of the tests.

Any sort of uneven surface has the potential to throw a person off balance. For this reason, police officers will try to find a smooth surface on which to conduct the tests in the vicinity of the place where they have stopped the suspect. However, in cases where only a rough surface was available, this can be pointed to as diminishing the value of the tests.

The surface should be flat as well as smooth, even though the factor is not covered in the module. If the suspect is stopped on a two-lane road with no sidewalks, as often happens, the police will usually administer the tests at the side of the road. Narrow roads like this often have a very pronounced camber that drops off quite sharply at the road's edge. Thus the suspect may be trying to balance on a side slope. The possibility is worth exploring in cross-examination. While the police will testify that the surface was smooth, they may not mention that it was sloping.

Given that most suspects are stopped at night, in all likelihood, the tests will be performed under artificial lighting conditions. In a well-lit urban area, the lighting will be almost as good as in daytime. However, outside built-up areas and in poorly lit side streets, the lack of adequate lighting can be used as a major reason for calling the validity of the sobriety tests into
question. Chances are that the only sources of light will be the officer's flashlight and the headlights of the police car. An exacerbating factor which is easily overlooked is the effect of the lights of the police vehicle in such a situation. When the police pull a suspect over, they leave the emergency lights of the police car activated to warn passing motorists. The emergency lights usually consist of flashing blue and red barlights on the roof of the police car and flashing headlights that alternate back and forth between low beam and high beam. The latter are evocatively called "wig-wags". The overall effect in a darkened area is highly disorienting. Like being in a discotheque, it can distort the suspect's ability to perceive things clearly. The probative value of tests given under these lighting conditions is highly dubious and should be challenged by the defence on that basis.

If the accused was suffering from a physical injury or disability at the time that the tests were taken, that will clearly make it unsafe to rely on the results as evidence of impairment. The police will not bother conducting any tests if the handicap is apparent. However, in some cases where the affliction is less than obvious, it can get overlooked by the police and go unmentioned by the suspect. Typical cases are those where the accused has undergone a hip-replacement operation or had knee surgery. Defence counsel should always cavass these possibilities when taking instructions from the client. If this kind of disability is put forward belatedly as an excuse for performing poorly in the tests, like a last-minute alibi, it will
be viewed with some skepticism. Therefore, it is crucial that the defence should produce proper supporting medical evidence to corroborate that of the accused. Strictly speaking, that would require that a physician be called to testify. However, to avoid the trouble and expense involved, the crown is usually prepared to allow a medical letter to be filed in court as an exhibit instead. In and of itself, the letter would be hearsay. This evidentiary problem is solved by the crown making a formal admission on the record of the facts contained in the letter. A medical letter that is produced in court for the first time on the day of trial is likely to be given a chilly reception by the prosecutor. The defence should send the crown a copy of the letter well in advance of the trial date with a request that the contents of the original be admitted. The crown is thereby given an opportunity to consider the implications of the letter and, if any clarification is necessary, to discuss its contents with the doctor who wrote it. Assuming that adequate notice is given, no crown counsel is going to refuse to make the necessary admission and insist that the defence be put to the expense of calling a medical witness in person.

Sometimes there is no apparent way of attacking the results of the sobriety tests. In such cases, as a last resort, the defence can always try to establish in cross-examination that some people simply have difficulty performing the tests, even when sober. A fair-minded police officer will concede that this may indeed be the case. Others will attempt to sidestep the question, claiming that they cannot answer because they have never tested a person
who seemed sober. Of course, by saying that, they have tacitly conceded that they have no way of knowing how a sober person might perform. Defence counsel may ask the officer to perform the tests herself in court. The request is perfectly legitimate because it is standard procedure for investigating officer to demonstrate to the suspect how the tests should be performed. The officer will probably have given evidence to this effect on examination-in-chief. Defence counsel need simply ask the witness to show the court how the demonstration was made. The defence is gambling that, perhaps through nervousness, the officer will be unable to demonstrate the tests flawlessly in court. Sometimes this tactic pays off and the defence can point out that even the officer, who was presumably sober, had problems. However, it can backfire if the officer performs perfectly.

Cross-examination tricks like the one described above can be a useful way of scoring points for the defence. Most lawyers accumulate a repertoire of them as they gain experience. I saw one such trick employed very effectively to challenge a police officer's evidence that the accused's alleged unsteadiness on his feet was related to the consumption of alcohol. Throughout his testimony, the officer stood in the witness stand with his hands clasped behind his back rocking back and forth on his heels. I have often seen this stance adopted by police officers, members of the armed forces, commissionaires and security guards. It is obviously a quasi-military posture affectation that makes it more comfortable to stand in the at-ease position for long periods of
time. For some reason the pose has an air of officiousness about it that is slightly offensive. It seems to conjure up images of a policeman confronting someone in an intimidating manner. In any event, out of the blue, the defence lawyer asked the witness if he was drunk. The officer was visibly taken aback and denied the suggestion vehemently. The lawyer then asked the witness if he was impaired. This was also hotly denied. Defence counsel then pointed out to the perplexed officer that he had been swaying back and forth in the witness stand the whole time he had been giving his evidence. The lawyer asked the court note to the fact for the record. Since the judge had also noticed the officer's behaviour, this was done. Reluctant as he was to admit it, the red-faced officer was forced to concede that swaying back and forth while talking to someone need not necessarily be the result of impairment by alcohol.

Once the sobriety tests have been conducted, a decisive moment has arrived. At this point, the investigating officer must decide whether to make a formal demand for samples of the suspect's breath pursuant to the provisions of Section 254(3)(a) of the Code. IDA does not have a module that deals with the making of the so-called breathalyzer demand and its necessary preconditions. Like all the other possible enhancements I have already mentioned, such an addition would be of practical use. But I reiterate that my present purpose it to demonstrate the validity of a concept. I shall not belabour the point. It may be taken as applying to all the other possible additions I shall mention as we go on. Although IDA does not incorporate a module
that deals with it, I shall now discuss the breathalyzer demand because it constitutes the next step in the investigation and its legal significance should be understood.

In the jargon of the domain, it is at this juncture that the officer forms her "opinion" about whether the person's ability to operate a motor vehicle is impaired by alcohol. The police officer's decision should be based on all the evidence gathered during the course of the investigation. The evidence need not only arise from the officer's own observations, but also may include hearsay. In other words, information that the officer has received from other witnesses that she considers reliable. Even hearsay once removed is acceptable. Thus the officer's opinion may be based in part on a radio report she has received about the suspect from the police dispatcher. That report may in turn be based on a complaint that has been phoned in to the police station by a member of the public. Furthermore, a police witness may even given evidence of the contents of radio reports or conversations with third parties without a voir dire if these are adduced to show the grounds on which the officer formed an opinion rather than for their truth.

The investigating officer's opinion as to the suspect's condition is essential to the crown's case because it is on the basis of that opinion that she is empowered to make a breathalyzer demand. There are two aspects to determining whether a demand is proper, (a) the form of the demand, and (b) the reasonable and probable grounds on which it is based. If the evidence of a proper demand
is inadequate, it can lead to an acquittal on a charge of refusal to provide a breath sample and weaken an impaired driving charge. The shortcoming is most relevant to the count of refusal because proof of a proper demand is an essential element of that offence. If the crown does not prove a proper demand as part of its case, the defence can move to have the refusal charge dismissed on a "no evidence" motion at the conclusion of the crown's case, before having to call any defence evidence. If the motion succeeds, the accused does not have to deal with that charge if he takes the witness stand. Even if he did blatantly refuse to give breath samples, that charge has become a dead issue and he is not in jeopardy of being convicted out of his own mouth.

Where an accused does actually give breath samples, there is a division of judicial opinion on the issue of whether the results of the breathalyzer tests are admissible on an over 08 charge regardless of whether the demand was proper. *Rilling v. The Queen* held that an absence of reasonable and probable grounds for belief of impairment does not render the certificate of analyses inadmissible. However, the waters have been muddied considerably since the advent of the Charter. While I shall not review all the cases for and against the proposition, suffice it to say that there is now some doubt about whether *Rilling* is still good law.

Most officers know what is expected of them and will give ample evidence of a proper demand when the appropriate questions are asked. A standard exchange between crown counsel and the
investigating officer during examination-in-chief goes more or
less as follows.

Q. "Officer, as a result of everything you had seen and heard up
to then, did you come to any conclusions about the accused's
condition?"

A. "Yes, sir. I formed the opinion that the accused's ability
to operate a motor vehicle was impaired by alcohol."

Q. "Did that opinion cause you to do anything?"

A. "Yes. As a result, I made a demand for samples of the
accused's breath."

Q. "How did you make that demand?"

A. "I read it to the accused from a card we are issued."

Q. "Do you have that card with you today?"

A. "Yes, sir."

Q. "Would you produce the card and read to the court the demand
that you made to the accused."

Court. [To defence counsel] "Any objection?"

Defence. "Not as long as it's the same card, your honour."

Court. [To police officer] "Is it the same card, officer?"

A. "Yes, your honour."

Court. "Okay, go ahead."

The officer then produces the card and reads the exact wording of
the demand which is as follows.

"I hereby demand that you supply forthwith or a soon as
is practicable such samples of your breath as are
necessary for an analysis to be made and that you
accompany me for that purpose. Do you understand the
demand?"

The wording is adapted from that of Section 254(3) in order to
forestall any legal arguments about its adequacy. It is such a
fine specimen of tortured legalese that, not surprisingly, many
suspects have difficulty understanding precisely what is meant.
They can generally infer the gist of it from the predicament in which they find themselves and the mention of breath samples. Yet their understanding of the situation has more to do with the context in which the words are uttered and their knowledge of the role of the police in these matters than the way in which the demand is phrased. This slavish conformity to legal niceties in an attempt to ensure that a prosecution will not fail injects a surreal element into these otherwise down-to-earth situations. In fact, the courts have held that no special form of wording need be used in making the demand as long as it is clear what is meant. A noble sentiment, indeed. However, bitter experience has shown the police that improvisation opens the door to calamity. Better to conform and be sure than to ad lib and risk disaster. Many suspects ask for clarification of what the formal demand means when asked by the police if they have understood. Having pronounced the magic words, the police are only too happy to explain in plain language exactly what they require. Those suspects who surmise what the formal demand means will obviously answer affirmatively when asked if they understand. An amusing irony is that defence lawyers will often capitalize on this fact. They will get the police officer to agree in cross-examination that the demand is couched in difficult language rather than everyday English. Then they will argue that, because their client had no problem understanding such tricky wording, he could not have been that impaired. The very lawyers whose legalistic exigencies have foisted such ridiculous language upon us, take advantage of its use when it suits them while, at the same time, implicitly criticizing its complexity.
The essential elements that need to be established in order to show a proper basis for making a demand are as follows:

(a) the officer formed an opinion
(b) based on reasonable and probable grounds
(c) that the accused's ability to operate a motor vehicle
(d) was impaired
(e) by alcohol

Each and every element must be proved. The reasonable and probable grounds are to be found in the whole of the evidence of the circumstances leading up to the making of the demand.

Unfortunately, in some cases, eliciting the evidence that proves the other necessary elements can be like pulling teeth. The occasional obtuse police witness will entirely fail to grasp what it required by way of proof. They will simply state that they thought the accused was "impaired" and leave it at that. They will omit to mention that they thought the impairment was caused by alcohol or to relate it in any way to the accused's ability to operate a motor vehicle. The crown is then faced with having to drag the necessary elements out of the witness without offending the rules of evidence. There is a rule against asking leading questions of one's own witness on examination-in-chief, except with respect to matters that are not in issue. Therefore, the crown must be careful not to put the appropriate words in the witness's mouth. In order to circumvent this prohibition, the prosecutor may be reduced to asking a series of questions that are so painful in their simplicity that they verge on sounding inane. Few things are more frustrating than being confronted with the blank, uncomprehending stare of an officer who cannot understand what in the world you are driving at. The only solution is to keep coming back at the same issue from different
angles until hopefully the officer catches on. The following exchange gives some idea of the problem.

Q. "Officer, as a result of everything you had seen and heard up to then, did you come to any conclusions about the accused's condition?"
A. "Yes."
Q. "What did you conclude?"
A. "That he was impaired."
Q. "By what?"
A. "Oh, by alcohol."
Q. "What was impaired?"
A. "He was."
Q. "Yes, but in what respect?"
A. "I'm sorry?"
Q. "What was there, if anything, about the accused that was impaired by alcohol?"
A. "His ability to drive?"
Q. "To drive what?"
A. "A motor vehicle."

While it may appear that I have exaggerated the above dialogue in order to make a point, I can assure the reader that, to the best of my recollection, the example is taken word-for-word from the actual testimony of a police witness.

I hasten to add that the police are not always the ones at fault. It is easy for a crown to overlook the fact that some key element has not been strictly proved. Trials are punctuated by constant interruptions: objections from defence counsel, comments and rulings from the bench, short adjournments, and so on. Keeping
track of the evidence that has been given is sometimes difficult. Most crown counsel use some form of checklist to ensure that each necessary element of the case has been proved. Their great fear is that they will forget to prove something crucial that the defence will pounce on and that the case will be dismissed as a consequence.

Familiarity with what is required by way of proof is no guarantee that something essential will not be missed. In fact, paradoxically, extensive experience in any domain can create a level of self-confidence that sometimes leads to the making of an absolutely fundamental mistake through sheer carelessness. A well-known example is the occasional inexplicable failure of pilots who have logged thousands of hours of flight time to lower the landing gear when they bring a plane in to land. As a former pilot myself, I learned this from my instructor, an airforce veteran, during flight training. The analogous slip-up among crown counsel is failing to prove jurisdiction. Stories about instances where this has happened are part legal folklore. It is probably the ultimate ignominy that a crown can suffer. The police witnesses will usually volunteer the necessary evidence themselves without having to be prompted. But occasionally when they do not, crown counsel will wrongly assume that it has been given. Therefore, just to be on the safe side, a great many crown counsel have the habit of wrapping up their examination-in-chief with a question that ensures that jurisdiction has been covered. The perusal of trial transcripts will reveal the same
ending of a police officer's examination-in-chief occurring repeatedly mutatis mutandis.

Q. And finally, officer, where did all these events you have related to the court take place?

A. In the Municipality of Richmond, County of Vancouver, Province of British Columbia.

Q. Thank you. No further questions, your honour.

One of the major benefits of a script-based approach to structuring legal knowledge is that it can help the inexperienced to avoid fundamental mistakes by presenting them with a clear overall picture of how the law is applied in practice. Any area of law that has a large procedural component to it, like impaired driving, for instance, cannot be learned in the abstract. The importance of apparently insignificant procedural requirements simply does not sink in unless they can be related to some concrete situation, as has been made abundantly clear thus far. The dismal failure of academically oriented legal procedure courses in law schools and the introduction of a clinical component into the curriculum are a recognition of the truth of this proposition. Learning by doing is the only way of making things stick.

Working through a script-based knowledge system is like role playing. It gives the user a preview of what he can expect to encounter in an actual situation. The value of role playing as a way of training people who have to deal with stereotypical real-world scenarios has gained increasing popularity. For example, in police training academies, role playing is used extensively to
show officers what to expect and how to react when they are first confronted with a situation that they will inevitably have to deal with, such as intervening in a domestic dispute or coping with a serious motor vehicle accident. Traditionally, lawyers have learned their practical skills on the job, in no small measure through the mistakes they have made in the process.

In this connection, I might mention that it is no secret that a stint with the crown is a recognized way of getting extensive court experience and honing one's advocacy skills before moving on to the more lucrative world of private practice. One of the great attractions of this career path is that the learning curve is steep in the first year or two and mistakes are tolerated more readily than in private practice. Crown counsel represents the state. If a junior crown loses a case through inexperience, no one is going to make a big fuss about it, and rightly so. Private clients, on the other hand, have high (and often unrealistic) expectations. When they lose a case, for whatever reason, they are never happy. Lawyers bear the brunt of their clients' displeasure because they were being relied upon to pull the rabbit out of the hat. Obviously, not every would-be criminal lawyer can learn his trade with the crown. The number of available positions is limited, especially in these days of government fiscal restraint. A fortunate few get hired on by established firms that specialize in criminal law. The great majority have to cut their teeth doing legal aid work. Legal aid clients can be the most demanding and unforgiving of all. For some strange reason, people who are getting something for nothing
are often much less appreciative than others who are paying for a lawyer's services. Strange as this seems, it has been my experience and that of every other criminal lawyer I have ever spoken to. In any event, anything that can be done ahead of time to prepare novice lawyers for what they will face in court is a good means of keeping mistakes to a minimum. Returning once again to the aviation analogy, it is better to make mistakes in a flight simulator than in a real airplane. A fully implemented version of IDA, and similar script-based knowledge systems, could go a long way towards simulating the reality of different areas of legal practice and thereby help to prevent mistakes.

Having dealt with the breathalyzer demand, it is now time to move on to consider the question of Charter Rights.

8.2.5 Charter Rights

IDA's Charter Rights module shown in Figure 36 can be dealt with in short order. It deals simply with the formal giving of rights under the Charter by the police to the suspect as opposed to the subsequent opportunity to exercise those rights. Thus the issue it covers is a very narrow one. The applicable sections of the Canadian Charter of Rights and Freedoms are 10(a) and 10(b) which read as follows.

"10. Everyone has the right on arrest or detention

(a) to be informed promptly of the reasons therefor;
(b) to retain and instruct counsel without delay and to be informed of that right;"\textsuperscript{5}

The key word in this context is "informed". A person from whom the police have demanded breath samples has been "detained" within the meaning of Section 10, whether or not he has been formally arrested for impaired driving: see R. v. Therens.\textsuperscript{9} The suspect must therefore be informed of his Charter rights in either case.

Police practice varies with respect to the procedures used to detain drinking drivers. Some officers will simply make a breathalyzer demand and take the person in for testing on the strength of power conferred by Section 254(3) of the Code. The section gives the police the right to demand samples and to "require that the person ... accompany the peace officer for the purpose of enabling such samples to be taken." The wording of the demand itself explains why the person is being detained. Officers who favour this procedure will not formally arrest a suspect unless he refuses to accompany them, in which case he will then be arrested for impaired driving.

Other police officers have a blanket practice of formally arresting all suspected drinking drivers for impaired driving right off the bat. The person arrested will be told "You are under arrest for impaired driving", or words to that effect. In these cases, the officers are exercising a general right to arrest conferred by Section 495 of the Code. There was some dispute in the past about whether the decision by a police officer to arrest in the first place rather than rely on the
specific power that attaches to a breathalyzer demand amounted to a breach of the right not be be arbitrarily detained under Section 9 of the Charter. That issue has now been resolved. As things stand, the police have the discretion to adopt either procedure: see R. v. Cayer (1988), 66 C.R. (3d) 30 (sub nom R. v. Dawson) (Ont. C.A.), and R. v. Sieben.

The two different procedures really amount to the same thing for all practical purposes, although a neophyte lawyer may well wonder why some officers do it one way and some another. It boils down to a question of individual style. Maybe some officers are more comfortable with an arrest because it seems more definitive. Taking a person into custody without actually arresting him may strike them as somehow too tentative. I say this in all seriousness. The police officers I have dealt with have always seemed to me to feel most comfortable with clear-cut situations in which they can adopt a familiar procedure. Ambiguity does not sit well with them. I suspect that this attitude is characteristic of the quasi-military mind set. Be that as it may, in either case, the person detained or arrested must informed of the reason therefor promptly and of his right to retain and instruct counsel. The reasons given will differ slightly depending on which of the two procedures the officer adopts. In effect, when a suspect is formally arrested for impaired driving the reason will be two-fold because, as well as being given a breathalyzer demand, he will be told that he is under arrest for impaired driving.
The giving of Charter rights is a very straightforward procedure. Police officers use a standard form of words taken straight from the statute. It is as follows.

"You have the right to retain and instruct counsel without delay. Do you understand?"

In the R.C.M.P., at least, this wording is printed on the back of the same laminated card that bears the breathalyzer demand.

The issues that arise under this module are simple.

(a) were the rights given
(b) in a timely manner, and
(c) understood?

All this is set out clearly in the diagram in Figure 36 and calls for little comment. In the early days of the Charter, the police were not as conscientious as they are nowadays about giving suspects their rights. In those days, before the far-reaching implications of the Charter had sunk in, it was not uncommon for the defence to come across cases where suspects had not been given their rights and to be able to take advantage of the failure to exclude the results of the breathalyzer tests.

Unfortunately for the defence, times have changed. The police are now very well aware of their obligations under the Charter. The giving of Charter rights has become a deeply ingrained habit. The cases of outright failure on the part of the police to give a suspect his rights are now few and far between. Nevertheless, remote as it is, the possibility is worth exploring because the payoff is so great.

A good starting point when cross-examining a police officer about whether Charter rights were given is to request that the
officer's notebook be produced for inspection. The court will grant the request if the notebook was used for the purpose of refreshing the officer's memory before trial. Police officers generally make a note of the fact that they gave a suspect his Charter rights. If no such note is found, an effective cross-examination may raise a doubt on the issue. The fact that the giving of Charter rights has become so automatic can actually work to the defence's advantage. Because the procedure has become second nature, the officer may have no specific recollection of having given the rights in the instant case. If she has no written note, she does not have the doctrine of past recollection recorded to fall back on.

