PROLEGOMENA TO A
POSTMODERN THEORY OF LAW

by

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Abstract

Research in artificial intelligence and law has stalled because it presumes the model of legal reasoning asserted by legal positivism. An adequate model of legal reasoning must relate legal rules to social goals and must respond to critical perspectives. No existing legal theory accomplishes these tasks.

This thesis asserts that postmodernism overcomes current difficulties in constructing an adequate model of legal reasoning. My methodology is to apply results from the sciences of chaos and complex adaptive systems to derive the elements of postmodernism from a mathematical perspective. This shows how systems can spontaneously construct knowledge and improve without assuming the possibility of perfect knowledge about social systems. I show how law behaves as a complex adaptive system and argue that legal reasoning shows the type of knowledge-building accomplished by complex adaptive systems. This implies limitations on what legal reasoning can attempt to accomplish and provides criteria to criticize existing legal theories.

Social orders emerge from the concurrent behaviour of many individuals. The utility of social orders for society implies that there is value in individuals behaving according to rules. An important implication of chaos theory is that our knowledge about social orders must in principle remain imprecise. We can model social orders but the models must employ fuzzy concepts that are correlated or causally related probabilistically.

The fundamental task of legal reasoning is to mediate the requirements of conflicting social orders. Some social orders are undesirable, so legal reasoning must include a strategy to expose ideology and decadence. When law-makers choose between alternative rules, they must consider the possible impact of each proposed rule upon desirable social orders. In a hard case, a law-maker must choose to impair either of two social orders. Since knowledge about the functioning of the social orders is fuzzy and probabilistic, the law-maker must model the social orders in terms of fuzzy instrumental goals and estimate the probable degree of impairment to the goals by each of the alternative rule possibilities.
This thesis confirms and advances the "deep-structure" theory of jurisprudence and its application to legal expert systems.
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I gratefully acknowledge the guidance of Professor J.C. Smith's profound intuition into legal reasoning and jurisprudence. This thesis is my effort to articulate the intuitions connecting his eclectic perspectives on law, sociology, psychoanalysis, feminism, postmodernism, and computers. I thank Professor Joel Bakan for leading me to my insights into ideology. Hugh Laurence, Judy Dick, Joyce Marsden-Oliver, A.C. Yardley and Margaret Eriksson cultivated my critical and constructive capacities through complex adaptive conversation—I thank them for tolerating my excesses. My father inspired me to analyze and my mother showed me how to be ironic and still care. For an indefatigable effort typing, formatting, checking spelling and grammar, and preparing the table of contents and index, I thank my Macintosh IIcx computer.
Introduction

The goal of this thesis is to prepare the jurisprudential foundations for more effective use of computers to assist legal reasoning.

As law becomes more complicated and vast, the cost of obtaining legal advice rises, which makes law inaccessible and less effective as an instrument of social policy. The gravity of these problems warrants thorough exploration into how computers could help alleviate these effects. An enormous amount of intellectual effort in the past decade has been expended on figuring out how to use computers to improve the efficiency and quality of legal services. Much of the work in this area involves general office automation or automation of practical tasks associated with legal service, but does not make use of aspects of legal reasoning. For example, automated production of court transcripts improves legal services but the computational process is essentially independent of legal reasoning or theories of justice.

This thesis considers computer applications that make use of legal reasoning. The main focus is on so-called "expert systems." Legal expert systems are computer programs that purport to advise whether hypothetical fact scenarios raise specific, narrowly framed legal issues and predict how those issues would be decided by a judge. Though focusing on legal expert systems might appear unduly narrow, any improvement in our ability to computationally model legal reasoning in legal expert systems will have implications for other legal applications, such as automated text retrieval or document generation.

The field of computer science that studies how to represent knowledge and model reasoning is called "artificial intelligence." Progress in modeling legal reasoning has stalled because there is no theory of law that adequately models the nature of legal reasoning. For example, much of the work in law and artificial intelligence has employed the model of legal reasoning implicit in the legal positivist tradition of jurisprudence. Legal positivism emphasizes the doctrinal rules in law, which suits the logic-oriented foundations of artificial intelligence and knowledge representation. However, several jurisprudential and sociological perspectives have sharply criticized legal positivism as an incomplete and falsifying account of the nature of the
legal process. This body of criticism suggests that legal expert systems based on doctrinal rules could at most become a type of “calculator” that generates doctrinal argument.

To achieve better expert systems, we require a better model of legal reasoning. Existing theories of law, however, were not formulated with a model of legal reasoning as their main goal. Theories of law have so far sought to analyze law from a perspective outside legal reasoning. The model of legal reasoning is therefore derivative from the presuppositions of the outside perspective. As will be seen, none of the existing theories of law gives an adequate account of legal reasoning.

This thesis therefore proposes a new theory of law, a “Postmodern Theory of Law.” The hype and confusion surrounding postmodernism makes this appellation precarious and potentially misleading. Moreover, postmodernism is associated with critically motivated projects in numerous disciplines that champion conflicting values. Nonetheless, this thesis asserts that all postmodernism is an attempt to probe a single principle about the structure of reality and what we can know about it.