However, in all probability, affirmative evidence from the accused on a voir dire that his rights were not given may be needed to satisfy the court on this point. By virtue of Section 24. (1) of the Charter, it is up to the accused to put a breach of any rights thereunder in issue. The onus of proving of a breach also rests with the defence. A complicating factor for the defence in impaired driving cases is that, as between the accused and the police, there is likely to be a credibility gap. The crown evidence will undoubtedly show that the accused had been drinking to some extent. Therefore, the court is likely to prefer the recollection of the police about what took place to that of the accused where the two versions conflict.

The Charter is the yardstick by which the legality of all enforcement procedures is measured. Before it came into force,
the overriding consideration that was applied in determining whether evidence should be admitted was its relevance to an issue before the court. With the Charter, Canada has adopted an American style model that allows the courts to exclude illegally obtained evidence. However, the provisions of the Charter are not absolute. The document is a typical Canadian compromise. The fact that evidence is shown to have been obtained in breach of a right guaranteed by the Charter does not automatically ensure that the court will exclude it as happens in the U.S. The discretion to admit or exclude evidence is given by Section 24. (2) which reads as follows.

"24. (2) Where, in proceedings under subsection (1), a court concludes that evidence was obtained in a manner that infringed or denied any rights guaranteed by this Charter, the evidence shall be excluded if it is established that, having regard to all the circumstances, the admission of it in the proceedings would bring the administration of justice into disrepute."

The effect of the Charter has almost become a legal specialty in itself. The issues that arise can be extremely tricky and the wording of the subsection quoted above clearly contemplates a delicate balancing act being performed by the court. However, while I would not hold myself out as an expert on the Charter across the board, I can assert with some confidence that a demonstrable breach of Charter rights in the context of an impaired driving case will inevitably result in the exclusion of the subsequently obtained evidence. The evidence in question will usually be the results of the breathalyzer tests. The relative seriousness of the charge against the accused is one of the principal factors that the courts will take into account when
deciding whether or not to exclude evidence. In the greater scheme of things, as compared to murder or armed robbery for instance, drinking driving offences are not that serious. For all practical purposes, therefore, the exclusion of evidence can be taken as a foregone conclusion if the breach of a right is established in one of these cases.

However, even though a successful Charter argument is a sure-fire way of excluding evidence in impaired cases, insofar as the actual giving of rights is concerned, the scope for making such an argument is limited. From a defence point of view, the failure to give Charter rights in a timely fashion or to ensure that they were properly understood is much more likely to generate a Charter issue than an outright omission to give the rights at all.

The options covered in the module shown in Figure 36 are rather scant. For example, I have only dealt with a possible failure to understand the right to counsel because of language difficulties. However, it is possible to envision other reasons why a suspect might not have understood, such as extreme drunkenness or being dazed from a blow to the head. The latter situation is not at all uncommon because, as noted earlier, impaired driving and motor vehicle accidents often go hand in hand. It would be a simple matter to enlarge the module so that these and other possibilities could be slotted in. From the point of view of the exercise of conceptually structuring the knowledge, the key factor is to have created generic categories that deal with the
timeliness of the demand and whether it was understood by the suspect. As long as the categories are fitting, the specific instances will fall naturally into them.

It is time to turn our attention a phase of the investigation that is a more fruitful source of Charter arguments: the exercise of the right to counsel.

8.2.6 Right to Counsel

The right to counsel has been the subject of a large number of court decisions, many of which dwell on the minute details of what transpired in a particular case. I shall not be attempting to review these authorities. My aim is to create a knowledge structure that gives the broad picture of what typically happens with respect to the exercise of the right to counsel. I have used cases sparingly to illustrate some of the practical points that have arisen so far. I shall continue to limit their use in this manner.

Figure 37 shows IDA's Right to Counsel module. Let us examine its various components. An outright refusal on the part of the police to allow a suspect to contact a lawyer is a flagrant violation of his Charter rights that no court would countenance. If such a thing occurred, it would be an exercise in futility for the crown to attempt to tender any subsequently obtained evidence. Because the breathalyzer results would be
LotsofTimeBreathalyzer
RemainingBeforeTestDeadline
DeadlineImminent
Structure of the RIGHT-TO-COUNSEL Module of IDA

LEGEND
Detect
No Defect
Defect
inadmissible, an over 08 charge would simply not be laid in the first place or, if the violation came to light afterwards, the crown would enter a stay of proceedings on that count. In fact, as a sanction designed to discourage such behaviour, it is likely that the entire case would be scrapped, unless the impaired driving episode was of a particularly aggravated nature. The chances of the police acting in this way are pretty remote. In my experience, they do their best to permit a suspect to exercise his rights. Problems arise not from wilful misconduct, but rather as a result of misconceptions about what the rights entail. Looking at things cynically, the police are unlikely to breach someone's rights this blatantly, if for no other reason than the certain knowledge that they have everything to lose and nothing to gain by doing so.

The suspect should not only be allowed to contact a lawyer, but the opportunity should be given "without delay", to use the words of the Charter. It is obviously impossible to define precisely what would amount to an unnecessary delay. That would depend entirely on the circumstances of the case. However, generally speaking, it means at the first reasonable opportunity rather than at the convenience of the police. In other words, the police have to exert themselves to make arrangements for the accused to contact a lawyer as soon as possible. Any unexplained lapse of time before this is done could yield an argument that the full right to counsel has been denied because of the delay.
Furthermore, a suspect is entitled to consult with counsel in private. In effect, this means out of earshot of the police. If the police can hear what is being said by the accused to his lawyer, they are invading his privacy and violating his right to counsel. However, competing considerations come into play here. The police have a duty to keep an eye on the suspect because he is in custody, for security reasons as well as to prevent him from taking anything by mouth that might affect the breathalyzer readings. For instance, suspects have been known to pull out a mickey of liquor and take a couple of large swigs before the investigator can prevent it. If a suspect can get away with this, he can raise the so-called subsequent drink defence at trial. The argument is that what the breathalyzer shows is unreliable because a large proportion of the reading is attributable to what the accused imbibed after the time of the driving.

The standard breathalyzer testing procedure requires that there be an observation period of at least 20 minutes immediately prior to the time when the tests are administered. The observation period, as it is called, is a precaution designed to ensure that nothing that could affect the reading is ingested by the suspect before the tests. In order to expedite the taking of the tests, the observation period is usually timed from the moment when the suspect is taken into custody by the investigating officer. Before the tests are given, the officer will have to be able to satisfy the breathalyzer operator that he kept the suspect under
continuous observation for at least 20 minutes and that nothing was taken by mouth during that time.

Although the investigating officer will testify that the foregoing was the case, the evidence may not be as solid as it sounds. The suspect is placed in the back of a police car separated from the officer by a thick plexiglass shield bordered by a metal frame. Curiously this barrier is called a "silent patrolman". The name is not very descriptive of what the device actually does. Lawyers tend to be mystified the first time they hear an officer testify that "the silent patrolman was in place". It sounds quite eerie. These days one might be inclined to think that Robocop was riding along as a front-seat passenger. Anyway, it is not very easy to keep a close watch on someone sitting behind a security shield, especially if it happens to be in the back of a darkened police car. If the officer is alone in the car, she has to concentrate on driving. The best she can do is to use the limited vision afforded by the rear-view mirror to cast an occasional glance back at the suspect. Once the suspect is back at the police station, things are obviously different. The officer can give him her undivided attention. However, while he is in transit, there may be a lot of opportunities for him to pop something into his mouth surreptitiously.

Showing opportunity is only the first step in setting up a successful defence. There must also be affirmative evidence that the accused did indeed take something by mouth that might have affected the breathalyzer reading. The value of being able to
poke holes in the police evidence about the observation period is that it opens the door to a defence. The whole point of the police evidence is to anticipate and block off such an option. However, there is no point in going to great lengths in cross-examination to demonstrate that an opportunity existed if there is going to be no follow-up evidence that the accused did in fact take something. It is impossible to stipulate what that something might be. Defence counsel should seek instructions from the client to ascertain whether he took anything by mouth. If so, the possible effect of that substance on the breathalyzer should be carefully checked out. For example, I remember a case some years ago where a female accused was able to satisfy the court that she had sprayed a couple of shots of Binaca breath freshener into her mouth shortly before the breathalyzer tests, unnoticed by the police. As I recall, her justification for doing so was to mask the smell of liquor on her breath. She freely admitted that she had been drinking, but insisted that she had not done so to excess. In the circumstances, her actions seemed plausible and quite innocent. The spray was about the size of a tube of lipstick and therefore easy to conceal. The defence was able to show that, among its ingredients, the spray contained a high proportion of alcohol. Defence counsel argued that the effect of the residual alcohol in her mouth raised a doubt about what her true blood/alcohol content had been at the time of the driving. In other words, that the breathalyzer reading was higher than it would otherwise have been if she had not used the spray. The evidence was accepted as "evidence to
the contrary" within the meaning of Section 258(1)(c)(iv) of the Code and the accused was acquitted.

Like many creative defences, the one described above enjoyed only a brief vogue. Crown experts were able to show conclusively that, although a couple of shots of breath freshener could knock the breathalyzer needle off the scale if a person blew into the machine right after using the spray, the alcohol introduced into the mouth in this manner dissipates completely within a matter of a few minutes. As long as the suspect had not used a spray within five minutes of taking the test, the possibility that using one had affected the breathalyzer readings could be ruled out completely. In fact, a suspect will always be seated in front of the breathalyzer machine in the presence of the operator and the investigating officer for well over five minutes before the test is actually given. There are certain formalities to be completed that take at least this long. Under the circumstances, it is no longer open to the defence to argue that the use of a breath freshening spray could impugn the results of the tests. However, it must be remembered that all the defence has to do is raise a reasonable doubt. Unless the crown can remove that doubt, the accused is entitled to its benefit. Since it is important for the crown to be in a position to negate the possibility that the accused took anything by mouth, the police have a legitimate reason for keeping close tabs on a suspect.

Whether or not a suspect who is being brought in for a breathalyzer test should be searched is a touchy issue. In cases
where the person accompanies the officer willingly and there is no reason to believe that he has a weapon or something illicit concealed about his person, searching him may complicate matters by making him hostile and uncooperative. Here again, we are dealing with a judgment call. Anyhow, the police have a legitimate reason to watch the suspect while he is communicating with his lawyer. In the better equipped police stations, this is accomplished by allowing the phonecall to be made from inside a private room with a glass window through which the suspect can be observed. Since the door of the room is kept shut, there can be no suggestion that the suspect's privacy has been invaded. In other cases, the suspect will be allowed to use the phone while the police officer watches out of earshot from a discreet distance. There can be no objection to this procedure as long as the police are not in a position to hear what is being said. The police will usually testify that this was the case. However, if there happened to be two officers watching the suspect and he could hear what they were saying to one another while he was talking to his lawyer, it is reasonable to assume that they could hear him. If the client's instructions to counsel reveal this to have been the case, there are grounds for making an argument that the right to counsel was breached.

However, as a tactical matter, it is advisable for the suspect to ask that the police move further away rather than withholding any objection until trial. If the police have unwittingly positioned themselves too close without realizing it because they are not paying attention to what the accused is saying, the courts are
unlikely to find that there has been a breach of the right to counsel. In a borderline case the intrusion should be wilful. Therefore, until the police have been put on notice that they are encroaching on the suspect's privacy and failed to respond when asked to move, the stage has not been set for a well-founded objection. An experienced lawyer who is phoned by someone who has been picked up for impaired driving will invariably ask the person whether the police are within earshot. If so, he will instruct the client to request that the police move further away before discussing the matter with him. If the police refuse and the lawyer can hear them talking in the background, he can find himself being called as a defence witness on a Charter argument. I know of several cases where this has happened. Unfortunately, this means that the lawyer will lose a potential client. The rules of conduct that lawyers are bound by do not permit them to be a witness and act as counsel in the same case.

I once heard a defence lawyer advocate a rather questionable tactic calculated to deliberately provoke a breach of the right to counsel. The client is advised to tell the police to move further away in the most offensive possible terms. In other words, to "fuck off". Not surprisingly, police officers have a natural aversion to being told what to do by obnoxious drunks. Veteran officers will take this sort of abuse in stride because they realize that it comes with the job. However, a younger officer may regard this as a personal affront. Once her ego has become involved, she may allow herself to be goaded into refusing to comply with the request just to show that she is not prepared
to tolerate that kind of treatment. A similar technique is used in cross-examination by lawyers who attempt to needle a police witness into losing her cool and thereby damaging her credibility. However, the approach has to be more subtle because the lawyer must remain within the bounds of courtroom propriety. In court, lawyers tend to resort to insinuation and sarcasm in order to infuriate a witness. Police witnesses are trained to be stoical and not to rise to the bait. However, they are only human and sometimes, when the right button is pressed, they will react impulsively.

The advice a lawyer gives to a client is bound by solicitor client privilege and is therefore confidential. Thus a lawyer who advises a client to try to incite a breach of the Charter by telling the police where to go in the crudest imaginable language may feel that he can do this with impunity. However, it is well to remember that the privilege rests with the client. Relationships between lawyers and client sometimes go sour unexpectedly. Should the client choose to reveal the advice he was given, he is at liberty to do so. If it were to come out that a lawyer gave a client such advice, the fact would certainly tarnish the lawyer's reputation. Yet it is not the risk of disclosure that should deter a lawyer from conducting himself in this fashion. It amounts to sharp practice and should not be done as a matter of principle.

The question of how much time a suspect should be allowed in order to contact a lawyer is of central importance in determining
whether the right to counsel was properly given. A token opportunity is insufficient. If the police allow the exercise of this right only grudgingly, and arbitrarily curtail the amount of time permitted, that constitutes an infringement of the right. Thus the notion that a suspect is entitled to only one phonecall is quite wrong. Once again, we are faced with a situation in which competing considerations are at work. On the one hand, the police are working against the clock because the first breath test must be conducted within the 2-hour period. On the other, the suspect has the right to be given a reasonable period time within which to consult a lawyer. As long as 
(a) the accused is being reasonably diligent in his attempts to get in touch with a lawyer, and 
(b) the expiry of the time period is not imminent,
it is difficult for the police to justify calling a halt to the process and insisting that the tests be taken forthwith. The courts will not tolerate stalling on the part of a suspect in an attempt to delay the testing procedure. By the same token, neither will they condone an overly hasty intervention by the police to curtail the exercise of the right to counsel. That is the crux of the matter. These questions are addressed in Figure 37. The issues are clear. The defence should examine carefully any case in which a time limit has been imposed by the police to determine whether there is a viable basis for arguing that the right to counsel has been effectively denied.
8.2.7 Breathalyzer Tests

Figure 38 shows IDA's Breathalyzer Tests module. Most of the material that it shows has already been discussed in a different context. It will therefore be possible to cover the contents of the diagram rather rapidly.

The question of how many tests should be taken depends on the interpretation of the word "lowest" as used in Section 258(1)(c)(iv) of the Code. R. v. Schultz, a case based on this issue, was used to illustrate the kinds of legal arguments that crop up in impaired cases. It will be remembered that, grammatical logic notwithstanding, two tests were held to be adequate, in keeping with the usual police practice. If more than two tests were taken, that should alert defence counsel to the possibility that the breathalyzer machine may not have been functioning properly. Breathalyzer operators will only give more than two tests in unusual circumstances. As I mentioned before, additional tests are given to double check that the machine is working properly in all cases where there is more than a 20 milligrams percent spread between the first and second tests. A greater discrepancy is immediately suspect because, given

(a) the close proximity in time between tests, and
(b) the constant rate at which the human body eliminates alcohol (ie. 15 milligrams percent per hour)

the gap should not be that wide. If a third test turns out to be within the range, the operator will be satisfied and leave it at that.
Figure 38

Structure of the BREATHALYZER TESTS Module of IDA
In all cases where more than two tests were deemed necessary, the defence should consider requiring the attendance at court of the breathalyzer operator for the purposes of cross-examination pursuant to Section 258(6) of the Code. Strictly speaking, leave of the court is required under the subsection. However, it will not be withheld unless the application is palpably frivolous. Most of the time the attendance of the operator can be arranged informally. The crown will usually agree to produce the witness voluntarily for cross-examination if the request seems reasonable. A great deal depends on how good the working relationship is between the crown and defence counsel.

There are several reasons why there might have been a greater than 20 milligrams spread between two tests. First, one of the samples may have been a shallow breath that was not representative of the suspect's true blood/alcohol content. The breathalyzer needs a sample of deep-lung air in order to make an accurate measurement. Secondly, the suspect may have been on a rapidly rising absorption curve. Unlike elimination, absorption of alcohol does not take place at a constant rate. Full absorption of the alcohol content of a drink happens relatively rapidly in anywhere from 20 to 40 minutes, depending on factors like the amount of food present in the stomach and the person's metabolic rate. This second possibility is what the defence is hoping for because it gives rise (excuse the pun) to the so-called last drink defence. If the accused had a stiff drink very shortly before driving, the defence argument is that the alcohol would not have been fully absorbed into his bloodstream when he
was stopped by the police. Therefore, what the breathalyzer reading shows is not the true blood/alcohol level of the accused at the time of the driving, but rather the level at some later time. Successfully establishing this defence requires that the defence call a qualified analyst to give expert evidence about the effects of alcohol on the human body; specifically, its rates of absorption and elimination. However, if the accused can give credible evidence of having taken a last drink, the expense and effort of pursuing this option is well worth it. The third possibility is that the breathalyzer was malfunctioning. What is needed to raise a doubt on this score will depend on the peculiar circumstances of the case. However, it is unlikely that the evidence that can be squeezed out of the breathalyzer operator on cross-examination will be enough to do the trick. The defence will probably need to call its own expert on the operation and maintenance of the breathalyzer in order to succeed. There are a number of people available as witnesses who were once instructors on the police breathalyzer course. It is difficult for the crown or the court to challenge their credentials.

There is no point in going any deeper into the details of these possible defences for present purposes. The main thing for the defence to bear in mind is that cases in which more than two breath samples have been taken should be scrutinized very carefully. They may well present an opportunity to challenge the validity of the breathalyzer results.
The statutory requirement that the first test be taken within two hours of the time when the offence was alleged to have been committed has already been discussed. The subject was first raised to explain the paramount importance of establishing the exact time of driving when the police do not actually find the suspect in the vehicle. It was also mentioned as a primary concern the police have when deciding how much time a suspect should be permitted to consult a lawyer. It should be emphasized that the stipulation is absolute. If the first sample is not taken within the 2-hour period, there is no saving provision, regardless of the circumstances. The statutory presumption that the breathalyzer readings represent the accused's blood/alcohol level at the time the offence was committed is irrevocably lost. Once the two hours has expired, there is no point taking breath samples. Thus the most effective strategy that an accused can employ to beat the breathalyzer is to run out the clock.

Unfortunately, delaying tactics tend to work most often in the more serious cases of impaired driving where an accident is involved. If the suspect is injured, or even claims that he is, the police have no choice but to have him taken to hospital if he asks for medical attention. Whatever their suspicions, they cannot afford to run the risk of refusing the request just in case it turns out that he really does need treatment. The police are extremely sensitive about this issue because occasionally someone dies in their custody. Furthermore, the death is usually that of a person whose symptoms of illness or injury (frequently a serious concussion) have been masked by some degree of
drunkenness. Whenever this happens, an inquest is always held. The event itself attracts the kind of negative publicity that the police are anxious to avoid. However, what is worse, the police are occasionally criticized by the coroner's jury for failing to be careful enough in heeding the warning signs that indicated that the suspect was ill or injured. If something like this were to happen and it turned out that the police had actually refused a request for medical treatment, they would be cast in a very bad light, to say the least. The upshot of all this is that it is virtually impossible for the police to refuse a request for medical attention in circumstances where it appears that the suspect might have been injured.

In the past, the situation described above posed a serious enforcement problem. By the time a suspect had been examined by a doctor, even if he turned out to be faking or exaggerating the injury, the two-hour period had usually elapsed. As a result, many of the worst offenders went unpunished, much to the frustration of the police. The only thing the police could do to try to salvage a situation where they were stuck at a hospital while the minutes ticked away was to attempt to get a blood sample from the suspect. However, this procedure required his written consent. Anybody who was deliberately trying to avoid taking the breathalyzer test would flatly refuse to give consent. Only a handful of suspects who were too naive to realize that they were voluntarily incriminating themselves went ahead and signed the form. In effect, the police were powerless to do anything. Investigating officers became extremely frustrated
because there was nothing they could do to avoid being thwarted once a street-smart suspect had reached the sanctuary of a hospital.

Occasionally, a subterfuge would work. I once succeeded in obtaining a blood sample by using reverse psychology. I told a slightly injured suspect whom I had arrested for impaired driving that he had the "right" to request that a sample of his blood be taken. Once he discovered that this was his right, he insisted that it be done despite the attending physicians's best efforts to dissuade him. That particular doctor's feeling about taking blood samples was fairly typical. In fact, the attitude of the medical staff compounded the enforcement problem. Even in cases where consent was obtained, many physicians simply refused to take the necessary blood sample because they did not want to become involved as witnesses in a criminal prosecution. My actions in that case will seem ghoulish to some people. However, they sprang from the widespread feeling of frustration among police officers at seeing impaired drivers get off scot free whenever they happened to have injured themselves in the process of committing the offence.

The case in question shows the lengths to which I felt justified in going in order to get a blood sample. I was called to the scene of a particularly bad motor vehicle accident. The driver of the vehicle that had caused the accident by running a stop sign was unconscious, seriously injured and reeking of liquor. Amongst other things, he was suffering from a serious head
injury. I used a sterile pressure pad from the first aid kit in my police car to staunch the blood flow. When the ambulance attendants arrived and took over, I carefully sealed the blood-soaked pad in a sterile container which I had scrounged from them. I subsequently forwarded the sealed container to the crime detection laboratory for a blood/alcohol analysis. I was disappointed when the lab informed me that the sample was unsuitable for analysis. The lab results were academic anyway because the suspect had died of his injuries in the interim.