The main principle of postmodernism cannot be stated in a single sentence or paragraph. Friedrich Nietzsche called this principle the will to power; modern scientists refer to it as an exception to the second law of thermodynamics. Postmodernism can be defined as the task of thinking through the implications of what we can know about complex adaptive systems, but this merely shifts the burden of description. To define postmodernism, then, one must understand the theories of nonlinear dynamical systems (chaos theory) and the theory of complex adaptive systems. Chapter four of this thesis will explain these theories and their significance.

The most important implication of postmodernism is to realize that most systems of interest in our world evolved and are not reducible to theories stated by laws of deterministic cause and effect. There will, in principle, always be gaps in what we can know about systems that emerge from the interaction of constituent parts. Knowledge about such emerging systems must necessarily employ vague concepts and be probabilistic in its predictions. Moreover, a
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model describing a specific emerging system can only be linked probabilistically with the rest of our knowledge about the world.

Any theory that claims it is possible, in principle, to make absolute, accurate predictions about emerging systems, can be shown to be false. The adherents to such a theory are "knowledge optimists." Moreover, it can be usually shown that the reason people are knowledge optimists is because the adherents derive social or psychological advantages by believing in the theory. This critical task of exposing knowledge optimism and linking it to the optimist's self-interests is known as "deconstruction" of a theory.

Because postmodern deconstruction undermines the foundation of meaning in theories that presume absolute knowledge is possible, knowledge optimists often equate postmodernism to nihilism. However, this charge overlooks the "constructive" aspects of postmodernism. Even though absolute knowledge about emerging systems is not possible, useful models describing general qualitative features of system structures ("topological models") can be constructed. Recent advances in chaos theory and the theory of complex adaptive systems provide the mathematical foundations for what I call "constructive postmodernism." Constructive postmodernism is an attempt to navigate between Scylla and Charybdis—between unfounded optimism and unwarranted pessimism, between unyielding order and unbridled chaos. In successive chapters of this thesis I will demonstrate constructive postmodernism by examining the nature of the self, society and legal reasoning.

The inherent imprecision of topological models that use vague concepts and offer only probabilistic predictions, sometimes makes it possible that two or more incompatible models for the same system can each be optimal, when measured in terms of the unique purposes of its adherents, yet be incompatible with each other. The possibility of incompatible, equally valid models opens postmodernism to charges of relativism from those who presume absolute knowledge of such systems is possible. Until recently, postmodern thinkers were unequipped to constructively respond to this charge. However, chaos theory and the theory of complex adaptive systems show how such models can evolve and how less-than-perfect models can be evaluated even without the possibility of absolute criteria to measure against.
Scholars in the critical legal tradition often reason as follows: because knowledge optimism about an emerging system is misplaced, there is no merit in any theory about or model of the emerging system. For example, many scholars in the critical legal tradition argue that because doctrinal rules cannot fully explain legal decisions, express rules should not be relied upon. I call this “knowledge pessimism.” Constructive postmodernism says that we should navigate between the all-or-nothing extremes of knowledge optimism and knowledge pessimism when we talk about emerging systems, using the theory of complex adaptive systems as our guide.

The legal reasoning manifest in the common law tradition is the most elaborate and sustained attempt to cope with the postmodern condition of uncertainty in principle. This is due to the institutional constraints of judicial decision-making—judges must make immediate decisions and cannot presume they will ever have anything other than vague concepts and probabilistic predictions about social phenomena. Unlike other arenas of practical reason, the common law documents its efforts and draws on its experience to refine itself. This makes the common law uniquely appropriate for examining what constructive postmodernism would entail.

This also explains why no existing theory of law adequately accounts for the nature of legal reasoning—none incorporates constructive postmodernism. I will show how this omission creates several recalcitrant problems for the major theories of law: describing legal reasoning, legitimating authority, setting standards for justification, and analyzing allocation of power.

I will also use the postmodern theory of law to evaluate and extend the so-called “deep-structure” model of legal reasoning. The extended model will use reasoning directed by a multiplicity of vague social goals that are probabilistically related and ordered in terms of importance. I will argue that such a model is currently the most plausible general approach to modeling complex adaptive systems. I will critically examine the prospect of using legal expert systems based on such a model of legal reasoning.

Finally, the theory of complex adaptive systems shows that such systems can only be studied thoroughly with the use of computational models—models that can be tested by running
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simulations on a computer. As a result, not only does progress in modeling legal reasoning require a postmodern theory of law, a fully developed theory of law requires computational modeling of legal reasoning.