I should add that, in the rare cases where a blood sample was obtained, even if the lab analysis showed that it contained an excessive percentage of alcohol, the prosecution itself was fraught with difficulties. Blood sample cases were invariably contested by the defence because they were so difficult to prove. Cataloguing all the problems that arose would take too long to be worthwhile. The root of all the difficulties was the lack of any standard procedure to be followed in each case. Everything was done on an ad hoc basis. For example, one of the favourite defence ploys was to suggest that the swab used to clean the skin before the blood sample was taken had contained alcohol. Since alcohol is frequently used in hospitals as a cleansing agent, the doctor would usually be unable to discount the possibility. There was no procedure laid down to prevent this from happening and a busy physician would typically have no specific recollection of exactly what had been done. It was left open to the defence to argue that the blood sample might have been contaminated by the alcohol used in the swab. That would be enough to raise a
reasonable doubt because was undeniably within the realm of possibility. Another successful defence tactic was to argue that the vial used to gather the blood was contaminated. These were rubber stoppered vials supplied to the police by the nearest crime detection laboratory. Each vial contained a small amount of white anti-coagulant powder. The vial was kept sealed and until it had to be unstoppered for the blood sample to be squirted into it. Then it was carefully re-sealed, marked for identification purposes and sent to the lab for analysis. Unfortunately, procedures were so haphazard that it was never possible for the crown to find anybody at the lab who could give evidence from their own personal knowledge that the powder in a particular vial was an anti-coagulant. This left enough uncertainty about the nature of the foreign substance to allow the defence to raise a doubt about the reliability of the analysis. The whole situation was thoroughly demoralizing. Many police officers were so convinced that prosecutions based on blood samples were doomed to failure that they would not even bother trying to obtain one. As a result, many of the worst cases of impaired driving were never brought to trial.

It was a desire to remedy this profoundly unsatisfactory state of affairs that led to the introduction of extensive amendments to the Criminal Code permitting blood samples to be taken when circumstances prevented the taking of breath samples. The Code now contains a set of provisions governing the taking of blood samples that parallel those dealing with breath samples. The preconditions for the taking of blood samples are laid out in
Section 254(3)(b) and 254(4). There are a whole series of other provisions dealing with how the samples shall be taken and how the results of an analysis of the blood shall be proved. IDA does not deal with blood samples because the amendments were enacted after I left practice and I have no first-hand knowledge of how they have been applied. For practical purposes, it would be useful to include a component dealing with blood samples in a comprehensive version of IDA, with the assistance of someone who has had experience in dealing with the new provisions.

In addition to the 2-hour limit imposed on the taking of the first breath sample, the Code contains another precise requirement with respect to time. Section 258(1)(c)(ii) stipulates that, amongst other things, there must be

"an interval of at least fifteen minutes between the times when the samples were taken,"

Figure 38 makes reference to that requirement. The standard procedure is for breathalyzer operators to allow twenty minutes to elapse between the taking of samples. The extra five minutes is to eliminate any argument about the fact that there was at least a fifteen minute interval between samples. The wide margin was made necessary by a flurry of defences in the past that called the timing of the interval into question. The defences all depended on the use by the breathalyzer operator of an analog watch or clock without a precisely calibrated second hand. It was argued that when the timing is done using such an instrument, there there can be a possible margin of error of up to a couple of minutes. Thus if the operator glances at his watch when
recording the time of the first sample, he may happen to catch the minute hand just before it is about to jump ahead to the next minute. Since he will not look back at his watch again until at least several more minutes have gone by, he will calculate what was only a matter of seconds as an increment of an entire minute when considering it as part of the entire fifteen minute interval. Therefore, the time period would have been inadvertently shortened at the front end. At the other end of the interval, the defence would argue that a further shortening could have occurred if the operator happened to glance at his watch and inadvertently round up the time to the nearest next minute before the minute hand had actually reached that point. This type of defence had some prospect of success in borderline cases where the interval between tests had allegedly been fifteen, sixteen or even seventeen minutes. A skillful cross-examination might succeed in chipping away just enough time to raise a reasonable doubt about whether actual time period fell below the critical fifteen-minute threshold.

The standard procedure in effect now of allowing twenty minutes to elapse between tests effectively rules out these kinds of defences. The sole exception may be where two different timepieces that are not synchronized have been used to record the beginning and the end of the fifteen-minute interval. If there is a discrepancy of several minutes between the two, there may be a chance of challenging the reliability of the evidence of the time lapse between tests. This might happen where the breathalyzer operator times the beginning of the interval using
his wristwatch and the end using a clock on the wall. The chance of detecting such an irregularity would admittedly be slim. Perhaps the only way would be through the evidence of the investigating officer who is always present during the testing procedure. The latter may have recorded the times of the tests in his notebook independently of the breathalyzer operator. If he used the clock on the wall, as often happens, and only one of his times accorded with those of the operator, this discrepancy might provide an opening that could be exploited on cross-examination. The chances of a defence like this panning out are remote. The reality is that, although there must be scrupulous adherence to the requirement that at least fifteen minutes must elapse between tests, challenging the validity of the interval is practically impossible nowadays.

As Figure 38 indicates, the defence should also ensure that the breath samples were normal. That is to say, that there was no burping or regurgitation. If such a thing happened, it could potentially produce an abnormally high reading on the breathalyzer by bringing up a small portion of the alcohol-rich stomach contents into the mouth. The effect is similar to that produced by residual mouth alcohol, a topic touched on earlier in connection with the use of a breath-freshening spray. If a suspect belches or regurgitates during the testing procedure, the test must be delayed long enough to allow the alcohol that may have entered the mouth to dissipate. There were a number of successful defences based on belching and regurgitation before it became part of the standard procedure to extend the waiting
period in order to exclude any chance of the test results being distorted as a result of this having happened. Once again, as soon as a novel defence was discovered, counter measures were taken in an effort to preempt it in the future. It is still worth making sure that this sort of thing did not happen. However, the difficulty is that the police are now aware of the problem and on the lookout for this kind of behaviour. It would be hard to convince a court that the accused let out a belch hearty enough to skew the breathalyzer reading without the police noticing it.

Word about new ways of beating the breathalyzer seems to spread fast. For a while, some suspects seized upon voluntarily induced belching as a means of attempting to delay the testing process long enough to beat the clock. I remember as a prosecutor receiving reports from the police of suspects engaging in marathon belching sessions when placed in front of the breathalyzer. Either the police lost patience and took the behaviour as a constructive refusal to provide breath samples, or the suspect reached a point where he could not muster another belch. In the former case, there could conceivably be a defence if the accused were able to convince the court that he was seized by an uncontrollable and prolonged fit of belching. However, I would not want to bet money on the chances of such a defence succeeding.
A breath sample that is abnormal by virtue of being shallow does not afford a possible defence because it would give a lower than normal reading.

The final option to be explored under the Breathalyzer Tests module is that the machine might have been malfunctioning. As mentioned earlier, this possibility should always be looked at when more than two breath samples are taken. There are no other typical tell-tale signs of malfunction that one can look out for. The best the defence can do is to find out from the client whether the breathalyzer operator expressed exasperation or seemed to have unusual difficulty with the machine during the testing procedure. Any indication that such a thing occurred would be worth delving into.

Appendix 3 shows the Breathalyzer Operational Check Sheet used by RCMP breathalyzer operators to record the testing procedure. If the breathalyzer operator is called to testify, the defence should request that the sheet be produced during cross-examination. The sheet may reveal anomalies that could be exploited.

8.2.8 Certificate of Analyses

The certificate of analyses is the most important piece of evidence in an over 08 case. It is the means by which the crown usually proves the breathalyzer readings. As a rule, if the
defence can prevent the certificate from being entered as evidence, the over 08 count will fail. There are cases, as I mentioned earlier, in which the crown will call the breathalyzer operator to patch up its case if, for some reason, the certificate is excluded. However, this course of action is exceptional. The operator will be called as a last resort if he is on shift and readily available, but not otherwise. Indeed, that is exactly what happened in the case I described where he neglected to give evidence that the samples had been received "directly into" the breathalyzer. I thought I was home free when I succeeded in excluding the certificate. However, the operator happened to be in the building and crown called him to testify at a moment's notice.

The whole point of having such a thing as a certificate of analyses is to provide the crown with a cheap, convenient method of proof that obviates the necessity of calling any additional police witness in each of the flood of impaired cases that the courts have to deal with. In fact, a crown priority that is assiduously encouraged by the courts is to prove cases using the smallest possible number of necessary witnesses. One of the responsibilities of crown counsel is to decide which witnesses are needed and which can be excused. Sometimes this is not easy. A certain amount of overlap is needed so that the testimony of one witness will corroborate that of another. If the crown were to call the bare minimum number of witnesses in cases where the courts are likely to be confronted with conflicting defence evidence, an impasse might result. Faced with two differing
versions of events in a situation where additional evidence might have provided the tie-breaker, a judge may have a reasonable doubt. Indeed, sometimes in dismissing a case, judges will justify doing so by pointing to the failure of the crown to call all the available evidence. If they had the whole picture, they say, they would have been in a better position to make a decision. However, faced with incomplete information, they are left with no option but to dismiss the case. Occasionally, such a thing is bound to happen and the crown just has to live with it. Striking a balance is difficult, yet unavoidable. The criminal justice system simply does not have the resources to permit routine cases to be overproved. Judges get impatient at hearing a whole string of witnesses giving essentially the same evidence. Police administrators are anxious to cut overtime costs, and most police officers seem to have a genius for scheduling court appearances on their days off when they must be paid overtime. Many civilian witnesses are extremely reluctant to take the time off work in order to attend court. Crown counsel is constantly plagued by phone calls from witnesses who want to know why it is necessary for them to be there. A large number of them do not understand why they have to repeat what they know in court when they have already given the police a full statement. A brief explanation of the rules of evidence will not necessarily satisfy them. Their unwillingness is understandable. Unless they have a collective agreement that provides for their wages to be paid in full, they will lose money. In most cases, the government will only pay minimal travel expenses. Moreover, the government pays grudgingly and would like to avoid having to
do even that. In high profile cases like murder or politically sensitive matters, expense is no object. But in run-of-the-mill cases like impaired driving, the pressure is on the crown from all quarters to prove its case as cheaply and efficiently as possible. For all the compelling reasons enumerated above, in the overwhelming majority of cases, if the certificate of analyses goes out the window, the over 08 case goes down the drain. Hence the carefully scrutiny with which is invariably brought to bear on the certificate of analyses by the defence.

The *quid pro quo* for having such a convenient method of proof as the certificate of analyses is that certain conditions must be strictly complied with before the certificate will be admitted in evidence. These conditions relate to

(a) the contents of the certificate itself, and
(b) service of a copy of the certificate on the accused.

What the certificate must contain is laid out in Section 258(1)(g) of the Code which states as follows.

"(g) where samples of the breath of the accused have been taken pursuant to a demand made under subsection 245(3), a certificate of a qualified technician stating

(i) that the analysis of each of the samples has been made by means of an approved instrument operated by the technician and ascertained by the technician to be in proper working order by means of an alcohol standard, identified in the certificate, that is suitable for use with an approved instrument,

(ii) the results of the analyses so made, and

(iii) if the samples were taken by the technician,

(B) the time when and the place where each sample and any specimen described in clause(A) was taken, and

(C) that each sample was received from the accused directly into an approved container or into an approved instrument operated by the technician, is evidence of the facts alleged in the certificate without proof of the signature or the official character of the person appearing to have signed the certificate;"
The wording of the provisions call for some explanation. The term "qualified technician" refers to the breathalyzer operator. The "approved instrument" is the breathalyzer.

The "alcohol standard" refers to the Potassium Dichromate solution that is used in the breathalyzer. This yellow-coloured solution is fundamental to the breathalyzer's operation. Basically, what happens is as follows. Two unused glass ampoules containing the solution are inserted into the breathalyzer in slots opposite one another. One of the ampoules has the nipple-like top snapped off and a small glass tube like a pipette inserted into it. This ampoule is called the test ampoule. The tube is connected to a hose that leads to the intake cylinder of the breathalyzer. The other ampoule is intact. This ampoule is the called the control ampoule. The machine is calibrated by the operator using a small thumbwheel so that the indicator needle rests at zero on the scale and a sensitive needle is aligned to dead centre on a small meter. The scale on the breathalyzer runs from zero to 400 milligrams percent (a reading at which practically everybody would be dead). The calibration is done by shining a light located inside the breathalyzer through both ampoules and onto a photo-electric cell. Both ampoules are taken from the same lot and, at the outset of the testing procedure, their colour is identical. When a test subject blows into the breathalyzer, his breath enters the intake cylinder and its pressure forces a piston upwards. This is done with the intake knob on the top of the breathalyzer turned to the "Take" position and a green light illuminated. When the piston has reached the
top of the cylinder, the green light goes out and a red indicator light comes on to show that the cylinder is full. At this point, the operator turns the intake knob to the "Analyze" position. This action closes the breathalyzer intake valve and simultaneously opens a valve leading to the hose that runs into the test ampoule. The piston drops within the cylinder and forces the suspect's breath out through the valve, along the hose and into the test ampoule. The full breath of deep-lung air is allowed to bubble through the solution of Potassium Dichromate in the test ampoule. The process is timed. A minimum of 90 seconds should be allowed to elapse to ensure that the cylinder is completely emptied. The operator then switches on the light inside the breathalyzer. If there was any alcohol in the suspect's blood, there will be a proportionate amount in his breath. Alcohol in the breath has the effect of leaching the colour out of the Potassium Dichromate solution by causing a chemical reaction as it bubbles through. The amount of colour loss is in direct proportion to the alcohol content of the breath. The colour loss is measured when the breathalyzer light comes on. The photo-electric cell measures the disparity between the amount of light passing through the test ampoule and that passing through the control ampoule. The more leached out the test ampoule is by alcohol, the greater the disparity will be because more light will pass through. The disparity measured by the photo-electric cell is recorded on the small meter by the degree to which the needle has been thrown off centre. The operator uses the thumbwheel to re-centre the needle. As he does so, the indicator needle of the breathalyzer creeps up the scale.
When the needle has been re-centred, the reading on the breathalyzer scale represents the suspect's blood alcohol content in milligrams percent (i.e. The number milligrams of alcohol in one hundred millilitres of blood).

To ensure that the breathalyzer is working correctly before it is used to test a suspect's breath, a test called the standard alcohol solution test is performed by the operator. The test is conducted using a solution containing a pre-determined percentage of alcohol. This is called the "standard alcohol solution" and should not be confused with the alcohol standard. The latter is the Potassium Dichromate solution discussed above. Air is pumped over top of the standard alcohol solution by the operator using a hand-held rubber bulb and into the intake hose of the breathalyzer. This technique simulates what happens when a human being with alcohol in his blood stream blows into the machine. Depending on the ambient temperature, the breathalyzer should give a certain reading as a result of being tested against the standard alcohol solution. If the expected reading is obtained, the operator can be sure that the machine is working properly.

Clause(A) has not yet been proclaimed in force. It contains provisions for the accused to be given a specimen of his own breath in an approved container. The idea behind the clause is that a suspect should be given the opportunity of getting an independent analysis of his breath done as a safeguard. So far, nobody has been able to come up with a suitable "approved container", therefore, the clause has not come into force.
The requirement that the accused be provided with a copy of the certificate of analyses is set out in Section 258(7) which reads as follows.

"(7) No certificate shall be received in evidence pursuant to paragraph (1)(e), (f), (g), (h) or (i) unless the party intending to produce it has, before the trial, given to the other party reasonable notice of his intention and a copy of the certificate."

Only paragraph (1)(g) applies to the certificate of analyses prepared by the breathalyzer operator.

The document itself is a printed form that uses standard wording that has been drafted to satisfy all the requirements of the Code. All that the breathalyzer operator has to do is to fill in the blanks with information relating to the particular case, such as the name of the person tested, the date, the precise times of each test, and so on. The bottom portion of the same document embodies a Notice of Intention to produce the certificate. The certificate of analyses is filled out and signed by the breathalyzer operator. The Notice of Intention is filled out and signed by the person who serves a copy of the document on the accused, usually the investigating officer.

Because it is such a crucial piece of evidence, the certificate has been challenged in every imaginable way. However, generally the speaking, the challenges fall into two categories. They either relate to alleged defects in the certificate itself or to inadequacies of service and notice. I lump service and notice together because they are part of the same process.
Figure 39 shows IDA's Certificate of Analyses module. IDA does not deal with possible defects in the actual contents of the certificate. The reason is that most of the certificate is pre-printed. The operator fills in a relatively small amount of information in each case. Since the procedure is so simple, the chances of a mistake being made are pretty remote. However, the defence should examine the certificate carefully because when a mistake is made it is usually fatal. The approach to adopt in dealing with the contents of the certificate is to challenge its validity even on the basis of the most minute inaccuracy. Generally speaking, the courts will exclude a certificate that contains even the slightest flaw. Most judges take the view that, because the certificate is an exceptional method of proof, the crown must comply strictly with the statutory requirements in order to be entitled to take advantage of the shortcut it affords. Even minor typographical errors will not be tolerated. The module could easily be adapted to include what would be a very concise component dealing with the question of defects. Appendix 4 shows a copy of the certificate of analyses. It has the rather long-winded title, "Certificate of a Qualified Technician Who Took Samples of Breath". The title is symptomatic of the nitpicking flavour of this area of law.

Figure 39 deals with the issue of what constitutes proper service of the certificate of analyses on the accused. The requirement under Section 258(7) that reasonable notice be given of the crown's intention to produce the certificate is not dealt with in the module. Notice is hardly ever a problem because it is
Structure of the CERTIFICATE OF ANALYSES Module of IDA

Figure 39
standard procedure to serve a copy of the certificate on the accused right after the breathalyzer testing has been completed. Notice problems would only crop up on the rare occasions when, for some reason, that did not happen. In fact, I myself have never encountered any.

If the accused were given a copy of the certificate in the courthouse corridor just before trial, or even a day or two beforehand, notice would become an issue; but not otherwise. The reason for the belated service would probably not be a simple failure to give the accused a copy of the certificate in the first place. The service of the certificate is such an integral part of the whole breathalyzer testing routine that it is unlikely to get overlooked. The short notice is much more likely to happen as a result of an attempt to cure a defect in the original certificate before trial. If the police or the crown happened to notice that the original certificate was flawed, the way to remedy the situation would be to prepare a new certificate and serve a copy of it on the accused. However, short notice would only be an issue if the defect came to light with a matter of days to spare. In reality, such a thing is not likely to happen. There are so many impaired cases in the works at any given moment that an individual file does not get pulled until the day of trial, or the day before at the earliest. Busy prosecutors do not have enough preparation time at their disposal to be able afford to spend much on a common or garden variety impaired case. By the time they discovered the mistake in the certificate, it would be too late to re-serve the accused with a
copy of an amended certificate and at the same time comply with the reasonable notice provision. Knowing full well that the notice would be inadequate, the crown would not even bother doing such a thing. The only viable last minute patch-up job would be to write off the certificate completely as a means of proof and to call the breathalyzer operator to give evidence instead. If the operator were not available to testify, the crown could attempt to salvage its case by applying for an adjournment. The chances of an adjournment being granted because of a slip-up on the part of the prosecution would not be good. From a tactical point of view, perhaps the best way to proceed without the breathalyzer operator might be to go ahead and serve the accused with a copy of the amended certificate right before trial anyway. The crown would proceed with the trial and leave it up to the defence object to the admissibility of the certificate when an attempt was made to enter it as evidence. The response to the defence objection would be to suggest that an adjournment rather than the exclusion of the certificate should be the means of remedying any prejudice caused by short notice. If the adjournment were refused, the over 08 count would fail, but the crown might still succeed on the impaired driving charge.

The scenario I have outlined above is somewhat fanciful. In all likelihood, a defect in the certificate would either be discovered in plenty of time for it to be fixed or right before court when it would be too late to do anything about it. The case would proceed as scheduled and the original certificate would stand or fall on its own merits. The issue of reasonable
notice would never arise. In fact, the time when a mistake in a certificate is most likely to be discovered is during charge approval. The police are in the habit of attaching a photocopy of the original certificate to their report to crown counsel. If an alert crown happens to notice that the certificate is flawed, the problem can easily be remedied at that point because any trial would be at least several months away. For all the reasons given above, reasonable notice is not a real issue.

The real issue in these cases is two-fold. Has there been

(a) proper service
(b) of a true copy

of the certificate of analyses on the accused? Both of these aspects are covered to some degree in Figure 39.

For there to have been proper service, the accused must have understood roughly speaking what the purpose of the certificate was. When the investigating officer gives the accused a copy, she tells him in plain language that the prosecution intends to use the original certificate as evidence if the case goes to trial. In substance, the oral explanation is simply a reiteration of the more formal wording of the Notice of Intention printed at the bottom of the certificate. The officer also asks the accused if he understands what she means. At trial, the officer tenders the original certificate as evidence. She will testify to having received the original and several copies directly from the breathalyzer operator after the tests were given. She will also testify that she compared the copies with
the original to ensure that they were identical, and then explain how she went about serving a copy on the accused.