Selecting an order to present the themes in this thesis is problematic. The style of mathematical proof dictates that the narrative begin with chaos theory and the theory of complex adaptive systems, then go on to consider the implications for the theory of knowledge, jurisprudence, legal reasoning and legal expert systems. However, the legal reader needs substantial motivation before confronting the technical nature of chaos and complex adaptive systems. Furthermore, it is unusual to focus on legal reasoning per se without attempting to derive the form of reasoning from the logical or linguistic form of rules. Therefore, I will first discuss expert systems and their relationship to jurisprudence. This will highlight the inadequacies of existing models of legal reasoning, which will motivate our search for a postmodern theory of law.

The implications of the theory of complex adaptive systems for law and jurisprudence will then be examined extensively. This includes the interrelationship of knowledge, power, and authority. Using the results of this inquiry, this thesis will offer a new perspective on how existing theories of law differ. Each theory of law is knowledge optimistic or knowledge pessimistic in a particular dimension; which dimensions depends on the political values or psychological preferences of the adherents to that theory of law.

The first chapter of this thesis discusses expert systems in law. I identify inadequacies in recent approaches and attribute them to the positivist theories of jurisprudence being used and, in particular, the lack of teleology in their models of legal reasoning. In other words, legal positivism assumes that legal rules form an autonomous code that can be adequately described without reference to the social goals the rules serve. An alternative approach is the deep-structure model of legal reasoning, which will be described in detail. Deep-structure expert systems start to address these problems by focusing on the teleology between rules and social goals, but the deep-structure model of legal reasoning has not been fully developed to embrace critical perspectives. Later chapters will show that the deep-structure model of legal reasoning
has been successful because it captures features of legal reasoning that are fundamental to making legal reasoning behave as a complex adaptive system.

The political philosophy of liberalism has been strongly rejected by the critical legal tradition and most postmodern approaches to law. In chapter two, I sketch a postmodern attack on the liberalism presumed by the common law tradition. This will show that deep-structure expert systems do not necessarily entail liberalism and therefore could survive scrutiny from the critical legal tradition.

Chapter three investigates whether a recent formulation of legal positivism that incorporates goal-based reasoning subsumes the need for a postmodern model of legal reasoning. I show that legal positivism is inadequate for the same reasons as liberalism, i.e., it employs misplaced knowledge optimism about universal good reasons.

I present the theories of chaos and complex adaptive systems in chapter four. Chaos theory will show why there must always be vagueness in what we can know about most systems in nature and almost all systems in human society. The theory of complex adaptive systems will show that imperfect knowledge can evolve to become increasingly useful without the need for certainty or a priori truths.

In chapter five I claim that the writings of Friedrich Nietzsche contain these insights. Nietzsche's writings show how the self works as a complex adaptive system.

In chapter six I claim that human society is a complex adaptive system. Indeed, society comprises many complex adaptive systems that in turn comprise complex adaptive subsystems. The economist Friedrich Hayek made similar claims and his views will be examined. However, I argue that Hayek incorrectly derived liberalism by failing to apply his insights comprehensively. I also discuss how the views of structuralists and Michel Foucault relate to complex adaptive systems in society.

Chapter seven shows how law behaves as a complex adaptive system. I analyze sample legal problems to illustrate how insight into complex adaptive systems can assist us to interpret law and be more effective advocates.
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In chapter eight I use postmodernism to refine the concept of ideology, which is central to critical theories of law. Ideology is the use of knowledge optimism to disguise self-interest in the allocation of social power inherent in the construction of legal rules. Ideology is closely related to Nietzsche's concept of decadence—knowledge optimism disguises neurotic self-interest in the construction of character. An important conclusion in this chapter is that to overcome ideological tendencies in law, more empathy by judges is an essential feature of a legal system.

In chapter nine I briefly survey some of the major theories of jurisprudence from the perspective of complex adaptive systems. I show that each theory locates legal or moral authority in relation to where it places its faith or pessimism regarding the possibility of perfect scientific knowledge about social systems.

In chapter ten I return to expert systems and consider how to extend deep-structure expert systems using the insights into legal reasoning implied by a postmodern theory of law. I will also consider several critical questions regarding deep-structure expert systems.

I conclude by speculating on prospects for progress in expert systems and the role of computers in jurisprudence.
Chapter 1
Legal Expert Systems

Legal expert systems meet with skepticism from all ranks in jurisprudence. Critical scholarship has so little concern for legal expert systems that expert systems have yet to earn a place on the critical agenda. Even jurists who are interested in law and artificial intelligence foresee limited possibilities for expert systems. Ronald Stamper asserts that legal expert systems could never achieve anything other than mere "bureaucratic," deductive reasoning. Richard Susskind concludes that the application of legal rules will always require some mystical act of will that cannot be analyzed. For Susskind, Ronald Dworkin's description of discretion as the application of principles merely postpones the inevitable exhaustion of rules. Stamper haughtily observes:

If one accepts Dworkin's views, one might attempt to accommodate these principles as additional rules together with illustrative exceptions. To do so would be to fall into the Artificial Intelligence trap: The ridiculous attempt to usurp the roles of people. ... The openness of the legal system means that, no matter how much of the law and the given situation you have reduced to explicit formulas and rules, much more remains unsaid. But a responsible agent can invoke the unspoken principles within the informal world of law-in-action, and stop a deductive chain that would otherwise lead to a miscarriage of justice.

This dim prognosis for the potential of legal expert systems derives from the positivist jurisprudence presumed by these authors. Legal positivism views legal decision-making entirely from within the perspective of doctrinal rules—any dynamic beyond the boundary of doctrinal

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3 Stamper, "Role of Semantics," at 238-239.
rules appears as discretionary, un-analyzable acts of human will. The horizon of one's prognosis for legal reasoning by computers cannot extend beyond the vision of legal reasoning in one's jurisprudence. Therefore, every careful positivist must envisage limited potential for legal expert systems.

Positivism in Artificial Intelligence

Early research on legal expert systems typically sought to model common law doctrine, without much success.\(^4\) Thereafter, research focused more on statutory or regulatory codes that use intricate and detailed rule-schemes, such as the tax code or social assistance entitlement regulations.\(^5\) Designers of such systems implicitly appealed to a strong version of positivism that focused on rules and considered interpretation problems to be minimal—minor core and penumbra fuzziness and a few open-textured words, such as "reasonable." The dangers of relying on such systems to decide cases are manifest—there is no attempt to consider the substantive justifications for the rules, nor to consider whether in the context of a particular matter the effects of the rule strongly conflict with more general principles or values elsewhere recognized by the legal system.

Artificial intelligence research that uses a legal positivist model of legal reasoning cannot produce expert systems that reliably predict case outcomes. Until the problem of "discretion" has been overcome, the best that can be achieved is the automated generation of legal arguments. Legal expert systems can only aspire to model the role of a positivist barrister—present doctrinal arguments to a decision-maker, who then exercises an ineffable faculty of

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discretion to decide the case. Such an expert system could only predict the outcome of a
decision where it failed to find a valid counter argument to a valid argument.\footnote{But even in such a case the system could be wrong if the current state of doctrine did not account for novel causal effects on other values ranked as important by the legal system.}

Current research on argument generation by legal expert systems originated with Kevin Ashley’s HYPO system.\footnote{Kevin D. Ashley, \textit{Modeling Legal Argument: Reasoning with Cases and Hypotheticals} (Cambridge, Massachusetts: MIT Press, 1990).} Ashley’s approach was a major innovation in two respects: (1) it only attempts to generate plausible arguments and has abandoned the requirement that an expert system predict case outcomes; and (2) it constructs arguments based on a database of precedent case profiles rather than from a fixed code of rules—it uses "case-based reasoning."

Briefly, the HYPO system works as follows. An expert system designer using HYPO would begin by identifying several legal “dimensions” that the courts and legal scholars have considered relevant to a specific legal issue. The designer would classify precedent cases using these dimensions and create a precedent database for case-based reasoning. To consult the HYPO expert system, an inquirer would provide HYPO with a hypothetical fact situation. HYPO would automatically identify the dimensions of the hypothetical fact situation that favoured the plaintiff and the dimensions that favoured the defendant. HYPO would then locate in the precedent database the cases that most closely matched the particular set of dimensions associated with the hypothetical fact situation. Failing an exact case match to all dimensions of the hypothetical, HYPO would automatically generate legal arguments that cited the best cases for each side, and the case authority to distinguish cases relied on by the other side (if such cases existed in the precedent database).

On the basis of test results, the quality of the arguments generated by HYPO is impressive and represents a significant advance in legal expert systems. However, because HYPO presumes a positivist model of legal reasoning and does not attempt to consider why the legal dimensions the expert system designer selects are relevant to the legal issues it considers, HYPO significantly under-determines case outcomes. In other words, HYPO does not offer predictions in cases where lawyers would feel confident making predictions.
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Ashley's work has profoundly affected the direction of subsequent research in artificial intelligence and law. Legal argument was the topic of most of the papers collected in the proceedings of the June 1993 conference on artificial intelligence and law. A central aspect of constructing legal argument is relevancy—what arguments are relevant to the legal issue being considered? However, most of the approaches in current research draw on legal doctrine or legislative codes to test the relevancy of an argument, without considering why the doctrine or codes are the way they are. This reflects an overwhelmingly positivist attitude among researchers in artificial intelligence and law. Indeed, in the 1993 proceedings only the paper by Donald Berman and Carole Hafner contained any reference to a work by a critical legal scholar. It is not surprising, therefore, that Berman and Hafner assert that legal argument must consider the purposes behind doctrinal rules—the jurisprudence assumed by legal expert systems must be "teleological." Effective argument must attempt to analyze the mystical discretion that positivism avoids.