If the evidence discloses that the accused was given a copy of the certificate and that he appeared to understand what it was all about, the crown will have proved *prima facie* that there was proper service. The crown evidence will stand unless the defence can produce credible evidence of its own that raises a doubt on the issue. Evidence that the accused was too drunk to know what was going on, or that his command of English was too poor for him to understand what the officer meant, is the kind of thing that would be required. However, raising a doubt on this score is likely to be an uphill struggle if the police evidence that the accused appeared to understand is unequivocal. Furthermore, if defence counsel is in possession of the copy of the certificate that was given to the accused, it hardly lies in his mouth to challenge the validity of service. The Notice of Intention portion of the certificate explains the purpose for which it will be used in language that no lawyer could fail to understand. Having been given a copy of the certificate by his client, the lawyer cannot disabuse his mind of what he has learned by examining it. A situation like this raises a delicate ethical problem. A lawyer cannot in good conscience build a defence on a foundation he knows to be false, any more than he could knowingly permit a witness to give false evidence. If he has come into possession of the certificate and knows full well what it means, he must advise the client of its significance. It is analagous
to a situation in which he himself has been served on behalf of the client. Service in that manner would be considered adequate.

The physical act of giving a copy of the certificate to the accused completes the business of service once the significance of the document has been explained. If the accused is released after this has been done, that ends the matter. However, if the police decide to detain the accused until he sobers up a bit before releasing him, the proof of service may be incomplete. When a person is detained in police custody, he is searched and all his possessions are taken from him and placed in safekeeping until he is released. If a copy of the certificate is given to the accused and then taken away from him almost immediately afterwards along with the rest of his possessions before he is locked up, that act of giving does not constitute meaningful service. It is somewhat like the so-called "hot potato" doctrine in drug possession cases. What happens is as follows. The police kick in the door of a premises in the execution of a search warrant and rush inside. A quick-witted person who has drugs in his possession tosses them to somebody else who instinctively catches them. Before the unlucky recipient has time to realize what has happened, the police grab him. He has been left holding the bag, so to speak. However, in law, he is no more in possession of the drugs than the accused was in possession of the certificate for the purposes of service. In order to prove proper service, the crown must show that the copy of the certificate was given back to the accused again and he was allowed to keep it when he was eventually released. I acted for
the crown on an appeal which the defence won on similar facts. In these kinds of cases, since the accused is intoxicated enough that the police feel it necessary to detain him, there might also be some doubt about whether he was capable of understanding the significance of the certificate when it was first given to him. Therefore, even though the crown proves that the certificate was returned to the accused, the adequacy of service could be challenged if there was not also evidence that the meaning of the certificate was explained to him after he had sobered up. In any event, as a general proposition, the defence should be aware that it may be possible to challenge the validity of service in cases where an accused was held in custody after the breathalyzer tests. The scenario I have described is depicted in Figure 39.

Apart from the issue of service, the main bone of contention with respect to the certificate of analyses is whether the document that the accused was given was a "copy" within the meaning of that term as used in Section 258(7). The breathalyzer operator usually makes an original and two copies of the certificate and then turns them all over to the investigating officer. In the early days of the breathalyzer legislation, the copies were made almost exclusively using carbon paper. However, in the last ten years or so, since photocopying machines have become widely available in police stations, the police have switched to using photocopies instead and carbon copies have become a rarity. The police prefer photocopies for obvious reasons. Interleaving carbon paper and lining the forms up so that everything on the copies comes through in exactly the same place as on the original
can be a tedious business. Furthermore, mistakes need to be laboriously erased with liquid paper on the original and leave unsightly smudges on the copies. It is much easier to type one original and then run off a couple of photocopies.

Unfortunately for the defence, the transition from carbon copies to photocopies has all but eliminated the chance of objecting to the admissibility of the certificate on the grounds that the accused was not served with a true copy. Courts are prepared to take judicial notice of the fact that photocopiers make identical copies. As long as the officer examined the photocopy and can testify that it was not blurred, blotchy or otherwise defective in a way that would render parts of it illegible, there is no way that the defence can argue that it was not a proper copy.

In the days of carbon, there was much more scope to challenge the accuracy of a copy for reasons that can easily be imagined. Information often did not come through clearly on the copy for a variety of reasons. Sometimes it was too faint. Sometimes the forms had slipped during typing and the information on the copy was in a different place than on the original, perhaps superimposed on a pre-printed part of the form making it very difficult to decipher. All these kinds of shortcomings were seized on by the defence and were almost always sufficient justification for excluding the original certificate.

The crown needs to present prima facie evidence that the copy of the certificate served upon the accused was good enough to meet
the requirements of Section 258(7). This evidence is given by
the investigating officer. She will describe how the copies were
made, that she compared the copy to be served on the accused with
the original and that she found it to be identical to the
original in every respect. Describing how the copies were made
can be dealt with briefly since the use of carbon paper and
photocopiers are the only options currently available. However,
even that must be nailed down tightly because, believe it or not,
something that simple could present a problem. In response to a
question from me about how the copy had been made, a French
Canadian RCMP officer once told the court that it had been
"carbonated", instantly evoking images of a fizzy drink and
drawing a smile from the bench. Of course, everyone knew full
well what was meant, but I had to clarify the expression because
it was technically meaningless.

In fact, as the reader will have gathered by now, doing impaired
driving cases has a tendency to make crown counsel painstaking to
the point of absurdity in the way they elicit evidence because
the tiniest details get seized upon by the defence in the hope
that a technical objection can be built around them. Whether or
not the intended meaning was obvious is neither here nor there.
Ordinary humans beings would have some difficulty imagining just
how wide the gap is between a common sense interpretation of the
evidence and what the courts deem to be legally sufficient. The
best example I can point to of the extreme unreality of legal
arguments is a case I heard about involving an offence under the
Motor Vehicle Act Regulations of having insufficient tire tread.
Everyone knows that this condition is called having bald tires. Indeed, in the case in point, the officer wrote "Bald Tires" on the traffic ticket as a description of the offence. The defence argued that the ticket was null and void because it did not describe an offence known to the law. A dictionary was produced to show the court that the word "bald" could only refer to something capable of growing hair. Therefore, strictly speaking, there could be no such thing as a bald tire. The judge bought the argument because the legal logic was irresistible. The defect might have been cured if the ticket had referred to the appropriate section of the regulations, but it did not. Legal arguments of this genre that leave normal people shaking their heads in disbelief crop up daily in impaired cases. They are the modern equivalent of the theological debates of the Middle Ages about how many angels can dance on the head of a pin.

The linguistic inventiveness of my French Canadian witness was an oddity. The method by which the copies of the certificate were made is not normally something controversial. Indeed, I cited the example precisely to show that potential legal arguments can be lurking in the most unexpected places. The crucial piece of evidence relates to the manner in which the copy of the certificate was compared to the original. A complete failure on the part of the officer to compare the copy with the original will usually prove fatal to the crown's case. There is case authority to the effect that, in some cases, an actual comparison is unnecessary. Those cases deal with certificates prepared using preassembled forms with carbon paper in between
them. It has been held that this method of preparing the certificate constitutes *prima facie* proof that the accused was given a proper copy. See, for example: *R. v. Bergstrom*¹³ and *R. v. Pederson.*¹⁴ However, I would be leery of relying on those cases. A good cross-examination can get enough evidence about the deficiencies of carbon copies out of the officer's mouth to raise a doubt on this issue.

Most police officers carefully compare the copy to the original before serving the copy on the accused. This is usually done by placing both documents side by side and examining them. The more meticulous officers lay a ruler across both documents and move it slowly downwards so that they can make a line-by-line comparison. This method endears them to crown counsel because it completely eliminates any argument about whether the copy was identical to the original. For a while, some officers adopted the habit of placing the original on top of the copy and holding both up to a strong light. Having scanned the original, they would testify that everything on the original coincided exactly with what was on the copy underneath and that both documents were therefore identical. However, this technique was discontinued when a defence lawyer pointed out that its underlying logic was faulty. The method only works to show when something is out of place on the copy or when there is something on the copy that is not on the original. If certain information is on the original document, but missing entirely from the copy, that fact will go unnoticed because the omission will be masked by the characters
on the overlaid original. Consequently, that method of comparison has fallen out of favour.

Once the crown has presented *prima facie* proof that the copy of the certificate was identical to the original, that evidence will stand unless the defence can successfully raise a doubt about its validity. In order to do so, the defence will have to show that there was some significant difference between the original and the copy. As a matter of procedure, the defence introduces the copy of the certificate as evidence during the cross-examination of the investigating officer. The officer is able to identify the copy as the one that she served on the accused by her signature at the bottom of the Notice of Intention portion. Once the copy has become an exhibit in the trial, the discrepancies between it and the original certificate can be pointed out to the court as questions of fact during argument on the defence motion to exclude the original certificate. In anticipation of making an objection to its formal admissibility, the defence will request that the original certificate simply be marked for identification purposes when it is first tendered as evidence by the investigating officer. The court will always comply with such a request. Marking an exhibit for identification purposes has the effect of holding it in abeyance from an evidentiary standpoint. The original certificate will be elevated to the status of a full exhibit and become evidence on the trial only if the defence objection fails and the court rules that it is admissible.
Figure 39 shows the various ways discussed above in which the defence can challenge the copy of the certificate. In the jargon of the trade, this is referred to as arguing that the copy was not "a true copy". It is certainly worth putting the copy under a microscope to make sure that there is not the minutest difference between it and the original. However, it is not that common nowadays to come across a defective copy because most of them are photocopies. The logical next step for the police to take would be to store the pre-printed form electronically on a computer. The breathalyzer operator would simply fill in the blanks on the screen and ensure that the document was absolutely accurate before printing as many "copies" as needed. In fact, in those circumstances, all the so-called copies would be duplicate originals. The question whether the document served on the accused was a true copy would then become a dead issue.

We shall now move on to look at IDA's final module.

8.2.9 Delays

Considerable discussion has already been devoted to statutory presumption that depends on the 2-hour period within which the first breath sample must be taken, and the mandatory interval of at least fifteen minutes that must be allowed to elapse between the taking of each sample. However, both these specific time limits are subject to the overriding statutory requirement set out in Section 258(1)(c)(ii) that each sample must be taken
"as soon as practicable after the time when the offence was alleged to have been committed..."

In other words, even though the first sample was taken well within the 2-hour period, if the defence can show that the sample could reasonably have been taken sooner, the presumption will be lost because of the unnecessary delay. The 2-hour period represents the absolute limit. Within that limit, the testing procedure must always be carried out as expeditiously as possible. An unreasonable delay at any point up to the taking of the final sample can constitute non-compliance with this fundamental time proviso. For example, the presumption can be lost not only because the period of time that elapsed between the taking of samples was too short, but also because it was too long. Time truly is of the essence in every impaired driving investigation.

Figure 40 shows IDA's Delays module. The module gives an overall picture of the investigation. As I mentioned at the outset, the Delays module must logically come last because, when deciding whether there have been any significant delays, all the accused's dealings with the police have to be examined retrospectively. The investigation has been broken down into three components: At Scene, En Route to Police Station and At Police Station. Its division into these parts is based on my own experience of how police officers and lawyers break it down in their own minds, at least when considering the question of delays. My practice was to ask police witnesses separate questions about whether there had been any delay at each of these junctures. In fact, it was necessary to go much further than that. In order to preclude any
Structure of the DELAYS Module of IDA

Figure 40
argument on the issue, virtually every minute of elapsed time had to be painstakingly accounted for. The investigating officer's evidence would include a rather tedious enumeration of the specific times at which certain important things had happened. The typical list of times would include the following milestones: arrived at the scene, left the scene, arrived at the police station, allowed the accused to telephone a lawyer, accused finished talking to his lawyer, accused presented to the breathalyzer operator, first sample taken, and second sample taken. Periods of time as short as five minutes were considered significant. In fact, the basic defence tactic is to perform a kind of time audit and to pounce on any unexplained lapse of time as a ground for arguing that there was an undue delay.

In effect, the guiding principle that the police must follow when conducting an impaired driving investigation is that everything else must take second place to getting on with the breathalyzer testing. If the defence can show that a particular delay was not really necessary, they will have established that the breath samples were not taken as soon as practicable. Figure 40 does not pretend to be an exhaustive inventory of the various ways in which an unnecessary delay can occur. It simply shows some common reasons for delay during the three different phases of the investigation.

The one unacceptable cause for delay that is specifically covered in the At Scene component of Figure 40 is a motor vehicle accident. It is an accident that could have been handled by
another police officer, thereby freeing-up the investigator to get on with the testing process. The example, drawn from my own experience as defence counsel, illustrates how conflicts can arise between the stringent requirements of the Criminal Code and other considerations, in this instance, the administrative priorities of the police. My client had struck and injured a pedestrian who had been walking along the gravel shoulder of the road. There were a number of extenuating circumstances: the victim was wearing dark clothing; the road was narrow and unlit; it was nighttime and raining heavily; the victim was struck a glancing blow on the shoulder by an oversized wing mirror that was protruding from side of the accused's pick-up truck.

Nevertheless, the investigating officer, who was the first police officer to arrive on the scene, noticed that the accused had been drinking. He attended to the victim and called an ambulance. Several other police officers arrived within minutes to render assistance. At that point, the investigating officer turned his attention to the accused. After talking to the accused and administering sobriety tests, the officer made a breathalyzer demand and placed the accused in the back of his police car. At that point, he should have departed forthwith en route to the police station. Had he done so, there would have been no problem. Unfortunately, none of the other police officers wanted to deal with the accident investigation. In other words, to take measurements, draw diagrams, interview witnesses and call a tow truck to remove the accused's vehicle. From their point of view, it was up to the investigator to handle the whole incident because he had been the first officer at the scene. They were
prepared to help, but they did not want to be burdened with the responsibility of having to handle the file and write up part of the police report. Their attitude was in accordance with standard police practice. The officer had no option but to bow to peer pressure and deal with the accident investigation before he left the scene. It took about twenty minutes. All the while, the accused was cooling his heels in the back of the patrol car.

I was able to show clearly in cross-examination that one of the other officers could have handled the accident investigation. The best the crown could argue was that the investigating officer had followed standard police procedure. That was not good enough for the court. The delay was found to be unreasonable, the presumption lost and the 08 case dismissed. The impaired charge failed as well because there was no evidence of erratic driving.

Given the extenuating circumstances described above, it was understandable that an accident had happened. The case graphically illustrates how the breath testing must be given priority wherever possible. If the investigating officer had been the only police officer available to deal with the accident aspect of the case, the court's decision would certainly have been different. However, in the instant case, there was not a reasonable excuse for the delay.

Figure 40 gives a number of other examples of situations that would probably constitute unreasonable delays. Since the rest of the diagram is self-explanatory, I shall not enlarge on any of the other specific instances. The two key points to be remembered in this context are that
(a) all delays of more than a matter of minutes must be explained, and  
(b) the delay must be reasonable in the circumstances in order to be justifiable.

8.3 Implementing IDA

8.3.1 Knowledge Representation

In its present form, IDA is a rule-based system written, like NSA, in M.1. IDA also makes extensive use of M.1's pattern matching variables and the intermediate conclusions that are stored in the cache (i.e., Dynamic database). No useful purpose would be served by reiterating all that has already been said about M.1's features in the earlier section of this thesis that deals with NSA. The technical comments made in that context apply with equal force to IDA.

8.3.2 Design

Unlike the knowledge representation formalism, IDA's design is very different from NSA's. To recapitulate briefly, NSA has a chain-link structure. Each essential element of nervous shock is examined in turn. If all the elements are satisfied by the user's facts, the user is advised that the client has a good cause of action, cases are provided to support the outcome and the consultation terminates. If, at some point along the way, an essential element of the cause of action is found to be missing,
the user is told why the action fails, case authorities are given and the consultation ends. Either way, a consultation with NSA is a linear, step-by-step process. The user starts at the beginning and makes a single pass through the system. A user who wants to explore other options must go back to the beginning and start another consultation.

Unlike NSA, IDA has a cyclical control structure. The user is presented with an initial menu showing all of IDA's modules and invited to select one. The user can explore whichever module is of interest. After running through a mini-consultation in the module selected and being given text messages that point out potential weaknesses in the crown's case, the user is offered the option of exiting from the system or carrying on. The user who chooses to carry on is popped back to the main menu again and invited to select a module. The module selected can even be the same one that the user just finished exploring because the whole system is re-initialized each time the option to continue is selected. In effect, the user can jump around all over the place at will, revolving through IDA's various modules as often as is desired. The user is given the choice of exiting from the system every time a module has been investigated.

IDA's design clearly gives the user much more flexibility than NSA's. However, the differences between the two systems are basically a reflection of form following function. Putting together a cause of action is like building something with Lego. Each essential component has to be in place for the thing as a
whole to hang together. Thus NSA is an embodiment of the conceptual process that lawyers go through when they build a cause of action in the abstract. IDA's more open-ended design is in keeping with the open-minded attitude that a defence lawyer must bring to bear when examining a criminal case. All possible defences should be explored. No option, no matter how tentative should be discounted out of hand. In a sense, NSA and IDA represent polar opposite ways of looking at a case: construction versus deconstruction. IDA's built-in defence perspective is deconstructive and probes for weaknesses. It tries to find a brick to pull out that will bring the whole edifice tumbling down. That is exactly what defence lawyers do. Although NSA's domain is in the realm of civil law, its plaintiff-oriented perspective can be equated with that of a prosecutor in a criminal case. The prosecutor's task is constructive. Taking all the essential elements, the prosecutor tries to build a case that is solid enough to withstand the onslaughts of the defence. The fundamental differences in the design of NSA and IDA capture the split between the mind-sets of plaintiff/prosecutor and defendant/defence counsel.

8.3.3 Technical Details

From a technical point of view, the guts of IDA is the code that runs the cyclical control mechanism. This code comprises rules 1 to 5 shown in Figure 41 and is rather terse because it uses recursion. The recursion kicks in only if the user elects to
The numbers in square brackets show the sequence in which the premises of IDA's control rules are tested on a single pass through the rule base. The second number in brackets beside some premises indicates the point in the sequence at which the inference engine returns to that premise after backchaining through other rules. The sets of rules that are backchained through after number [11] have been omitted. The set depends on the selection made by the user. One of those set of rules is shown in Figure 42.
cycle through more than one module. For the sake of clarity, the basic functioning of the code will be examined first using a non-recursive example where only one pass is made through the system before exiting. Once this has been done, the description of how things work will be picked up from the point where a user decides to carry on with a consultation after looking at one module and recursion is used. In order to make the explanation that follows easier to understand, the reader should pay careful attention to the diagram to make sure that the procedure is understood at each step of the way.

IDA's overall goal is to prove the conclusion "the-consultation-is-over". The backchaining process starts when the inference engine discovers that the conclusion of rule-004 matches its goal. The starting point is indicated by the number 1 in square brackets on the right-hand side of the clause. This numbering system is used to make it easy to trace the backchaining as it unravels. The first two premises of rule-004 that IDA seeks to prove are routine. They are respectively an introductory message and a delay loop designed to stop the message from scrolling off the screen before the user has finished reading it. The delay loop is implemented using an external function written in C that times the delay using the computer's internal clock.

The premise numbered [4], "cycle-1-is-complete", is what really gets the ball rolling. In its sequential top-to-bottom scanning of the rulebase, the first applicable rule that IDA finds with such a premise as its conclusion is rule-001. The rule contains
the pattern-matching variable "N" in its conclusion and its two premises. The premise of rule-004 that IDA is trying to prove unifies with the conclusion of rule-001 so that the expression "then cycle-N-is-complete" becomes "then cycle-1-is-complete". Once unification has taken place, all the other instances of the variable "N" in rule-001 are bound to "1". The scope of variables in M.1. is local to each rule. There are no global variables.

The next thing IDA does is to backchain and attempt to prove the first premise of rule-001, "if the-defence-for-cycle-1 is known". The expression "is known" is satisfied if any positive value can be established for the clause it qualifies. IDA scans the rulebase in its efforts to prove the premise and comes across the conclusion of rule-005. The expression "the-defence-for-cycle-1" unifies with "the-defence-for-cycle-N". However, the tail end of the conclusion, "= SELECTION", is left unaltered. "SELECTION" remains an uninstantiated variable at this point. Incidentally, M.1. treats upper case characters as variables, regardless of whether one or more letters are used.

The backchainer then jumps to the first premise of rule-005 and carries out the "do(reset)" command which clears the cache (ie. Dynamic database) of any intermediate conclusions it might contain. The cache-clearing function becomes important only when multiple modules are explored because it permits the same module to be examined over and over again with new data. After clearing the cache, IDA seeks a value for the expression "selection". The
value obtained represents the choice the user makes from the list of modules presented in IDA's main menu. In the premise numbered [10], the short form of the name of the module selected is bound to the variable "SELECTION". Once this has happened, the binding takes effect throughout the whole of rule-005. Assuming, for the sake of argument, that the user selected "control" from the list of options, the conclusion of rule-005 which IDA seeks to prove is "then the-defence-for-cycle-1 = control". In order for that conclusion to succeed, IDA must prove the final premise of rule-005. The variable prefix of the expression "SELECTION-defences-checked" has been instantiated with the value "control" so that the premise to be proved now reads "control-defences-checked".

The attempt to prove "control-defences-checked" triggers a whole set of rules that govern the operation of IDA's Control of Vehicle module. Rule-005 is written in such a way that the one rule is capable of handling any choice the user might make. The syntax used in the sets of rules that apply to different modules has been standardized. All that varies from one set of rules to another are the prefix labels corresponding to the abbreviated module names. Thus, continuing with the assumption that the user selected "control", any conclusion that IDA might come to about a possible defence within the Control of Vehicle module would be described as "then control-event = [some value]". I use the square brackets here simply to avoid specifying a particular value. Similarly, if the Physical Symptoms module were to be selected, possible defences would be represented as "then physical-event = [some value]". All these event conclusions are
defined as multivalued so that single-valued cut-off will not be triggered; in other words, so that the inference engine will seek all possible values for "X-event" and not terminate its search when one value for that expression has been ascertained with 100% certainty.

The use of a similar format to write each set of rules also cuts down on the amount of code needed to handle the messages that alert the user to possible defences. In fact, IDA uses a single rule containing pattern-matching variables to perform all its messaging functions. Figure 42 shows the general-purpose messaging rule and the high-level rules that run the Control of Vehicle module. The high-level rules for all the modules follow the same format.

Continuing with our example, once "control-defences-checked" has been proved, rule-005 succeeds because all its premises have been satisfied. The successful conclusion of rule-005, "then the-defence-for-cycle-1 = control", satisfies the first premise of rule-001 which is what invoked rule-005 in the first place. The premise is proved because a value has been found for the expression "the-defence-for-cycle-1". IDA attempts to prove the next premise numbered [15], "user-happy-with-defence-1", by simply asking the user whether she wants to quit. If a user answers affirmatively after looking at only the one module, that premise is proved true and rule-001 succeeds. Premise [15] is the fork in the road. As we shall see shortly, it is when the user decides not to quit after one pass and rule-001 fails that a
control-rule-032: if control-event is sought and
control-message-displayed
   then control-looked-at.

control-rule-033: if display([nl,nl,
         1. CARE OR CONTROL.‘,nl,nl,
         'The first set of questions are designed to determine whether the accused
         exercised a legally sufficient degree of control over the motor
         vehicle.‘,nl,nl])
   then control-introduction.

control-rule-034: if control-introduction and
control-looked-at
   then control-defences-checked. [*]

nocache(control-message-displayed).
multivalued(X-message-displayed).
X-message-rule-001: if X-event = EVENT and
   X-description(EVENT) = DESCRIPTION
   and
   display(DESCRIPTION)
   then X-message-displayed.

nocache(control-description(X)).
multivalued(control-description).
control-description(strong-case) = [nl,nl,
         'The evidence of care or control is overwhelming.‘,nl,nl].

Figure 42 shows IDA's general-purpose messaging rule and the
high-level rules that run the Control of Vehicle module. None of
the many rules that draw conclusions about a specific control-
event are shown. A single control-description is excerpted from
the table that contains those descriptions in order to
demonstrate the format. The backchaining begins at the point
indicated by the asterisk in square brackets and is easy to
follow. The jumping-off point that leads there from the main set
of control rules is numbered [11] in Figure 41.
recursive process begins.

Once a user has elected not to proceed, the consultation terminates. The conclusion of rule-001, "then cycle-1-is-complete", satisfies the key third premise of rule-004. It will be remembered that that premise was the starting point at which IDA began to backchain from one rule to another. Having returned successfully to square one, so to speak, all that remains for IDA to do in order to satisfy its primary goal, "the consultation-is-over", is to display the farewell message shown in the premise numbered [18]. When this has been done, rule-004 succeeds and execution ends.

The foregoing description explains how IDA handles a situation where, after looking at only one module, the user decides to quit. It is now time to elaborate on that description and explain how the code works when a user wishes to look at a number of different modules during the course of a single consultation. As noted previously, the fork in the road is the second premise of rule-001 numbered [15]. Figure 43 traces the route that IDA takes when the user elects not to quit. If this happens, premise [15] is not proved true and so rule-001 fails. At this point IDA continues in its attempt to prove the key third premise of rule-004, "cycle-1-is-complete". The first rule the inference engine encounters after rule-001 fails that might serve its purposes is rule-002. The conclusion of rule-002, "then cycle-M-is-complete" unifies with IDA's intermediate goal, "cycle-1-is-complete". Since the binding of the integer "1" to
Figure 43 shows how IDA handles multiple cycles through the rule base. The numbers in square brackets show the sequence in which the premises of IDA's control rules are tested on the first pass. The numbers in round brackets show the sequence that is followed on subsequent passes once the fork in the road is encountered at [15] and the user opts not to quit. In order to avoid obscuring the picture by cluttering up the diagram with a jumble of numbers, the flow of execution is traced only to the the point where "N" has acquired the value 3 at [40] and the third cycle is about to begin. Once again, the sets of rules that are tested at branch points [11] and (29) are not shown. The recursion works because rule-002 never actually fails. When rule-001 fails, the inference engine drops down and tries to prove the conclusion of rule-002 because it matches the pattern of rule-001's conclusion. The prior unresolved conclusions of rule-002 are held in abeyance until rule-001 finally succeeds and the recursion unwinds.

rule-001: if the-defence-for-cycle-N is known and[6][14](24)(32)
  user-happy-with-defence-N [15](33)
  then cycle-N-is-complete. [5](23)(40) etc. when N = 3

rule-002: if nextcycle-to-M = N and (17)(21)(35)
  cycle-N-is-complete (22)(39)
  then cycle-M-is-complete. (16)(34)

rule-003: if M + 1 = N (19)(37)
  then nextcycle-to-M = N. (18)(20)(36)(38)

rule-004: if general-introduction and [2]
  delay-loop and [3]
  cycle-1-is-complete and [4]
  display([nl,nl,
  'OK. Thanks for consulting IDA. And remember, let''s not drink and drive, eh!'],nl))
  then the-consultation-is-over. [1]

rule-005: if do(reset) and [8](26)
  selection is sought and [9](27)
  selection = SELECTION and [10](28)
  SELECTION-defences-checked [11][12](29)(30)
  then the-defence-for-cycle-N = SELECTION. [7][13](25)(31)
the variable "M" takes effect throughout rule-002, the first premise, "if nextcycle-to-M = N", now reads "if nextcycle-to-1 = N". At this stage, the variable "N" remains unbound. However, the fact that "N" is unbound does not prevent IDA from attempting to prove the premise.

In its attempt to prove the first premise of rule-002, IDA comes across the conclusion of rule-003. The expression IDA is seeking to prove, "nextcycle-to-1 = N" unifies with rule-003's conclusion, "then nextcycle-to-M = N". Since the scope of variables in M.1. is local to each rule, the variable "M" in rule-003 does not acquire the value "1" until it unifies with the premise of rule-002 that is bound to that value. When this happens, "M" is bound to "1" throughout the rule, but the variable "N" continues to remain unbound. "N" gets a value when IDA attempts to prove the first and only premise of rule-003, "if M + 1 = N", which now reads "if 1 + 1 = N". Since "N" is on the right-hand side of a computable expression, it acquires the value of that expression which, in this case, happens to be "2". The completion of the computation proves the premise. Therefore, rule-003 succeeds with "N" being bound to "2" in its conclusion. The successful conclusion of rule-003 satisfies the first premise of rule-002 with "N" being bound to "2" in that premise as well as in the next premise numbered (22). IDA tries to prove the latter premise next.

In its attempt to prove the expression "cycle-2-is-complete", IDA cycles through the rulebase until it finds the conclusion of
rule-001, "then cycle-N-is-complete", which unifies with the former expression so that "N" takes on the value "2". IDA then backchains and tries to prove the first premise of rule-001, "if the-defence-for-cycle-2 is known". At this point, IDA has come full circle. The whole process of seeking defences that was painstakingly described previously begins all over again when rule-001 is reactivated. The first premise of rule-001 sends IDA to the conclusion of rule-005, the cache is cleared, another selection is made from the main menu and the contents of the module are explored by the user. Once the possible defences disclosed by the facts inputted by the user have been displayed, the fork in the road is encountered when IDA again seeks to prove the second premise of rule-001 numbered (33) which this time around reads "user-happy-with-defence-2" (italics added here to emphasize the change). Let us assume, for the sake of argument, that the user gives another negative answer and that rule-001 fails for a second time.

When rule-001 fails again, IDA looks for an alternative way of proving its conclusion which this time around becomes "then cycle-2-is-complete". The recursion starts when IDA comes across rule-002 for the second time. In its first attempt to prove rule-002, IDA unified its conclusion "then-cycle-M-is-complete" to the expression "then-cycle-1-is-complete". In order to understand the recursive process, it is important to realize that the first attempt to prove the rule's conclusion did not fail, it simply did not succeed with the available data. The difference between positive failure and failure to succeed with the
information at hand is what explains recursion. In effect, rule-001 re-invokes itself with different values. The first conclusion of rule-001 is held in abeyance and IDA goes on to attempt to prove the rule again with the variable "M" being bound to the value "2". Rule-003 is triggered again and this time around "N" gets a value of 3 because "M +1 = N" and 2 + 1 = 3. IDA's intermediate goal is now to prove "cycle-3-is-complete". The conclusion of rule-001 unifies with the latter expression and the whole business of cache clearing, menu selection and seeking defences begins over again.

Every time the fork in the road at the second premise of rule-001 is reached and the user elects not to quit, the value of "N" gets incremented by 1 and the unresolved conclusions of rule-002 are placed on a stack. Let us assume that, after the 4th pass, the user elects to quit. Rule-001 finally succeeds because "user-happy-with-defence-4" is proved and the conclusion "then cycle-4-is-complete" becomes true. Rule-002 also succeeds for the first time because the conclusion of rule-001 was triggered in the first place by backchaining from the second and final premise of the current version of rule-002, "cycle-4-is-complete". Rule-002's conclusion is "then cycle-3-is-complete". The number associated with "cycle" in the rule's conclusion is always one less than that associated with "cycle" is its second premise. The reason for the difference is that the conclusion "cycle" number is bound to "M" and premise "cycle" number is bound to "N". You will recall that the value of "N" is arrived at by adding 1 to "M" in rule-003.
Once the termination condition described above has been fulfilled and the conclusion of rule-002 has succeeded for the first time, the recursion unwinds and all the preceding conclusions become true in turn. After succeeding because "cycle-3-is-complete", rule-002 succeeds again because "cycle-2-is-complete" and finally because "cycle-1-is-complete". When the conclusion "cycle-1-is-complete" is reached, the key third premise of rule-004 is proved and execution terminates after the farewell message is displayed.

The cyclical control mechanism works in the same fashion for any number of passes through the system in excess of 1. When the user decides to quit after completing only one pass, termination occurs because rule-001 succeeds while the value of "N" is still set at 1 and the rule's conclusion is "then cycle-1-is-complete". In that case, the key third premise of rule-004 is proved by satisfying the conclusion of rule-001 rather than the conclusion of rule-002. As soon as rule-001 fails even once, rule-002 is invoked and thereafter termination is always brought about by satisfying its conclusion.

Appendix 5 shows a detailed sample consultation with IDA.

1 Alfred Hitchcock, dir., North by Northwest, with Gary Grant and Eva Marie Saint, MGM/UA, 1959.


12 Supra, Ch. 7, note 8.


WAYS OF IMPROVING IDA

9.1 Conceptual Enhancements

9.1.1 Enlarging Existing Modules

Throughout the preceding section dealing with IDA's structure, ways were discussed in which the modules could be enhanced by adding components to them. It made more sense to talk about possible extensions to particular modules while dealing with the modules themselves so that the proposed changes could be related to the existing framework. Consequently, nothing need be added to what has already been said on this subject.

9.1.2 Adding Other Modules

I shall now look at how the system as a whole might be improved by the addition of several entirely new modules. Each new module will be considered in turn in the order in which it would fit into the present structure.
9.1.2.1 Breathalyzer Demand

The giving of the so-called breathalyzer demand (ie. demand for breath samples) represents a critical point in the impaired driving investigation. In fact, the subject was examined at some length towards the end of the Sobriety Tests module because it is impossible to give an accurate picture of how the investigation unfolds without showing where the demand fits in. The Breathalyzer Demand module would deal with two main issues. (a) the grounds on which the demand was based, and (b) the form of the demand itself.

Knowing about the demand is important not only for the sake of completeness, but also because a faulty demand provides a defence to a charge of refusal. If the demand was not proper, the refusal to give breath samples was not unlawful.

9.1.2.2 Refusal to Provide Breath Samples

The inclusion of the Refusal module would round out the typical trio of charges that get laid as a result of an impaired driving investigation; namely, impaired, over 08 and refusal. The module would deal with the circumstances of the refusal and relate them to possible defences. For example, if the accused refused because he was attempting to contact his lawyer and the police were pressing him to provide breath samples even though the time was well within the 2-hour limit, there could be a defence.
9.1.2.3 Blood/Alcohol Level Defences

These kinds of defences fall into a category of their own. Two of them were discussed earlier: the "last minute drink" defence and the "subsequent drink" defence. If they succeed, both destroy the presumption under Section 258(i)(c)(iv) by providing "evidence to the contrary". The factual basis for establishing these defences lies in the evidence of the accused's drinking pattern. That evidence must be credible in order for the defence to succeed. However, in addition, the defence needs to call an expert witness to interpret the significance of that pattern and extrapolate the accused's blood/alcohol reading back to the time of the driving. In effect, the expert will say that, assuming the accused's evidence is correct, his blood/alcohol level would have been below the .08 milligrams percent threshold at the time of the driving.

There is a third defence of this kind that I shall call the "straight evidence to the contrary" defence. This particular defence is much simpler than the others. In essence, the accused will testify that he had X number of drinks over a certain time period before the police stopped him. The expert will say that if the accused only consumed that amount of liquor, then he could not possibly have been over 08 at the time the breathalyzer tests were administered. In other words, if what the accused is saying is right, then the breathalyzer results must be wrong. The court has the option of accepting the evidence of the accused as constituting "evidence to the contrary". It really comes down to
a question of believing the person over the machine. By implication, the court finds that the breathalyzer was malfunctioning in some undetermined way, even though there is no other evidence to support this conclusion.

I have grave misgivings about this defence. In my estimation it is a legal fiction that gives judges an out when they would rather believe a man than a machine. There are obviously psychological factors at play here. Human beings find something repellent in letting a machine have the last word when it comes to deciding an issue. However, compelling social pressures are also part of the equation. In my experience, the defence is more likely to succeed when the accused is a man of some stature in the community who is able to muster a number of other upstanding citizens who corroborate his story. Acquitting the accused is more of a policy decision than anything else. The situation is reminiscent of the so-called prank defence to theft that used to be a way of excusing the antics of suspects of a similar social background in circumstances that fulfilled all the legal requirements of theft. The typical beneficiaries of this defence were university students and drunken businessmen kicking up their heels in a strange city. Even though the offence was clearly proved, the court could avail itself of the legal fiction that there was no animus furandi (i.e. evil intent) involved in the act. Logically this determination was nonsense. The doctrine was clearly a way of allowing the court to wriggle out of convicting the wrong sort of people. It fell into disuse when the discharge provisions were incorporated into the Criminal
These provisions allow a finding of guilt to be made without a conviction being entered in exceptional cases. In other words, the person given a discharge is deemed not to have been convicted. The very fact that the prank defence was abandoned as soon as a discharge became available is convincing proof of its underlying rationale.

The Blood/Alcohol Level Defences Module would need to incorporate a routine that would calculate the blood/alcohol level of an accused based on facts supplied by the user. In effect, the calculation routine would simulate what an expert witness does in such cases when given a hypothetical situation in court based on the accused's testimony. The routine might be challenging to implement, but in principle it is doable. The basic data required would be as follows.

(a) **The accused's weight.** The concentration of a given amount of alcohol in the blood depends on how much a person weighs. In other words, if two people of different weights consume the same quantity of alcohol the smaller person will have a higher blood/alcohol content.

(b) **The accused's sex.** Women have proportionately more body fat and less body water than men. Consequently, there is less water for the alcohol to dissolve in and a woman will therefore have a higher reading if given the same amount of liquor as a man of the same
weight.

(c) The accused's drinking pattern. A series of factors would be subsumed by this heading.

(i) What the accused drank. Different types of liquor have different alcohol contents.

(ii) How much the accused drank.

(iii) The times at which the accused started and finished drinking.

(iv) Exactly what the accused's last drink was and how fast he downed it.

(d) The exact time at which the accused was stopped by the police.

(e) The exact times of the breathalyzer tests.

(f) The breathalyzer readings.

Using the above data, the calculation routine would be able to work out what the accused's blood/alcohol content would have been at the time of driving. A reading that fell below .08 would give the accused an "evidence to the contrary" defence.
9.1.2.4 Previous Convictions

The Criminal Code imposes a mandatory gaol term on people convicted more than once of any one of the three drinking driving offences. The minimum punishments set out in Section 255 (1) are as follows.

"(i) for a first offence, to a fine of not less than three hundred dollars,
(ii) for a second offence, to imprisonment for not less than fourteen days, and
(iii) for each subsequent offence, to imprisonment for not less than ninety days;"

However, Section 665 (1) provides that, before a greater punishment can be imposed, the crown must serve notice on the accused of its intention to seek a greater punishment by reason of the previous conviction.

The Previous Convictions Module would deal with strategies that can be used to keep the accused out of gaol in cases where there has been a previous conviction. Avoiding the mandatory gaol term is sometimes the best outcome the defence can hope for. Negotiation may be the best approach. The crown will sometimes "drop the notice" in return for a guilty plea. This does not necessarily ensure that the accused will not be sent to gaol. However, it does unfetter the court's discretion and leave the matter open. If both the previous conviction and service of the notice to seek greater punishment are proved, the court has no option but to impose at least the minimum gaol term. Therefore, the module will also look at what the crown must do in order to prove these two things. A defect in the proof of either one of them might keep the accused out of gaol.
The worst case scenario is that the accused does get a gaol term. When this happens, he can lose his job as a result. The module will look at how this can be prevented by persuading the court to allow the accused to serve his sentence intermittently on weekends. The sympathy pitch for an intermittent sentence is a last-ditch effort to salvage something from the situation.

9.1.2.5 Blood Samples

I have left the question of blood samples until last because dealing with them would add a whole new dimension to IDA. As I mentioned earlier, the amendments to the Criminal Code that provide for the taking of blood samples were introduced in order to remedy an intolerable situation. Impaired drivers were getting off the hook in cases where they were injured because it was not feasible to give them breathalyzer tests. Drawing on my own experience, I described at some length just how untenable things were for the police before the new legislation was enacted. I also mentioned that I have no experience in dealing with the blood sample provisions because they came into force after I left practice. It would be necessary to rely on someone else's expertise in order to incorporate this new component into the system.

There is no doubt that the inclusion in IDA of an element dealing with blood samples would be invaluable for practical purposes. The taking of blood samples in an alternative method to the
breathalyzer of determining a suspect's blood/alcohol level. The Code contains a set of parallel provisions that govern when and how the procedure shall be carried out. In all likelihood, a number of different modules would need to be created in order to cover all aspects of this process. However, the addition of this new section would make IDA's coverage of the domain exhaustive.

9.2 Technical Enhancements

9.2.1 Case Database

The addition of a database of cases is the most obvious technical improvement that could be made to IDA. The cases would add the weight of judicial authority to some of IDA's advice as well as giving the user a broader view of the reality of the world of impaired driving through their fact patterns. However, there will not be a one-on-one correspondence between each piece of advice given and one or more reported cases. Much of the advice that IDA offers is of a general tactical nature and therefore not linked to the kind of specific issues on which cases are decided.

Nevertheless, there will be some instances in which the advice given is specific enough for it to be capable of being related to a case authority. In those instances, access to appropriate cases should be offered on a module-by-module basis. IDA covers so much territory that, unless this is done, it would be impossible to keep track of the issues that the cases refer to.
Quite apart from the confusion that would be caused by inundating a user with a whole slew of cases right at the end of a consultation, such an approach would also be technically incompatible with the design of the system. As I have already pointed out, the cache is re-initialized each time a user has finished navigating through a module, both to save memory and to allow the user to cycle through the same module again with different facts. It would be technically unworkable to try to keep track of all the different fact patterns until the end of the consultation and then to retrieve all the relevant cases at once.

### 9.2.2 Frames

A hybrid system that uses frames to represent the structure of the knowledge it contains is preferable to a system that relies on rules to do everything. In an entirely rule-based system, a structure has to be consciously imposed upon the rules by the designer. They have to be chunked up artificially in order to introduce an element of modularity into the system. Even then, the structure is not easy for someone who is not familiar with the system to pick out from the mass of rules. Frames, on the other hand, give the system a built-in, readily discernible structure. This object-oriented approach to knowledge representation clearly identifies the various components of the system and shows how they relate to one another. The role of
rules can be restricted to performing logical operations on the objects themselves.

A specific example will serve to illustrate the validity of the general comments made above about the virtues of frames as a means of representing knowledge. Figure 44 shows how IDA's Control of Vehicle module might be represented in a frame-based format. The name of the frame is Control. Its parent is called Investigation because the name conveys the idea that the frame itself is a constituent element of a greater entity which can best be conceptualized as an investigation. All of IDA's other modules can be thought of as different aspects (i.e. children) of this abstraction called Investigation. The Control frame has a number of named slots each of which has a value field. The different possible values the fields can take are listed in square brackets. These basic components are the standard object-attribute-value triplets that characterize any frame-based (i.e. object-oriented) system. Terminology may vary from system to system. For example, a frame may be called an object and its slots may be called properties. However, the basic notion of a set of related objects that have certain attributes and a place in a hierarchy remains the same.