Positivist jurisprudence has been sharply criticized in North America as incomplete, false and ideological. Positivism's primary defect is its failure to account for the teleological relationship between law and the social order. Case-based reasoning is based on the principle that like cases should be decided alike. Measuring likeness requires a standard of relevancy—what makes two cases relevantly alike? An adequate standard of relevancy in a model for legal reasoning must consider why doctrinal rules promote social goals. Even North American positivists now recognize that such a teleology must assume a central position in a theory of

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ejurisprudence.13 Frederick Schauer's "presumptive positivism" would harshly criticize non-teleological legal expert systems for failing to "glimpse" to see whether background justifications for the rules, or values unrelated to the justifications, were being significantly impaired.14

Furthermore, critical scholarship informs us that a theory of jurisprudence must account for the mechanics of ideology in judicial decision-making. Positivism fails to consider ideology and designers of legal expert systems have yet to consider the ideological implications of such systems. Finally, an adequate theory of jurisprudence must accommodate the results of Professor J.C. Smith's work on the relationship between the social order and the subconscious.15

Positivism's bleak outlook for expert systems merely reflects its impoverished account of judicial decision-making. A more prominent role for expert systems awaits a richer theory of jurisprudence, a jurisprudence that incorporates positivism, American legal realism, critical studies and psychoanalytic sociology into a single, coherent theory. The only theory of jurisprudence that begins such a unification is Professor J.C. Smith's analytic-teleological, or deep-structure, theory of law.16 Unlike positivism, deep-structure theory asserts that legal doctrine has at most an indirect influence on judicial decisions. Rather, judges determine case outcomes by applying "deep-structure" principles about how to relate fact situations to social values and how to mediate conflicting values that apply in the same factual context. The deep-structure theory of law mediates positivism and American legal realism, but the theory has yet to articulate its relationship to critical analysis or Professor Smith's own social-psychoanalytic theory about law.

14 Schauer, Playing by the Rules, at 196-206.
The obvious deficiencies of positivist expert system models of legal reasoning can be overcome by designing an expert system based on the principles of the deep-structure theory of jurisprudence. I will briefly describe the major features of deep-structure jurisprudence without attempting to justify its applicability to Canadian common law. Smith and Coval have already done this. This thesis will offer an alternative justification for deep-structure jurisprudence based on the principles of complex adaptive systems and will show how deep-structure theory can be expanded into a postmodern theory of law.

The "deep-structure" or "analytic-teleological" theory of law concurs with the doctrinal skepticism of American legal realists and critical scholarship—articulated legal doctrine under-determines case outcomes. On the other hand, the deep-structure theory of law asserts that judicial decision-makers do not exercise unbridled discretion once doctrinal argument becomes indeterminate. Rather, judges follow higher-order principles that are largely unformalized and unarticulated, but implicit in legal reasoning. Moreover, judges do not wait until doctrine exhausts itself before invoking such principles; the principles are operative at all stages of decision-making analysis.

According to deep-structure theory, social goals teleologically justify legal doctrine. The question why a legal rule exists is answered by asserting causal relationships between the application of the legal rule and the satisfaction of social goals. Social goals are ill-defined and any pretense that there is social consensus as to the composition of such goals is a myth. Nonetheless, patterns of consistency in judicial outcomes indicate that judges as a whole have presupposed a hierarchy of vaguely formulated social goals to which judicial decisions are related with a high degree of coherent rationality. This rationality mediates between social


18 Critical scholars may argue that even supplemented by policy argument, law is too indeterminate to explain judicial outcomes. However, critical scholars also argue that law systematically promotes the interests of the dominant social class. Law is either consistent or indeterminate—it cannot be both at once. Deep-structure theory
goals and decision outcomes according to higher-order principles and knowledge of causal relationships.

One such higher-order principle is proportionality—if in a particular context the effect of applying a legal rule designed to further one social goal has a disproportionately negative impact on another social goal of sufficient importance, then the legal rule should not be applied in that context. The principle of proportionality is a general deep-structure principle of legal reasoning. By applying it to a canonical causal relationship, a more specific principle of law can be derived. Thus, for example, the general proportionality principle implies the rule that no one shall profit from his or her own wrong.

Where it is the case that, under the existing rules of law, the doing of a wrong will allow a person to make a profit and that profit will tend to act as an inducement to do that kind of wrong, then the law shall proceed to remove that inducement.20

Some purported counter-examples to the principle that no one shall profit from his or her own wrong, fail as counter-examples because the causal element of inducement is lacking.21 Indeed, once the principle that no one shall profit from his or her own wrong is seen as an application of the deep-structure principle of proportionality, ostensible anomalies and the resulting indeterminacy becomes coherent according to the deep structure.22 Coval and Smith show that

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20 Smith 1976, at 164. This statement of the equitable principle is quoted from page 154.
21 Smith 1976, at 155.
22 See generally, Smith 1976, at 150-173.
conflicting principles are not merely "weighed"; judges resolve them in a predictable, rule-governed fashion.23

The term "deep structure" can be used in two different senses. One usage refers to the implicit, higher-order principles referred to above. Roughly, this is the form of legal reasoning. The other meaning refers to both the higher-order principles and the particular social goals, goal rankings and causal links that judges and other law-makers presuppose in an actual legal system. In this thesis, I claim that the higher-order principles are general and powerful enough to apply to most any legal order worth considering. These principles form the skeleton of a legal order, the general deep structure. A particular legal order, such as Canadian common law, implicitly adopts a particular set of social goals, goal rankings and causal presuppositions. These presuppositions are the flesh on the bones, the particular deep structure.24 The legal system can accommodate change in the particular deep structure without altering the general deep structure. This thesis will show that the explanatory power of the deep-structure theory results from the close relationship between the deep-structure, higher-order principles and the fundamental characteristics of a complex adaptive system.