The usefulness of frames becomes immediately obvious when one looks at Figure 44. A cursory examination of the frame is enough to reveal that the various elements that are critical to the issue of control stand out clearly. In contrast, sifting these same elements out of a hodgepodge of rules would not be easy.
Figure 44

<table>
<thead>
<tr>
<th>Frame: Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parent: Investigation</td>
</tr>
<tr>
<td>Slot: Vehicle_Status Value: [moving, stationary]</td>
</tr>
<tr>
<td>Slot: Vehicle_Occupants Value: [single, passenger(s)]</td>
</tr>
<tr>
<td>Slot: Vehicle_Owner Value: [driver, other]</td>
</tr>
<tr>
<td>Slot: Driver_Location Value: [inside, outside]</td>
</tr>
<tr>
<td>Slot: Driver_Position Value: [driver's seat, front seat, back seat]</td>
</tr>
<tr>
<td>Slot: Front_Seat_Type Value: [bench, bucket]</td>
</tr>
<tr>
<td>Slot: Console Value: [yes, no]</td>
</tr>
<tr>
<td>Slot: Visibility Value: [daylight, darkness, fog]</td>
</tr>
<tr>
<td>Slot: Switch_Possible Value: [yes, no]</td>
</tr>
<tr>
<td>Slot: Engine_Status Value: [on, off]</td>
</tr>
<tr>
<td>Slot: Keys_Location Value: [ignition, person, handy, unavailable]</td>
</tr>
<tr>
<td>Slot: Proof_of_Driving Value: [witness, admission, none]</td>
</tr>
<tr>
<td>Slot: Proof_of_Time Value: [witness, admission, none]</td>
</tr>
<tr>
<td>Slot: Proof_of_Identity Value: [witness, admission, none]</td>
</tr>
<tr>
<td>Slot: Warning_Given Value: [yes, no]</td>
</tr>
<tr>
<td>Slot: Road_Surface Value: [sloping, level]</td>
</tr>
</tbody>
</table>
The same observation holds true at a higher level of abstraction for the relationship of frames to one another. This relationship emerges from the intrinsic structure of frame-based systems. The structure that has to be created artificially in the form of a diagram like Figure 31 when one is dealing with rule-based systems is a built-in feature of the frame-based kind. In effect, the structure of object-oriented systems seems to resemble the kind of mind map that human beings tend to create of the components of a system.

Frame-based systems have other useful features such as inheritance and demons (i.e., pieces of code) that can be attached to slots and activated when the slot acquires a particular value. However, the structural clarity of these systems is their most valuable feature from the point of view of modelling knowledge.

The use of frames is definitely a way of improving the system from a technical point of view. However, while some knowledge representation formalisms are better than others for certain purposes, the formalism itself is no panacea. It is simply a vehicle, a placeholder for the substantive knowledge. What is of fundamental importance is the way in which knowledge is conceptually structured rather than the manner in which it is formally represented. Frames can make the structure easier to perceive. But if the structure is fundamentally flawed, they are not going to cure its defects.
CHAPTER 10

CONCLUSION

The main purpose of this thesis was to develop conceptual frameworks within which to structure legal knowledge so that it could be used to build KBS's. A number of lessons were learned from the research.

In the first place, there seems to be no all-purpose blueprint for developing a conceptual structure that lends itself to implementation as a KBS. The appropriate structure depends entirely on the nature of the domain. Furthermore, the form it takes depends in turn on hitting the right level of description at which to represent the domain knowledge. The level of generality that works will vary from one domain of law to another.

When grappling with the task of conceptually structuring legal knowledge, it is useful to view the law as a collection of stories about situations that have legal consequences.1 The challenge then becomes one of representing the part of this vast collection of stories that corresponds to the chosen domain of
law. The granularity of the components of the conceptual structure will be dictated by the variety of different storylines that are to be found within the domain.

The two domains of law dealt with in the thesis, impaired driving and nervous shock, illustrate the point made above. In impaired driving cases, the storylines have a lot in common. The differences they exhibit are little more than variations on a common theme. The domain lends itself naturally to a script-based form of conceptual structuring precisely because the cases are so stereotypical, right down to a fine level of detail.

In nervous shock cases, on the other hand, the types of stories one encounters can differ greatly. To be able to include them all, the conceptual structure must be described at a higher level of abstraction. It must rise above the differences in detail that one finds among the cases and be based on key elements that are common to them all.

Finding the right components for a conceptual structure is one thing; arranging them in a suitable order is another. Here again, the nature of the domain is the decisive factor.

When using a script-based approach, the obvious order to use is chronological. Scripts, after all, unfold in a certain fashion over time. Thus, the conceptual structure of impaired driving, hammered out as the basis for IDA, represents a progression across time from left to right. With chronological order as a
given, the principal task was to divide up the structure into separate chunks, each corresponding to a distinct phase in the investigation. The division I ultimately came up with was based on common sense and my own experience. It probably agrees fairly closely with how most experienced lawyers and police officers would tend to break down an investigation in their own minds if they gave some thought to the matter.

The one exception to the chronological ordering of the conceptual structure of impaired driving was the Delays module. It was placed last in time, at the far right, for a strictly logical reason. Unnecessary delays at any stage of investigation can affect the outcome of a case. The question of delay must therefore be considered retrospectively, once the entire investigation has been completed.

No strong imperative like chronology drove the ordering of the components of nervous shock's conceptual structure. The arrangement of the pieces was a design decision based on the following rationale. The diagram representing the conceptual structure is also read from left to right, although, in this instance, it does not represent the passage of time. Preliminary issues like intent, the identity of the victim(s), and the type of harm are dealt with first. The core issues of proximity of relationship and of exposure are placed front and centre, in the middle of the structure, in keeping with their importance. The generic issue of damages is handled last. The case retrieval module that follows damages in the diagrams is more of a
procedural step in the operation of the KBS than an integral part of the conceptual structure of nervous shock.

At one point, I did toy with the idea of putting the damages component of the conceptual structure at the front instead of at the end. This arrangement seemed to fit the design philosophy of NSA which was to terminate a consultation as soon as a defect was discovered in the case. The alternative of leading users laboriously through the rest of the consultation and then advising them belatedly of a fatal problem seemed intuitively wrong. The fundamental nature of the damages issue led me to consider this re-ordering. Without proper proof of damages, the case would fail. However, on second thoughts, I decided against the notion. I realized that, while the issue is critical, it is something that applies to all cases, not just nervous shock. Granted, there are peculiarities of proof when it comes to establishing damages in a nervous shock case. However, the damages component is not a unique part of the conceptual structure of the domain. That being the case, it seemed fitting to isolate it from the rest of the components and put it in last place. Putting damages right up front would have been a mistake.

A general point worth noting about developing conceptual structures is that they are more difficult to hammer out from scratch than they might seem to be. A lot of experimentation goes into finding the right components, ordering and labelling them. The effort involved is hard to appreciate because these structures tend to appear self-evident in retrospect.
Despite their differences, the two conceptual structures developed in this thesis share an important common feature. Both are rooted in detailed factual descriptions of their respective domains. The similarity reflects one of the fundamental arguments of the thesis; namely, that facts, properly categorized within a conceptual framework, are the only primitives that are clear and distinct enough to serve as the building blocks of a KBS in law. Common law concepts, like reasonable foreseeability in nervous shock, only acquire a crisp meaning from the fact patterns of the cases that interpret them. Statutory provisions, like those governing impaired driving, are somewhat more precise. However, they too are so broadly worded that they can only be used to resolve simple issues without needing cases to interpret them. We have seen that legal arguments boil down to a question of making factual comparisons between one set of circumstances and another. A KBS must be firmly grounded in a set of facts that, used in different combinations, can provide the raw material for constructing legal arguments.

The domain expert plays a key role in identifying the facts which should serve as the lowest-level components of the conceptual structure.

Professor Smith, of course, acted as the expert on nervous shock, while I was the knowledge engineer. The fact-finding method we employed was part of what Professor Smith called "deep-structure" analysis. This technique involved sifting through the body of cases in the domain in search of underlying patterns of
consistency that could explain their outcomes. The surface discourse is ignored because legal rhetoric can be misleading. What the cases actually do is more important than what they say they do. Professor Smith is a legal theorist, so the search for pattern was not random. It was guided by his conception of the ends that the law is trying to achieve in the domain. However, the corpus of cases was the sole authoritative source from which the relevant facts were derived.

In the domain of impaired driving, I played the role of both the knowledge engineer and the expert. Furthermore, the type of knowledge I used was practical rather than theoretical. It was an amalgam of law and procedure that had been drummed into me through constant repetition. The facts that went into creating the conceptual structure came out of my head instead of from law books. I walked through many different impaired driving scenarios in my mind. I used diagrams to map these out. I spent a lot of time juggling the pieces of these diagrams around in my efforts to eliminate overlap and integrate one scenario with another. Organizing the knowledge into a coherent whole was primarily an exercise in memory and imagination.

So much for the importance of using factual primitives as the substratum of a conceptual structure.

Let me now turn to another aspect of the process. I shall summarize what was learned from working as a knowledge engineer
(KE) with an expert, as compared to wearing both hats at the same time. The two experiences were rather different.

To begin with, I shall look at the situation with respect to nervous shock in which the roles were separated. Generally speaking, that arrangement made for an intellectually stimulating discussion that was an effective means of knowledge acquisition (KA). The dialogue also proved helpful in a number of specific ways. Since the KA process was not the focus of the thesis, I did not record the nuances of my dealings with the expert. However, I shall state the lessons that were learned incidentally in the form of generalizations.

Experts sometimes fail to articulate opinions they hold about their domains. The interaction with the KE forces them to make these opinions explicit. For example, on a number of occasions, it was obvious from following Professor Smith's line of thought that he was proceeding on an unstated assumption. A direct question confirmed this.

Experts seem to have a tendency to credit other people with knowing more about their subject than in fact they do. This may be because experts have been immersed in the topic for so long that they come to think that much of what they know is obvious. The KE is sometimes obliged to ask that things be spelled out in detail, even though the exercise may try the expert's patience.
The KA process is not just a one-way street that benefits only the KE. The discussions can help to clarify the expert's own knowledge of the subject as well. Experts, like other people, can be prone to compartmentalized thinking. This prevents them from seeing the relationship between one thing and another. For instance, initially, Professor Smith failed to see that cases of nervous shock in which the plaintiff was the only victim belonged in the conceptual structure. He overlooked them because he had mentally categorized them as "Thin skull" cases — cases in which the harmful effects are disproportionate to the wrongful act because of a victim's peculiar susceptibility.

Finally, the interaction between the expert and the KE has the salutary effect of keeping them both honest. Ideas that are floated by one person are subject to the other's scrutiny. With two minds at work, therefore, unsound ideas have a better chance of being detected before they can be acted upon.

Let us now consider the situation in which the roles of KE and expert are fused. The potential problems associated with this arrangement can be inferred from what was said above about the advantages of separating the two roles. One simply reverses the positive aspects of the other situation to get the downside of this one. The particular risks that the KE cum expert can fall prey to are lack of objectivity, specious ideas, blind spots and failure to fully articulate the domain knowledge. The lack of mental stimulation that comes from discussing the issues with another person is an overall drawback. Interacting with someone
else keeps things on track. The mind can tend to wander when one is working alone, immersed in one's own thoughts. Clearly, however, both the ability to work alone and attention span vary from individual to individual.

On the plus side, wearing two hats can be much more efficient. The progress of the KA process does not depend on gaining access to and spending time with a third-party expert.

However, any savings in time could turn out to be a false economy if the KE/expert fell into any of the traps that beset those engaged in a one-sided KA process. I believe that I was able to avoid those pitfalls. Thanks to my background, I could look at the domain of impaired driving from three different points of view: that of police officer, defence counsel and prosecutor. This multi-faceted perspective was rather like having two other people to keep me honest while I was considering the domain from the viewpoint of the third. Each persona's different slant on the subject contributed to the creation of a more complete, balanced picture. Without such an unusual advantage, it would probably have been more difficult to combine the roles of KE and expert.

An important side effect of conceptually structuring legal knowledge to build KBS's is that the exercise can provide some fresh insights into the nature of the law itself. Conventional legal analyses of the law are considered useful even though they often leave loose ends trailing. The commentaries one finds in
the literature are as open-ended as legal concepts themselves. The style in which they are written is discursive and fairly free form. Typically, they illustrate general principles by dissecting and comparing a selection of leading cases. Troublesome anomalies are certainly pointed out, but many questions are left open. These traditional sources of legal information, such as textbooks and journal articles, are a good first step for someone seeking a solution to a legal problem. They give a general idea of the state of the law in the area and, more importantly, are a source of relevant case references. However, the cases culled from the literature must usually be updated to take into account recent developments in the law. Then the researcher is still faced with the task of figuring out how all the cases fit together and affect one another.

We have seen that a conceptual structure created to build a KBS must be based on an exhaustive, in-depth analysis of the law in a domain. The process does not allow the same leeway that legal commentators have to focus on some issues of particular interest while side-stepping or glossing over others. However, its result is a more complete picture of the law that is easier to grasp and recall because it can be presented schematically. Words alone, the medium the law prefers, are not as memorable as a graphic image. If the basic structure of the domain can be visualized, it is easier to see where the different cases fit into the overall scheme of things.
One of the secondary aims of the thesis was to produce KBS's that lawyers might find practical and usable. Whether this aim was met is best judged by the reception given to the Nervous Shock Advisor (NSA) which, unlike Impaired Driving Advisor (IDA), was a fully implemented system. As described earlier in the thesis, NSA was given wide exposure in the legal community. The response with respect to the system's practicality and usability was overwhelmingly favourable. Thus, while no systematic survey was conducted, the evidence on these issues, such as it is, is positive.

Having said the foregoing, it must be acknowledged that the testing and validation of KBS's is a big subject in itself. Indeed, validating KBS's in the legal domain could prove especially difficult because it is not clear how to measure their accuracy. Comparing the outcome of a case to a KBS's predictions would give some indication. But that in itself would not be an adequate yardstick. Too many variables are at work in a case. For example, findings of fact, proof problems, and valid exercises of judicial discretion are all factors that can tip the balance one way or another.

The crux of the problem is that the answers to all but the tritest of legal questions are opinions, not definitive answers of the kind that the sciences provide. Some opinions are obviously better than others. But they remain opinions, nonetheless, which by their very nature are open to argument and could be wrong. That being the case, the most realistic standard
by which to judge a KBS in a domain of law is its effectiveness at providing lawyers with the material they need to make legal arguments. The output of the KBS should not be regarded as the finished product. Rather, it is a good first cut. It supplies the material from which a finished product can be put together with the exercise of a little creativity.

The introduction of KBS's into the practice law raises a number of issues. For example, how will they affect legal decision-making? Although KBS's may not give final answers, they have the potential to take some of the drudgery out of legal research by narrowing the search very quickly to a manageable amount of relevant material. In this respect, KBS's could improve upon existing database systems like QUICKLAW or LEXIS, which tend to give the user either too much or too little material, depending on whether the search terms are linked by expansive ORs or restrictive ANDs.

A general concern that has been raised about KBS's is that users may be too willing to accept the system's output uncritically and fail to exercise their own independent judgment. The risk of such a thing happening is obviously greatest in domains where the answer that a KBS gives is precise enough to be acted upon immediately. For example, some system might conceivably produce inaccurate numerical data which represents a particular dosage of medicine. If the information is accepted as correct, the medicine could theoretically be administered right away with potentially disastrous results.
There is little chance of a KBS's output being applied "as is" in law. The information that a lawyer gets from a KBS needs further refinement before it can be put to effective use. Legal arguments require careful preparation. No KBS is going to provide a fully scripted legal argument, complete with quotes from the cases, that is ready to be presented in court.

If a KBS fails to come up with all the information relevant to the user's case, that would constitute an instance of failure according to the criterion of success given above. However, that sort of failure is not absolute, as it would be in systems designed to give precise answers that are either right or wrong. It is more a question of degree than an all-or-nothing proposition. The legal arguments constructed from the KBS's output would be deficient to an extent that would depend on how vital the missing piece of information was.

Furthermore, thanks to the ponderous pace of legal proceedings, shortcomings in the output of a KBS might be detected and remedied before it is too late. Lawyers do not usually have to prepare legal arguments in anything approaching real time. Since the lawyer is going to be spending some time mulling over the information provided by the KBS, there is at least a chance that any gaps in it might come to light and be filled during the preparation phase. The law libraries throughout the province funded by the Law Foundation of B.C., like the one in the Vancouver courthouse, are one of the major resources that working lawyers use when preparing cases. The largest of these libraries
provide a noting-up service to the law reports. In the margin beside the headnotes of each reported case, librarians write the citations of all other cases that significantly affect or are affected by the case in question. This creates an interconnected web of related cases that point to one another. The manual system is analogous to an electronic system of hypertext links, in that it allows a user to navigate from one case to another and back again. The service would serve as a useful means of checking the output of a KBS for completeness. Of course, the availability of this service does nothing to relieve the designers of a system of responsibility for ensuring its accuracy. By the same token, a KBS is simply a research tool. Lawyers must exercise their own professional judgment and bear final responsibility for the work that they produce.

The increase in efficiency that the use of KBS's by lawyers could bring raises the important issue of how these systems will affect the way clients are charged for legal services. At present, in private firms, at least, there is an obsession with racking up billable hours. For the most part, the profitability of the firm depends on how many hours its lawyers bill their clients. Billing is a numbers game in which the high scorers win the accolades. Unfortunately, no necessary relationship exists between the time expended on a file and the results obtained. Win, lose or draw, the law firm gets paid for the time. Contingent fee arrangements are an exception. Lawyers who enter into them gamble on winning the case and getting a percentage of the damages awarded to their clients. Otherwise they only get
paid for their disbursements. However, these arrangements are only feasible in cases where a plaintiff has a substantial claim for damages against a defendant who has a long purse or is backed by an insurance company. Most legal services are paid for at an hourly rate.

Lawyers are certainly entitled to get paid for their time. Time is their most valuable commodity. Linking payment to results in all cases would not be feasible because there is no guarantee that a lawyer's best efforts will obtain a result that will satisfy the client. However, having said that, a problem still remains. Time is time as far as lawyers are concerned. As long as the time is devoted to a client's business, no evaluation is made of how valuably one hour is spent as opposed to another. It is all lumped together. Measuring time in these absolute terms seems not only unsophisticated, but also rather unfair to the client. A moment of insight that translates into a winning strategy is worth infinitely more than endless hours spent grinding out routine paperwork or hanging around the hallways of the courthouse waiting for a trial to proceed. As long as lawyers are being paid by the hour, there is a disincentive to working more quickly and efficiently.

The situation described above makes one wonder how KBS's will be factored into the business of law. If a lawyer completes a job satisfactorily in one-tenth of the normal time with a KBS, how many hours should be billed to the client? Should the lawyer still charge ten times the hours actually spent because of the
results obtained or to recover the cost of the KBS? There is no simple answer to the question. When these systems come into widespread use, perhaps they will be as essential to maintaining a competitive edge as a fax machine. Then, presumably the market will dictate the appropriate rate. Whatever happens, the introduction of KBS's will call for some re-thinking of the relationship between the time lawyers spend doing research, and its value to the client.

The other secondary aim of the thesis was to consider whether, in light of the research, lawyers themselves, without any background in computer science, might be able to build KBS's using shells. When I embarked upon the thesis work, I was rather optimistic about this prospect. Now I am convinced that such a thing is totally unrealistic, for several reasons.

First and foremost, I failed to appreciate how time-consuming it is to build KBS's, at every stage of the process. The time required is out of all proportion to anything that working lawyers could afford to spend. Secondly, quite apart from the time it takes to actually build KBS's themselves, acquiring the necessary skills calls for an additional up-front commitment of time and effort that, in itself, is more than working lawyers could spare.

The first step is to become "computer literate" at the most basic level through hands-on experience. Some lawyers resist doing even that. Once they are over the initial hurdle, would-be KBS
builders must learn some basic programming skills. Programming calls for absolute precision and meticulous attention to detail. It is time-consuming and frustrating. Hours can be spent debugging a piece of code only to find that the source of the problem was a syntax error as minor as a misplaced comma. Generally speaking, a great deal of work is required to achieve results that may seem trivial to those who do not understand what programming involves.

Once the rudiments of programming have been mastered, more time is needed to select an appropriate shell and to familiarize oneself with its workings and limitations. Shells tend to have certain fundamental characteristics in common. But without any other experience to call upon, a first-time user can take months to become adept at using a particular shell.

On top of all that comes the whole panoply of the KA process. It ranges from selecting and delimiting the domain, debriefing the expert, right through to putting the finishing touches on the conceptual structure.

In a domain of law, part of the KA process may require that the knowledge engineer (KE) read, analyze and digest a large number of cases. Many of these cases will be at the appellate level and, therefore, comprise multiple judgments that may reach the same conclusion using different reasoning. The Nervous Shock Advisor's case database, for example, contains well over a hundred cases.
Finally, one reaches the implementation phase. The components of the KBS must be implemented systematically, in modular fashion, and integrated with one another. To achieve this, thousands of lines of computer code must be written, tested and debugged. In addition to that, there remains the tedious business of data entry. The case summaries that the KBS will retrieve must be manually entered into its database.

From my own experience at building KBS's, at present it seems inconceivable to me that working lawyers would be either willing or able to embark upon an undertaking of such magnitude as building KBS's for themselves. Even if they could spare the time (which they can not), it is simply not an economically viable proposition to have lawyers engaged in this sort of work when they can bill out their time at anything from $75 to $200 an hour.

An academic research program is perhaps the only context in which using trained lawyers to build KBS's can be justified at the moment. The development of automated system building tools and the introduction of courses that teach the necessary skills as part of the law school curriculum may change things in the future. Large law firms currently employ paralegals, law librarians and computer systems administrators. Perhaps these roles will be merged into a new one of in-house knowledge engineer. On the other hand, the large committment of resources needed to build KBS's may make the cost of producing proprietary systems prohibitive. Furthermore, individual KBS's are of
limited practical value because of the narrowness of their domains. Ideally, what is needed is a suite of linked systems that provides complete coverage of entire areas of the law, like the law of negligence, for example. A substantial commercial venture would be needed to develop and maintain such a large-scale project. The systems would have to be widely marketed to recoup the cost of research and development.

At the moment, what realistic alternatives exist to full-blown KBS's? Professor Smith himself recognized that, while deep-structure analysis solves many of the theoretical difficulties presented in the course of developing legal expert systems, the implementation and maintenance of these systems is extremely time-consuming, and therefore very costly in real-world terms. FLEXICON (Fast Legal EXpert Information CONsultant), a text-based intelligent system, being designed under his auspices by the University of British Columbia FLAIR (Faculty of Law Artificial Intelligence Research) Project, is an attempt to solve the problem, in part at least, by providing a means of ameliorating the cost of hand-built expert systems.3

FLEXICON is designed to analyze large amounts of raw text and to extract key information from it. A legal expert searching for, refining, and testing hypotheses about the deep-structure patterns of legal reasoning in a particular domain must first have access to a database, as complete as possible, of the cases in the subject domain. The various query formulation and refinement features of the FLEXICON system would be used to
selectively retrieve cases falling within the domain. The domain expert would then examine the automatically generated case summaries ("flexnotes") to confirm the relevance of the cases that the system retrieved. Once the relevance of the cases had been established, FLEXICON would automatically generate a domain profile representing the union of individual case profiles, consisting of all the concepts, fact terms, case citations and statute citations occurring in the cases in the domain, ordered by weight factors reflecting the terms' significance. The domain profiles would provide summaries of legal concepts and issues significant to the domain. FLEXICON seeks to facilitate the search for the underlying teleologically-based deep structure that would be used to structure the domain knowledge.

In short, FLEXICON is designed to be a general-purpose filter. It attempts to speed up the early stages of the KA process by sifting through a mass of material to identify the elements that make up the domain's underlying structure.

In addition to streamlining this initial search for pattern, perhaps the KBS development cycle could be shortened further by stripping down the systems themselves to the bare essentials. Nervous Shock Advisor's goal is to come up with all the cases that are relevant to the user's fact pattern. The system does this by building up a profile of the consultation and using it to query the case database. Partial matches are obtained by generating queries based solely on similar degrees of proximity.
of relationship \( P(R) \) or proximity of exposure \( P(E) \), the two core elements in the conceptual structure of the domain.

The schema of NSA's case database mirrors the domain's conceptual structure. Once the conceptual structure has been established, the database becomes the nucleus of the KBS. The question-and-answer front-end could be eliminated entirely. A simpler user interface could permit the database to be interrogated directly. This interface might be form-based. Values representing the user's facts could be entered directly into the fields of an electronic form representing the conceptual structure of the domain. Such a system might not be as user-friendly as one that poses a series of simple questions. But, given the right tool, it would probably be easier to implement and more efficient to use.

A script-based KBS, like Impaired Driving Advisor (IDA), could not be simplified in the same way as one based on key elements, like NSA. IDA's purpose is to familiarize novices with the domain by leading them through the different phases of an impaired driving investigation and presenting typical scenarios. In this respect, it bears a resemblance in principle to a flight simulator. In fact, IDA would be more effective if it could be enhanced using new multi-media technology. A system that could activate video clips showing, for example, classic patterns of impaired driving, sobriety tests being administered, the breathalyzer in operation or even snippets of courtroom testimony, would be an infinitely more valuable learning tool.
Regardless of what might be done to overcome the bottlenecks in the development of KBS's or to make these systems more effective, at present it is unrealistic to think that working lawyers will be able to build these systems themselves.

1 As a lawyer, I knew this at some level. But the usefulness of the insight was brought home to me by Roger Schank's book, *Tell Me a Story: A New Look at Real and Artificial Memory* (New York: Macmillan Publishing Company, 1990).


Brachman, Ronald J. "'I Lied About the Trees' Or, Defaults and Definitions in Knowledge Representation." AI Magazine, 6, No. 3 (1985), pp. 80—93.


Compton, P. and R. Jansen, "A philosophical basis for knowledge acquisition." Knowledge Acquisition, 2, No. 3 (1990), pp. 141—257.


Expert Systems, Oxford: Learned Information.


Knowledgebase, Rockville, Maryland: International Association of Knowledge Engineers.


APPENDIX 1
A SAMPLE CONSULTATION WITH NSA

FLEX >go
   *-*---* Welcome to Nervous Shock Advisor *-*---*

I will tell you whether or not your client has a cause of action in nervous shock. Simply type your answers to my questions on the keyboard located below the screen. If you wish to know why a particular question is being asked, feel free to type "why" in response to the question. You may also type "unknown" if you are unable to answer a particular question. If so, I shall canvass whatever other options are available to me.

Was the incident which caused the nervous shock the result of an act on the part of the defendant which you, as a lawyer, would characterize as negligent or deliberate with respect to any of its harmful results?
   1. negligent
   2. deliberate
   >> 1

Was the nervous shock sustained as the result of an incident in which any person or persons, including the plaintiff, suffered physical harm or the risk of such harm? (NOTE: Option No.3 necessarily implies that there was more than one victim).
   1. harm
   2. risk
   3. both
   4. neither
   >> 1

Who was the victim of the incident which caused the nervous shock: the plaintiff, a third-party or both? (NOTE: If there was more than one third-party victim, your responses to any questions about a third-party should relate to the most serious case only).
   1. plaintiff
   2. third-party
   3. both
   >> 2

Was the other person killed?
   >> yes

Is your client closely related to the other person?
   >> yes

Is the other person a member of your client's immediate family; namely, the child, spouse, parent or sibling of your client? (NOTE: Regard a step-relationship as equivalent to a natural one if the person was treated like a member of the
natural family and a grandparent as equivalent to a parent if the grandparent had been filling the role of a parent).

1. child
2. spouse
3. parent
4. sibling
5. neither

Did your client see the incident happen?
>> yes

Did the nervous shock cause an expense, a loss of income or an incapacity which was sufficiently serious to support a claim for damages?
>> yes

Into which of the following general categories did the symptoms of nervous shock fall: physical illness; mental disorder; sleep disturbance? Separate each option by a comma if more than one is applicable
1. physical—illness
2. mental-disorder
3. sleep-disturbance

JUDGMENT: an action lies 100 percent.

The following is a breakdown of the various elements involved in this decision. If any element has a certainty factor of less than 100% you should regard it as a weak link in the chain and focus on bolstering your case in that area.

Negligence established 100 percent.
Appropriate triggering event 100 percent.
Third-party principal victim 100 percent.
Certainty not increased because only one victim involved.
Sufficiently serious incident 100 percent.
Plaintiff connected to the victim 100 percent.
Plaintiff exposed to incident 100 percent.
Damage proved 100 percent.

I am pleased to inform you that your client has a cause of action for nervous shock.

Would you like to peruse the cases which support my decision?
>> yes

Press Enter to continue...

[NSA makes an external function call to retrieve cases]
THE FOLLOWING CASES ARE RELEVANT TO YOUR FACT SITUATION:

* DEATH--CHILD--WITNESS
* CASES ON POINT:


* Other Family Relationships


* RELEVANT BY ANALOGY:

* Injury--Related--Witness


'Esc' to return to Advisor Pg Dn to continue ...

F10 to print, or enter the number of the case you wish to see: 1


FACTS

The plaintiff mother was walking along the shoulder of a road holding her young daughter's hand when the girl was struck from behind by a car driven negligently by the defendant. The brother and sister of the victim were also walking with their mother and witnessed the accident. The father came to the scene immediately and attempted to give mouth to mouth resuscitation to his child but the young victim died. The entire family sued and recovered for nervous shock.

SYMPTOMS

P. 452 ... "As noted earlier, the attack is made on the awards to Susan and David. Janet was five at the time of her death, Susan was seven and David was sixteen.
(a) Susan

Janet had just started kindergarten and she and her sister Susan were very close. Living as they did in a rural setting, there were no girls of their age in the immediate vicinity so they did everything together - sleeping, bathing, playing and attending school and Sunday school. The evidence was that Susan had not been able to replace her sister with friends. When she came to the hospital where Janet was, she acted "abnormally". In the early weeks after the accident Susan would wake up screaming. She still has nightmares sometimes and has to be awakened to stop the screaming.

(b) David

P. 453 ... "David witnessed his sister being hit and flying through the air some 20 ft. after the impact. He was hysterical at the scene of the accident and he still has "flashbacks" of the accident and the funeral. He remained away from school one week and he continues to have dreams and has difficulty sleeping some two years after the accident. His academic performance dropped in the year of the accident and he remains afraid to walk down the road: "I keep thinking it's going to happen again."

'F10' to print this case, or 'Esc' to return to menu

[The menu screen would appear again at this point, but it is omitted for the sake of brevity]

You said that your client had mental problems.

Would you like to peruse the cases which relate to these symptoms?

>> yes

Press Enter to continue...

THE FOLLOWING CASES ARE RELEVANT TO MENTAL SYMPTOMS:

3. Marriott v. Maltby Main Colliery Co. (1920), 90 L.J.K.B. 349 (C.A.) (depression, insanity, suicide);
ruminations).
   (insanity).
   (depression, personality change).
7 Tsanaktsidis v. Oulianoff (1980), 24 S.A.S.R. 500
   (S.C.) (severe depression).
8 Montgomery v. Murphy (1982), 37 O.R. (2d) 631, 136
   D.L.R. (3d) 525 (H.C.) (depression).

'Esc' to return to Advisor  
Pg Dn to continue ..

F10 to print, or enter the number of the case you wish to see: 6


FACTS

Plaintiff was driving her car when a large dump truck,
driven by the individual defendant and owned by the
 corporate defendant, struck a large metal traffic sign
hanging above the highway. The sign fell and landed on the
windshield and dashboard of plaintiff's car. Plaintiff was
pinned in her seat by the dashboard and had to be helped
from the wreckage. She sustained a whiplash injury,
lacerations to her hands and abrasions to the tops of her
thighs. Plaintiff also developed anorexia nervosa following
the accident; this illness wholly incapacitated her. The
Court found that the trauma of the car accident precipitated
the illness. Defendant was liable to plaintiff for the
damages sustained as a result of the illness, including
plaintiff's physical debilities and sufferings, the
potentially permanent loss of procreative capacity,
the disruption of her social life and the likely deleterious
affects upon her career prospects.

SYMPTOMS

P. 4-5 ... "[Plaintiff was] suffering from headaches and
was experiencing a loss of appetite. In addition, she was
experiencing a general feeling of depression. She developed
an anxiety in relation to her capacity to perform her duties
at [work], which duties were the very same as those she had
performed in such exemplary fashion in the previous years.

She was also experiencing difficulty in sleeping and had
recurring nightmares with reference to the accident.

...[I]t became obvious to those working with her that the
plaintiff was sustaining a substantial weight loss, that she
lacked her earlier stamina and that she was losing her capacity to deal with her regular work load. The plaintiff was then exhibiting symptoms which were unusual to her in the form of tension and she became upset more easily and obviously was concerned herself as to the manner in which she was handling her responsibilities, thereby making her work relationship more difficult for her to exist in."

The most effective defence to an action in nervous shock is often that of insufficient proof of damages. Would you like to see the cases where this argument succeeded? >> yes

THE FOLLOWING CASES ARE RELEVANT TO YOUR FACT SITUATION:

* NO PROOF OF LEGALLY RECOGNIZED DAMAGES

Nervous shock is a legal, not a medical term. The current medical term is posttraumatic stress disorder. (For a recent discussion of this phenomenon from a medical perspective see: George Mendelson, The Concept of Posttraumatic Stress Disorder: A Review (1987), 10 International Journal of Law and Psychiatry (No. 1) 45.) It includes a variety of symptoms resulting from the mental trauma produced by an accident or its aftermath. In contrast, damages are not recoverable for pure grief and emotional suffering. Damages for nervous shock are often difficult to prove so often the most effective defence is the argument that there is insufficient proof of the kind of damages which are recoverable in an action for nervous shock.

* Plaintiff Harmed And Third Party Harmed

1 Griffiths v. C.P.R. (1978), 6 B.C.L.R. 115 (C.A.).; 'Esc' to return to Advisor  Pg Dn to continue ...

THE FOLLOWING CASES ARE RELEVANT TO YOUR FACT SITUATION:

FACTS

The plaintiff and her two friends were walking at night along a road, three abreast when a vehicle driven by the 16-year-old defendant, struck and killed one of the plaintiff's companions. As her other friend was hysterical, and the defendant had not stopped, the plaintiff was compelled to summon help. She saw the body and the pool of blood in which it lay. She now claimed damages for nervous shock and post-traumatic depression, sustained as a result of witnessing the accident and her friend's death. The dead girl had been a co-worker, some years younger than the plaintiff, whom the plaintiff had known for approximately 9 months. It was found that their friendship had been "good" but not "close". While there was conflicting evidence, it could not be concluded that the plaintiff had suffered post-traumatic stress disorder.

Would you like to read what is currently the leading case on the law of nervous shock in order to get a good overview of the area?

>> yes
LEADING CASE


The following are also important and leading cases for the law of nervous shock. You may wish to look at their summaries.


'Esc' to return to Advisor

F10 to print, or enter the number of the case you wish to see: 1


FACTS

Lord Wilberforce, Lord Edmund-Davies, Lord Russell of Killowen, Lord Scarman and Lord Bridge of Harwich
15, 16 February, 6 May 1982

APPEAL The plaintiff, Rosina McLoughlin, appealed against the judgment of the Court of Appeal (Stephenson, Cumming-Bruce and Griffiths LJ) ([1981] 1 All ER 809, [1981] QB 599) given on 16 December 1980 dismissing her appeal against the judgment of Boreham J on 11 December 1978 whereby the judge dismissed her claim against the defendants, Thomas Alan O'Brian, A E Docker & Sons Ltd, Raymond Sygrove and Ernest Doe & Sons Ltd, the respondents to the appeal, for damages for shock, distress and injury to her health. The facts are set out in the opinion of Lord Wilberforce.
Michael Ogden QC and Jonathan Haworth for the appellant.
Michael Turner QC and John Leighton Williams for the respondents.

Their Lordships took time for consideration.

6 May. The following opinions were delivered.

'L10' to print this case, or 'Esc' to return to menu

LORD WILBERFORCE. My Lords, this appeal arises from a very serious and tragic road accident which occurred on 19 October 1973 near Withersfield, Suffolk. The appellant's husband, Thomas McLoughlin, and three of her children, George, aged 17, Kathleen, aged 7, and Gillian, nearly 3, were in a Ford motor car; George was driving. A fourth child, Michael, then aged 11, was a passenger in a following motor car driven by Mr. Pilgrim; this car did not become involved in the accident. The Ford car was in collision with a lorry driven by the first respondent and owned by the second respondent. That lorry had been in collision with another lorry driven by the third respondent and owned by the fourth respondent. It is admitted that the accident to the Ford car was caused by the respondents' negligence. It is necessary to state what followed in full detail. As a result of the accident, the appellant's husband suffered bruising and shock; George suffered injuries to his head and face, cerebral concussion, fractures of both scapulae and bruising and abrasions; Kathleen suffered concussion, fracture of the right clavicle, bruising, abrasions and shock; Gillian was so seriously injured that she died almost immediately. At the time, the appellant was at her home about two miles away; an hour or so afterwards the accident was reported to her by Mr. Pilgrim, who told her that he thought George was dying, and that he did not know the whereabouts of her husband or the condition of her daughter. He then drove her to Addenbrooke's hospital, Cambridge. There she saw Michael, who told her that Gillian was dead. She was taken down a corridor and through a window she saw

'F10' to print this case, or 'Esc' to return to menu

Kathleen, crying, with her face cut and begrimed with dirt and oil. She could hear George shouting and screaming. She was taken to her husband who was sitting with this head in his hands. His shirt was hanging off him and he was covered in mud and oil. He saw the appellant and started sobbing. The appellant was then taken to see George. The whole of his left face and left side was covered. He appeared to recognise the appellant and then lapsed into unconsciousness. Finally, the appellant was taken to
Kathleen who by now had been cleaned up. The child was too upset to speak and simply clung to her mother. There can be no doubt that these circumstances, witnessed by the appellant, were distressing in the extreme and were capable of producing an effect going well beyond that of grief and sorrow.

The appellant subsequently brought proceedings against the respondents. At the trial, the judge assumed, for the purpose of enabling him to decide the issue of legal liability, that the appellant subsequently suffered the condition of which she complained. This was described as severe shock, organic depression and a change of personality. Numerous symptoms of a physiological character are said to have been manifested. The details were not investigated at the trial, the court being asked to assume that the appellant's condition had been caused or contributed to by shock, as distinct from grief or sorrow, and that the appellant was a person of reasonable fortitude.

On these facts, or assumed facts, the trial judge, Boreham J, gave judgment for the respondents holding, in a most careful judgment reviewing the authorities, that the

'F10' to print this case, or 'Esc' to return to menu

[The pages that follow are omitted]

[The menu screen would appear again at this point, but it is omitted for the sake of brevity]

Thank you for consulting Nervous Shock Advisor.
FLEX >quit
APPENDIX 2
INVESTIGATIVE GUIDE AND REPORT — ALCOHOL IMPAIRMENT

<table>
<thead>
<tr>
<th>INVESTIGATORS</th>
<th>POLICE CAR NO.</th>
<th>OCCURRENCE NO.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>OBSERVED OPERATING PATTERN</th>
<th>OCCURRENCE</th>
<th>DATE OF OCCURRENCE</th>
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<tr>
<th>FOLLOWED FROM</th>
<th>DIST. FOLLOWED</th>
<th>TIME STARTED</th>
<th>TIME NOW</th>
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<thead>
<tr>
<th>LOCATION STOPPED (CITY, DISTRICT)</th>
<th>WEATHER/ROAD CONDITION</th>
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<tbody>
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<thead>
<tr>
<th>PASSENGERS - COMMENTS</th>
<th>NUMBER</th>
<th>ALCOHOLIC BEVERAGES IN THE VEHICLE (DESCRIBE)</th>
</tr>
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<tbody>
<tr>
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<thead>
<tr>
<th>VEHICLE TYPE/NAME OF VESSEL</th>
<th>LICENCE NO.</th>
<th>PROV</th>
<th>LYR</th>
<th>MAKE</th>
<th>MODEL</th>
<th>YEAR</th>
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<thead>
<tr>
<th>VIN</th>
<th>VAL. TAG.</th>
<th>TAG YEAR</th>
<th>REGISTERED OWNER (IF DIFFERENT FROM OPERATOR)</th>
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<tr>
<th>OPERATOR</th>
<th>SURNAME</th>
<th>G.1.</th>
<th>G.2.</th>
<th>SEX</th>
<th>HOME TEL. NO.</th>
<th>M</th>
<th>F</th>
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</tbody>
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<thead>
<tr>
<th>STREET NO., STREET, APT., CITY, PROV., COUNTRY</th>
<th>D.O.B.</th>
<th>APP. AGE</th>
<th>Y</th>
<th>M</th>
<th>D</th>
</tr>
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<thead>
<tr>
<th>HEIGHT</th>
<th>MASS</th>
<th>HAIR</th>
<th>EYES</th>
<th>RACE - DESCENT</th>
<th>P.O.B.</th>
</tr>
</thead>
<tbody>
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<tr>
<th>LIC. NO.</th>
<th>P.O.I.</th>
<th>PHOTO NO.</th>
<th>F.P.S. NO.</th>
<th>DISTINGUISHING MARKS</th>
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<table>
<thead>
<tr>
<th>TIME OF LAST DRINK</th>
<th>A.S.D. TEST GIVEN</th>
<th>TIME TEST GIVEN</th>
<th>RESULTS</th>
<th>OTHER POSSIBLE CAUSES OF IMPAIRMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td></td>
<td>DRUGS</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GENERAL OBSERVATIONS (DESCRIBE)</th>
<th>FACE (e.g. normal, flushed, pale, etc.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BREATH (e.g. odor of alcoholic beverage/liquor)</td>
<td></td>
</tr>
<tr>
<td>SPEECH (e.g. slurred, incoherent, stuttering, confused, clear, etc.)</td>
<td>EYES (e.g. normal, watery, bloodshot, etc.)</td>
</tr>
<tr>
<td>CLOTHES (e.g. orderly, soiled, disarranged, etc.)</td>
<td>ATTITUDE (e.g. polite, co-operative, cocky, combative, abusive, etc.)</td>
</tr>
<tr>
<td>UNUSUAL ACTIONS (e.g. profanity, hiccup, belching, vomiting, fumbling, sleepy, etc.)</td>
<td></td>
</tr>
<tr>
<td>BALANCE (e.g. sure, fair, swaying, wobbling, sagging knees, falling, etc.)</td>
<td></td>
</tr>
<tr>
<td>WALKING (e.g. sure, fair, swaying, stumbling, staggering, falling, etc.)</td>
<td></td>
</tr>
<tr>
<td>TURNING (e.g. sure, fair, swaying, uncertain, staggering, falling, etc.)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SOBRIETY TEST (DESCRIBE RESPONSE)</th>
<th>1. HEEL TO TOE WALK</th>
<th>2. PICK UP COINS/KEYS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
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</table>

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<thead>
<tr>
<th>3. FEET TOGETHER, EYES CLOSED, ARMS OUT TO THE SIDES, HEAD BACK. TOUCH FINGERS TO NOSE.</th>
<th>4. STRAIGHT WALK (3 METERS) TURN AND WALK BACK</th>
</tr>
</thead>
<tbody>
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<td></td>
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</table>

<table>
<thead>
<tr>
<th>OTHER OBSERVATIONS</th>
<th>CONTINUED ON REVERSE</th>
</tr>
</thead>
</table>
IF THERE WAS AN ACCIDENT OR IF THE ACCUSED WAS OUTSIDE THE VEHICLE WHEN YOU ARRIVED, ASK:

1. ARE YOU INJURED? [DESCRIBE]
2. WERE YOU OPERATING A VEHICLE?
   - YES
   - NO
3. WHICH VEHICLE?
   - YES
   - NO

OTHER QUESTIONS TO ASK

1. ARE YOU A DIABETIC?
   - YES
   - NO
2. DO YOU TAKE INSULIN?
   - YES
   - NO
3. HAVE YOU TAKEN ANY MEDICATION TODAY?
   - YES
   - NO

4. HOW MUCH DID YOU TAKE?
5. WHEN DID YOU TAKE IT?

6. WHAT TIME DID YOU START YOUR FIRST DRINK?
7. WHEN WAS YOUR LAST MEAL?
8. WHAT DID IT CONSIST OF?

9. HOW MUCH ALCOHOLIC BEVERAGE HAVE YOU HAD?
10. WHAT WERE YOU DRINKING?
11. WHERE WERE YOU DRINKING?
12. HOW MUCH ALCOHOLIC BEVERAGE HAVE YOU HAD?
13. WHO WERE YOU DRINKING WITH? (PROVIDE NAMES)
14. WAS YOUR DRINKING EQUALLY SPACED OVER A PERIOD OF TIME?