Deep-structure theory asserts that, through training, judges have internalized the implicit deep structure of our legal system.25 Deep-structure theory does not deny that the particular social values that judges unconsciously apply have the effect of entrenching power in dominant social classes. Deep-structure theory merely asserts that there is a largely coherent, rational structure motivating seemingly irrational judicial outcomes. The law and economics movement, for example, attempts to articulate the particular deep structure of commercial law. Whether or not one agrees that the law should be structured around economic theory, law and economics offers insightful hypotheses as to the deep structure judges have internalized.

24 Professors Coval and Smith show how agency-related presuppositions underlie Anglo-Canadian common law in Coval & Smith 1986.
Deep-structure theory asserts that when making decisions, judges use principles of interpretation to scrutinize the corpus of recognized legal sources and to infer the implicitly recognized social goals and their relative rankings. The corpus of legal sources also contains assertions about causality—what facts promote or impair what social goals; what social goals instrumentally promote or impair other social goals. The judges use these assertions, subject to contrary proof in evidence, to apply the deep structure to specific fact situations. Thus, judges unconsciously implement the particular deep structure of our legal system. Judges then reformulate the outcomes into doctrine. But unlike doctrine, the deep structure of the legal system remains largely unarticulated by judges—it is implicit in the outcomes of precedent cases.

Deep-structure theory asserts that the peculiar, indeterminate nature of legal doctrine results from institutional constraints, specifically, the time and information costs that can be tolerated by private litigants appearing before an adjudicator with extremely limited resources. Doctrine is law’s attempt to fashion a set of workable rules to attain the best results with limited information and transactional resources. One might think of doctrine as equivalent to myths in pre-scientific cultures—both doctrine and myth relate facts to decisions in a manner that implicitly incorporates scientific principles, but the facts and outcomes are expressed in an economical and coherent narrative whose metaphoric form differs significantly from a more scientific explanation. Doctrine and myth serve to limit deliberation and promote action by artificially constraining the language of debate. However, as society’s general level of knowledge about the world increases, the information costs in judicial decision-making reduce and the doctrinal myth can be modified to reflect more precisely the generally accepted causal knowledge. Likewise, as legal academics offer more compelling causal accounts of law’s effects, they reduce the information costs to future litigants and judges can expand legal doctrine to state more openly law’s implicit deep structure. For example, in developing a deep-structure

26 This process is not made explicit by the judges. John Dewey noted this and concluded “that logic must be abandoned or that it must be a logic relative to consequences rather than to antecedents, a logic of prediction of probabilities rather than one of deduction of certainties,” John Dewey, “Logical Method and Law” (1924) 10 Cornell Law Quarterly 17-27, at 26.

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legal expert system to predict decisions about the admissibility of hearsay evidence,\(^{28}\) Professor Marilyn MacCrimmon identified reliability and necessity as two deep-structure principles underlying case outcomes.\(^ {29}\) The legal doctrine used to justify decisions had evolved into a confusing set of exceptions, which judges had to distort continually to achieve fair outcomes. Inflexible doctrine forced judges to exclude good evidence where they were unable to fit evidence into applicable doctrinal exceptions. Finally, the Supreme Court of Canada confirmed that the principles of reliability and necessity were the policies underlying the exceptions to the hearsay rule, and thus allowed new exceptions to the hearsay rule.\(^ {30}\)

When arguing a case, a litigant could either rely on legally recognized assertions about goals and causation, or attempt to prove them with evidence. However, it is very difficult and expensive to prove social facts, and it may be impossible to prove causation where there are conflicting expert opinions. Change in the law is therefore introduced piecemeal through evidence or slowly through evolving common sense.\(^ {31}\) Thus, for example, the Supreme Court of Canada has recently recognized that common sense now identifies the evil of obscene materials as promoting degrading and dehumanizing images of women, causing effects (such as violence toward women) that are inconsistent with legally recognized social goals.\(^ {32}\) A change in causal presuppositions thus results in a change to the law.

Apart from legal citation, proof by evidence, or common sense, a litigant can induce change by using a metaphoric argument. Indeed, this is where deep-structure theory could prove most useful to an advocate. The strength of the analogy in the metaphor would exploit evidence of a causal relationship from the factual context to a social policy that the judge could intuitively respect. The advocate could not openly cast the argument in terms of the policy—the courts have not yet openly recognized the policy and the litigants could not afford to gather the

\(^{28}\) Briefly, hearsay evidence is an account of what someone else claimed to have witnessed and is not admissible in a court as proof of what was witnessed. The direct evidence of the witness is generally preferred, since it is more reliable and can be probed, but the direct witness is not always available. The law has therefore evolved a complex set of exceptions to the hearsay rule.