15. WHAT TIME DID YOU FINISH YOUR LAST DRINK?
16. WHAT WAS YOUR LAST DRINK? (TYPE OF LIQUOR, BEER, WINE, OZ. OF LIQUOR TO MIX)
17. WHERE WERE YOU DRIVING FROM?

READ THE E.B.T. DEMAND AND ASK THE FOLLOWING QUESTIONS

1. DO YOU UNDERSTAND THE DEMAND? [IF ACCUSED IS UNDER ARREST OR DETENTION]
   - YES
   - NO
2. DO YOU WISH TO HAVE A COUNSELLOR?
   - YES
   - NO

TIME OF 1st DEMAND

DEMAND ACCEPTED

TIME OF 2nd DEMAND

DEMAND ACCEPTED

DO YOU WAIT FOR TEST

- YES
- NO

E.B.T. TESTS

RESULTS

- YES
- NO

TESTS DONE WITHIN TWO-HR LIMIT

MGS

1. 

MGS

2. 

MGS

QUALIFIED TECHNICIAN

NAME OF JUSTICE

BLOOD SAMPLING

BLOOD DEMAND GIVEN

- YES
- NO

TELEWARRANT ISSUED

- YES
- NO

TIME LEFT SCENE

ARRIVED AT HOSPITAL

- YES
- NO

TESTS WITHIN 2-HR LIMIT

- YES
- NO

QUALIFIED MEDICAL PRACTITIONER

TIME SAMPLES TAKEN

- YES
- NO

DIID YOU OBSERVE?

- YES
- NO

QUALIFIED TECHNICIAN

SAMPLES RETAINED BY

1. 

2. 

CERTIFICATE SERVED

- NO
- YES

TIME SERVED

- NO
- YES

APPEARANCE NOTICE

- NO
- YES

RECOGNIZANCE

- NO
- YES

PROMISE TO APPEAR

- NO
- YES

OTHER REPORT

- NO
- YES

TICKET ISSUED NO.

LODED IN CELL

RELEASED TO

COMMEN TS QUESTIONS FROM OPERATOR

- NO
- YES

LOCATION OF VEHICLE

DISPOSITION

SIGNATURE OF INVESTIGATORS

DATE

Y M D
# Operating Steps

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Ensure instrument thermometer indicates 47 to 53°C. Ensure NULLMETER pointer is centered.</td>
</tr>
<tr>
<td>2.</td>
<td>Gauge and insert reference ampoule into holder on left. Gauge test ampoule, insert into holder on right and connect with new bubbler.</td>
</tr>
<tr>
<td>3.</td>
<td>Set control at &quot;ANALYZE&quot;. Illuminate photolamp, then center NULLMETER. Disengage pointer and reset at 0.</td>
</tr>
<tr>
<td>4.</td>
<td>Set control at &quot;TAKE&quot;. Flush. Set control at &quot;ANALYZE&quot;.</td>
</tr>
<tr>
<td>5.</td>
<td>When red light illuminates, wait 1½ minutes then illuminate photolamp and center NULLMETER. Record blood alcohol scale reading only when using a new ampoule during analysis 1 procedure. (If purge reading is more than 10mg/100mL, discard test ampoule and repeat procedure with a new ampoule.)</td>
</tr>
<tr>
<td>6.</td>
<td>Disengage pointer and reset at start line. (For standard alcohol solution reset pointer at 0.)</td>
</tr>
<tr>
<td>7.</td>
<td>Set control at &quot;TAKE&quot;, introduce breath sample, then set control at &quot;ANALYZE&quot;.</td>
</tr>
<tr>
<td>8.</td>
<td>Record time.</td>
</tr>
<tr>
<td>9.</td>
<td>When red light illuminates, wait 1½ minutes, then illuminate photolamp and center NULLMETER. Record blood alcohol scale reading.</td>
</tr>
<tr>
<td>10.</td>
<td>Repeat steps 4 to 7 using same test ampoule and using standard alcohol solution in lieu of breath sample in step 7. Record temperature of standard alcohol solution.</td>
</tr>
<tr>
<td>11.</td>
<td>When red light illuminates, wait 1½ minutes, then illuminate photolamp and center NULLMETER. Record blood alcohol scale reading.</td>
</tr>
<tr>
<td>12a.</td>
<td>If analysis 1 is less than 210mg/100mL, repeat steps 4 to 9.</td>
</tr>
<tr>
<td>12b.</td>
<td>If analysis 1 is 210mg/100mL or greater, gauge and insert new test ampoule and new bubbler. Repeat steps 3 to 9.</td>
</tr>
</tbody>
</table>

# Analysis 1

<table>
<thead>
<tr>
<th>Analysis 1</th>
<th>Analysis 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>mg/100mL</td>
<td>mg/100mL</td>
</tr>
</tbody>
</table>

# Analysis 2

1. Set control at "TAKE". Purge. Set control at "ANALYZE". |
2. When red light illuminates, wait 1½ minutes, then illuminate photolamp and center NULLMETER. |
3. Disengage pointer and reset at start line. (For standard alcohol solution reset pointer at 0.) |
4. Repeat the steps 4 to 7 in your servant of the same ampoule d'essai and of the solution type d'alcool au lieu de l'échantillon d'alcoolémié indiquée par l'échelle seulement si vous servez d'une nouvelle ampoule pour la deuxième analyse. (Si la lecture indique une teneur supérieure à 10mg/100mL, répétez l'analyse en vous servant d'une autre ampoule d'essai.) |
5. Disengage the needle and ramené-le à la première division de l'échelle. (Dans le cas de la solution type d'alcool, ramenez l'aiguille à 0.) |
6. Lorsque la lumière est rouge, attendez une minute et demie, puis allumez la lampe photo-électrique et centerz le galvanomètre et regardez l'alcoolémie (teneur alcoolique du sang) indiquée par l'échelle seulement si vous servez d'une nouvelle ampoule pour la première analyse. (Si la lecture indique une teneur supérieure à 10mg/100mL, répétez l'analyse en vous servant d'une autre ampoule d'essai.) |
7. Tournez le bouton de commande à "TAKE". Introduisez l'échantillon d'alcoolémié, puis tournez le bouton de commande à "ANALYZE". |
8. Inscrivez l'heure. |
9. Lorsque la lumière est rouge, attendez une minute et demie, puis allumez la lampe photo-électrique et centerz le galvanomètre. Enregistrez l'alcoolémie indiquée par l'échelle. |
10. Répétez les étapes 4 à 7 en vous servant de la même ampoule d'essai et de la solution type d'alcool au lieu de l'échantillon d'alcoolémié utilisé au cours de l'étape 7. Enregistrez la température de la solution type d'alcool. |
11. Lorsque la lumière est rouge, attendez une minute et demie, puis allumez la lampe photo-électrique et centerz le galvanomètre. Enregistrez l'alcoolémie indiquée par l'échelle. |
12a. Si l'analyse 1 indique moins de 210mg/100mL, répétez les étapes 4 à 9. |
12b. Si l'analyse 1 indique 210mg/100mL ou plus, jaugez et utilisez une autre ampoule d'essai ainsi qu'un autre barboteur. Répétez les étapes 3 à 9. |
13. Tournez le bouton de commande à "TAKE". Purgez. Tournez le bouton de commande à "ANALYZE". Attendez une minute. Mettez au rebut l'ampoule d'essai, le barboteur et l'embouchure. Enlevez l'ampoule de comparaison. Tournez le bouton de commande à "OFF".
CERTIFICATE OF A QUALIFIED TECHNICIAN
WHO TOOK SAMPLES OF BREATH

I, ____________________________________________, a person designated pursuant to subsection 254(1) of the Criminal Code by the Attorney General of British Columbia as being qualified to operate an approved instrument and being, therefore, a qualified technician,

DO HEREBY STATE:
That, at ____________________________________________ in the Province of British Columbia pursuant to a demand under subsection 254(3) of the Criminal Code, I took two samples of breath of a person, identified to me as ____________________________________________ as in my opinion were necessary to enable proper analysis to be made in order to determine the concentration, if any, of alcohol in the blood of the said person;

that each of the said samples were received from the said person directly into a Breathalyzer*, Model ____________________________________________, an approved instrument, as defined in subsection 254(1) of the Criminal Code, that was operated by me;

that an analysis of each of the said samples was made by means of the said approved instrument operated by me and ascertained by me to be in proper working order by means of an alcohol standard that was suitable for use with the said approved instrument and identified as: ____________________________________________

that the first of said samples was taken at ___________ hours, on the ____________________________ day of ____________________________________________, 19_______, and that the result of the analysis so made of the said first sample is _______________ milligrams of alcohol in one hundred millilitres of blood; and

that the second of said samples was taken at ___________ hours, on the ____________________________ day of ____________________________________________, 19_______, and that the result of the analysis so made of the said second sample is _______________ milligrams of alcohol in one hundred millilitres of blood.

I FURTHER CERTIFY:
That the statements in this certificate are true to the best of my skill and knowledge.
DATED this ____________________________ day of ____________________________, 19_______, at ____________________________________________, in the Province of British Columbia.

__________________________________________
Qualified Technician

NOTICE OF INTENTION TO PRODUCE CERTIFICATE

TO: ____________________________________________

Take notice that, pursuant to paragraph 258(1)(g) and subsection 258(7) of the Criminal Code, the prosecution intends to produce in evidence a certificate, a copy of which appears above.
DATED this ___________ day of ____________________________, 19_______.

__________________________________________
Signature of Person Serving this Notice for the Prosecution
A SAMPLE CONSULTATION WITH IDA

IDA >go

*************** Welcome to IDA ***************
(Impaired Driving Advisor)

This system will step you through a stereotypical police investigation into an impaired driving case. Its purpose is to identify factors which could form the basis of a defence. There are 9 different modules, each focusing on key issues. Choose whichever module you like. If you want to explore the same module more than once using different facts, go ahead.

If you're a fast reader, be patient! Something will happen in a few seconds.

OK, if you've got that, let's move along.

Which subject area would you like to look at?

1. Care or control. 2. Erratic driving 3. Physical symptoms
9. Delays

1. control
2. driving
3. symptoms
4. tests
5. charter
6. counsel
7. breathalyzer
8. certificate
9. delays

1. CARE OR CONTROL.

The first set of questions are designed to determine whether the accused exercised a legally sufficient degree of control over the motor vehicle.
Was the vehicle in motion or stopped?
   1. in-motion  
   2. stopped  
>>1

Was the accused alone in the vehicle  
   1. alone  
   2. accompanied  
>>1

The evidence of care or control is overwhelming.

Had enough yet?  
   1. yes  
   2. no  
>>no

Which subject area would you like to look at?

1. Care or control.  2. Erratic driving  3. Physical symptoms  
9. Delays  
   1. control  
   2. driving  
   3. symptoms  
   4. tests  
   5. charter  
   6. counsel  
   7. breathalyzer  
   8. certificate  
   9. delays  
>>2

2. ERRATIC DRIVING.

The police most often stop vehicles to check for an impaired 
driver if they see them weaving from side to side in the 
roadway. This is the typical pattern of erratic driving 
associated with impairment by alcohol.

Was the accused stopped by the police because the 
vehicle was weaving?  
   1. yes  
   2. no  
>>1
Does the vehicle have mechanical defect which would explain this, like faulty steering or poor wheel alignment?
1. yes
2. no
>> no

Was there anything unusual about the road surface?
1. yes
2. no
>> 1

Was the road surface slippery because of ice, snow, mud or anything else like that?
1. yes
2. no
>> 1

Were there potholes in the road?
1. yes
2. no
>> no

Were there any obstacles on the road that the accused had to swerve to avoid?
1. yes
2. no
>> 2

Was it a bumpy road?
1. yes
2. no
>> 2

Were there any problems with visibility?
1. yes
2. no
>> 1

Was there bad weather like snow, fog or heavy rain that would have made it difficult to see properly?
1. yes
2. no
>> 2

Was the accused driving at night in poor lighting conditions?
1. yes
2. no
>> 1

Was the accused looking for an address in an unfamiliar neighbourhood?
1. yes
2. no
>> 1

Argue that the erratic driving was not caused by alcohol consumption, but by the following:

The slippery road surface.
The poor lighting conditions at night.
The accused's lack of familiarity with the area.
3. PHYSICAL SYMPTOMS.

When the police stop a suspected impaired driver, the most typical symptoms they look for are:

- a smell of liquor on the breath,
- slurred speech,
- bloodshot eyes
- fumbling with documents.

Answer the following questions bearing this in mind.

Do the police allege that the accused displayed any of these physical symptoms?

1. yes
2. no

Did the accused have bloodshot eyes?

1. yes
2. no

Did the accused have an eye injury?

1. yes
2. no

>>2
Had the accused just come from a smoky environment like a sleazy nightclub, for example?
  1. yes
  2. no

Was the accused wearing contact lenses that were irritating his eyes?
  1. yes
  2. no

Was the accused very tired?
  1. yes
  2. no

Does the accused have a medical condition that causes blooshot eyes?
  1. yes
  2. no

Was the accused's speech slurred?
  1. yes
  2. no

Does the accused have a speech impediment?
  1. yes
  2. no

Did the accused have a mouth injury?
  1. yes
  2. no

Was the accused wearing ill-fitting dentures?
  1. yes
  2. no

Did the accused have braces on his/her teeth?
  1. yes
  2. no

Had accused had dental work done shortly before being stopped?
  1. yes
  2. no

Was this the only occasion on which the accused spoke to the police officer?
  1. yes
  2. no

Did the the accused's breath smell of liquor?
  1. yes
  2. no
Did the accused admit to excessive drinking?
1. yes
2. no

Was the accused asked to produce a driver's licence or registration documents?
1. yes
2. no

Did the accused fumble with the documents?
1. yes
2. no

Was the accused stopped in daylight or darkness?
1. daylight
2. darkness

What sort of illumination was there?
1. flashlight
2. interior-light
3. streetlight
4. well-lit

Argue that the physical symptoms observed by the police were not caused by liquor, but by the following:

The bloodshot eyes were caused by being in a smoky place.
The bloodshot eyes were caused by tiredness.
The slurred speech was caused by braces.
A smell of liquor on the breath does not prove that the accused had been drinking excessively. People smell of liquor after only one drink. Smell is no indication of quantity.
The fumbling was because of the poor lighting afforded by the flashlight.

Had enough yet?
1. yes
2. no

Which subject area would you like to look at?
1. Care or control. 2. Erratic driving 3. Physical symptoms
9. Delays

1. control
6. RIGHT TO COUNSEL.

The purpose of this module is to determine whether the accused was allowed to exercise the right to consult a lawyer promptly and privately. A breach of this right by the police may result in the exclusion of subsequently obtained evidence.

Was the accused given the chance to contact a lawyer?
1. yes
2. no

Was this permitted at the earliest opportunity?
1. yes
2. no

Did the accused make contact with his/her lawyer?
1. yes
2. no

Did the accused talk to the lawyer inside a private room with the door closed?
1. yes
2. no

Was the accused observed by police when talking with the lawyer?
1. yes
2. no

Were police within earshot distance when the accused talked to the lawyer?
1. yes
2. no

Argue that subsequently obtained evidence should be excluded because the accused's right to counsel was violated in the following ways:

The accused was not fully given the right to counsel because the consultation was not private.
7. BREATHALYZER TESTS.

The breathalyzer testing procedure must comply strictly with certain statutory requirements. The purpose of this module is to assist you in determining whether those requirements were met.

Were breath samples taken from the accused?
  1. yes
  2. no

Were at least two samples of breath taken?
  1. yes
  2. no

Was the first breath test taken within 2 hours of the time of the alleged offence?
  1. yes
  2. no

Were all the tests taken at least fifteen minutes apart?
  1. yes
  2. no
Was the lowest breathalyzer readings over .08 % ?
1. yes
2. no

Were normal breath samples taken? (i.e. No burping or regurgitation)
1. yes
2. no

Did the breathalyzer machine seem to function normally throughout the time during which the tests were being taken?
1. yes
2. no

Argue that the results of the breath tests are inadmissible as evidence for the following reasons:

There seems to be no basis for challenging the results of the breathalyzer tests.

Had enough yet?
1. yes
2. no

Which subject area would you like to look at?
1. Care or control. 2. Erratic driving 3. Physical symptoms
9. Delays
   1. control
   2. driving
   3. symptoms
   4. tests
   5. charter
   6. counsel
   7. breathalyzer
   8. certificate
   9. delays

8. CERTIFICATE OF ANALYSES.

The accused must be properly served with a copy of the certificate of analyses which the breathalyzer operator prepares after conducting the tests. This copy of the
certificate must be shown to be a "true" copy of the original.

Was a certificate of analyses prepared by the breathalyzer operator after the tests?
   1. yes
   2. no

Was the accused given a copy of the certificate?
   1. yes
   2. no

Was the copy given to the accused a photocopy or a carbon copy?
   1. photocopy
   2. carbon

Was the accused's copy clear?
   1. clear
   2. fuzzy

Was the significance of the certificate explained to the accused? (ie. That it would be produced in court as evidence of the results of the breathalyzer tests)
   1. yes
   2. no

Was the accused locked up after the breathalyzer tests or allowed to go home?
   1. locked-up
   2. released

Is there evidence that the accused's copy of the certificate was given back to him before he was released?  
(Note. The police would have taken all his possessions away from him, including the certificate, before locking him up)
   1. yes
   2. no

Argue that the certificate of analyses is inadmissible as evidence for the following reasons:

The significance of the certificate of analysis was not explained to the accused, therefore the original certificate is not admissible as evidence.  There is no evidence that a copy of the certificate of analyses was given to the accused before release.  The earlier service is not adequate because it would have been taken away from him almost immediately before he was locked up.
Had enough yet?
   1. yes
   2. no

Which subject area would you like to look at?
1. Care or control.  2. Erratic driving  3. Physical symptoms
9. Delays
   1. control
   2. driving
   3. symptoms
   4. tests
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   6. counsel
   7. breathalyzer
   8. certificate
   9. delays

>>9

9. DELAYS.

Breath samples must be taken as soon as practicable. This module will help you determine whether there were any unreasonable time delays which afford a defence. The questions will probe for delays which occurred:

   - at the scene,
   - en route to the police station,
   - at the police station.

Note: even a delay of 5-10 minutes is significant.

In light of the above, is it possible that there were any significant delays?
   1. yes
   2. no

>>1

Did the police and the accused leave the scene right after the demand for a breath sample was made?
   1. yes
   2. no

>>2

Was the police officer delayed because he/she was assisting with a motor vehicle accident investigation?
   1. yes
   2. no
Were there other police officers present who could have looked after the accident investigation?
   1. yes
   2. no

Did the police officer take the most direct route to the police station?
   1. yes
   2. no

Did the route taken by the police officer seem unnecessarily circuitous?
   1. yes
   2. no

Did the police officer make any stops along the way?
   1. yes
   2. no

Did the reason for the stops or delay seem valid?
   (e.g. The officer saw an armed robbery in progress)
   1. yes
   2. no

Did the accused encounter any delays at the station before the breath samples were taken?
   1. yes
   2. no

Were there delays during the breathalyzer testing procedure?
   1. yes
   2. no

Argue that the results of the breathalyzer tests are inadmissible as evidence because of the following unnecessary delays:

Other police were available to attend to the accident.
There was no need to take a circuitous route to the police station.
There was no need to stop en route to the police station.

Had enough yet?
   1. yes
   2. no

OK. Thanks for consulting IDA. And remember, let's not drink and drive, eh!
IDA >quit