\(^{29}\) MacCrimmon 1989.


necessary evidence to prove the policy's causal impact on society. In such a case, the judge would select the intuitively more appropriate outcome, but the judge would have to justify the outcome in terms of doctrine. Therefore, the judge would have to create new factual distinctions that are causally related to, \textit{i.e.}, are \textit{relevant} to, the implicit policy. The desire to respect the intuitively sensed social policy determines the standard of relevancy used to distinguish current doctrinal arguments. The test of time would enshrine the new factual distinctions and later they could form the basis of an inductive argument that judges have recognized the policy.\textsuperscript{33}

Deep-structure theory does not assert that the legal order ever reaches a state of equilibrium. Rather, the courts continually revise previously naïve causal presuppositions, which continually results in new policies and new goal rankings. These after-effects in turn modify the social order, and the legal order must again re-adjust its causal presuppositions, and so on. The deep structure of the legal order and its relationship to the social order are too complex to ever settle into an equilibrium or steady state. Even if it were possible in principle, the social order evolves too quickly and scientific progress (including the social sciences) requires continual revision of causal presuppositions. A static, optimum set of legal rules is impossible.

\textit{Deep-Structure Legal Expert Systems}

Research at the University of British Columbia has developed several successful legal expert systems using deep-structure principles. These systems have achieved over 90\% accuracy predicting case outcomes in areas of tort law generally considered to be notoriously indeterminate.\textsuperscript{34} These results offer strong computational confirmation of the basic tenets of deep-structure jurisprudence.

\textsuperscript{33} \textit{R. v. Khan} is an example of this process.
\textsuperscript{34} \textit{Smith 1984; Deedman 1987a; Deedman 1987b; Blackman 1988; MacCrimmon 1989; Kowalski 1990; Kowalski 1991.}
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The first legal expert systems designed using the deep-structure approach to legal reasoning were entirely rule-based. The legal expert expressed the hypothetical deep structure entirely in the form of if-then-else rules (modus ponens) that correlated fact patterns to case outcomes. The next generation of systems organized the fact patterns according to underlying principles, still in rule-based format. The legal expert closely examined case outcomes to infer "fuzzy" rules about what fact patterns were relevant to case outcomes.

Subsequently, case-based systems added a measure of flexibility by deleting the ultimate rules and, instead, referring to a database of cases indexed on standard factual descriptors chosen by the expert. The important advantage of case-based systems is that non-experts could add new cases and, should the case law drift from the originally hypothesized deep structure, the expert system would identify conflicting case law automatically. The success of case-based systems pointed to the need for powerful automated case retrieval systems and resulted in work on FLEXICON. More recent expert systems using the deep-structure approach have employed frame-based representations to better organize the rules; however, the frame-based rule organization did not incorporate any additional inferencing techniques from the deep structure of legal reasoning.

This thesis further develops the theoretical foundations for a deep-structure legal expert system that directly employs goal-matrix inferencing. According to the deep-structure theory of law, much of the legal reasoning in case law, particularly hard cases, involves consideration of competing social goals. A court will rule in favour of a social goal that would be disproportionately impaired if the alternative outcome would only marginally advance the competing social goal. If proportionality analysis could not resolve the conflict of goals, the court would then look to legal sources (statutes, cases, etc.) to discern an implicit ranking of the

35 Deedman 1987a; Deedman 1987b.
37 Fuzzy logic will be discussed in chapter ten. For a discussion of the relationship of rule fuzziness to information costs in legal process, see Smith 1993.
40 Kowalski 1990.
41 Coval & Smith 1982.
importance of the goals (the goal matrix). Subsequent work in deep-structure expert systems will focus on developing a computational model of goal-matrix knowledge representation and goal-matrix inferencing. By more precisely conforming to the deep structure of legal reasoning, I anticipate that legal expert systems will yield more accurate results and greater explanatory power.

The goal matrix applies across all areas of law; several expert system designers could make use of a common, expanding goal matrix. In this way, designers of expert systems in new areas of law could exploit the collective experience of existing expert systems. The performance of expert systems need not drop off precipitously once outside the narrow domain of a specific legal question. The quality of the advice would deteriorate to the extent the system lacked information identify causal links from decision outcomes to their effect on social goals.

The main component of a deep-structure expert system that uses goal-matrix inferencing would be a database of judicial case outcomes. The database represents each case as a collection of factual statements and an outcome. The database would represent the facts of each case in a restricted set of relevant factual indicators. The expert-system designer collects several cases from the area of law being modeled, forms provisional hypotheses as to which facts had a bearing on the outcome, and uses these fact-to-outcome associations to seed the database. Legal doctrine plays no role in the expert system.42

A case representation in the expert-system database might also identify relevant social goals, rank the importance of competing social goals, and list assumptions about how facts and outcomes causally affect social goals. Examples of identified social goals would be psychiatrist-patient confidentiality or safety of person. A ranking of conflicting social goals in a case, for example, might favour safety of person higher than psychiatrist-patient confidentiality. Causal assumptions would link the facts to goals. For example, the database could contain a case that asserts that where a patient informs a psychiatrist that the patient intends to injure someone, if the psychiatrist does not warn the intended victim this failure would probably cause a serious

42 Legal doctrine enters indirectly where a conclusion in legal doctrine has become a social fact. For example, the undisputed fact that X and Y have entered into a contractual relationship can be a relevant fact when considering whether X has a duty to warn Y of certain dangers relevant to the contract. The statement that there is a contract between X and Y would be doctrinal if the existence of a contract was an issue of dispute.
infringement of the victim's safety of person. On the other hand, warning the intended victim would infringe psychiatrist-patient confidentiality. The expert would add the case of Tarasoff v. The Regents of the University of California\textsuperscript{43} to the database with these facts, goals and causal assumptions. The case would also contain a goal ranking that favours safety of person over psychiatrist-patient confidentiality since this was implicit in the outcome of the case.

Once the expert-system database contained a sufficient number of case entries to usefully model an area of law, a user could ask the system for advice. The expert system would ask the user for information about the user's problem based on the factual descriptions of the cases in the database. The system could generate additional factual questions by considering the possibility that the user's situation affects conflicting goals. The system could determine factual relevancy by searching the antecedents of causal assumptions in the database. These causal assumptions in turn link to the goals represented in the expert system database. Causal assumptions in the database link facts to goals, and link goals to further goals. The intermediary goals might take the form of more specific policies. For example, the admission of hearsay evidence that is probably reliable when there is no other admissible evidence, is an intermediary principle instrumental to the social goal of promoting litigation based on true accounts of relevant facts.\textsuperscript{44}

The facts, causal assumptions, goal identifications, goal rankings, and outcome of a case, will each have an associated warrant of authority—the court that rendered the decision. The database need not restrict warranted facts, causal assumptions and goal rankings to those contained in case law—the expert system could include statutes or hypothetically provable, direct evidence. A deep-structure expert system would use higher-order rules, based on the quality of the associated warrant of authority, to resolve conflicts between inconsistent facts, causal assumptions, or goal rankings.

A typical session of a user of the deep-structure expert system would go as follows. First the expert system polls stock facts from the user. The expert-system designer would have

\textsuperscript{43} Tarasoff v. The Regents of the University of California, 529 P.2d 553.
\textsuperscript{44} MacCrimmon 1989; Blackman 1988.
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previously identified facts that typically influence judicial outcomes in this area of law. These facts would causally relate to the usual goals and policies forming the deep structure of that area of law. The expert system would also “glimpse” for possible goal conflicts with goals not ordinarily associated with the designated area of law. This would trigger further factual questions in an attempt to establish causal links between the user’s hypothetical situation and other social goals. When the expert system established causal links between the facts of the case and conflicting social goals, it would have to resolve the goal conflicts by applying proportionality analysis and appealing to the hierarchical ranking of goals in the precedent database. The goal analysis would provide a prediction of the most probable judicial outcome, based on the warrant of the relevant legal sources in the database.

Responsiveness to Critical Perspectives

It is important to consider how the use of expert systems to support legal reasoning could introduce, consolidate, or exacerbate implicit ideological biases. Ideally, a legal expert system would function as a tool to analyze legal rules so that judges could more optimally implement social goals in an instrumental, rule-governed fashion.

A structural critic questions whether the very form of legal rules serves to entrench unjustifiable allocation of power within society. An example of structuralist criticism is to show how the legal principle of “formal equality,” as compared to “substantive equality,” oppressively ignores the needs of various groups within our society. Furthermore, both American legal realists and critical scholars have forcefully argued that law’s doctrinal rules are

45 Schauer, Playing by the Rules.
insufficient to explain the outcomes of judicial decisions. Indeed, some critical scholars argue that rule-governance *per se* is an alienating negation of the human spirit, and thus advocate informal, rule-less justice.

These insights cast doubt on the wisdom of creating expert systems for use in a legal system. Computerized justice could exacerbate the worst features of rule-oriented legal positivism. The prospect of ubiquitous legal expert systems dispensing uncritically-followed black-box advice, masking ideologies and structurally oppressive formalisms, is unacceptable. An expert system designer, therefore, bears the burden of demonstrating that such effects would not be a feature emerging from the design of the expert system *per se*. Indeed, an expert system should facilitate exposure of the oppressive side effects of a legal system.

The deep-structure expert system proposed above would be open to obvious criticism for merely making the existing law more coherent and entrenching it. For this reason, the deep-structure expert system must not just predict an outcome; it must also describe the chain of reasoning. Moreover, whenever the system comes across conflicting factual or causal presuppositions, the system should identify the conflicting arguments and their respective warrants of authority. This feature would greatly enhance the potential jurisprudential utility of the system. An enlightened designer could then take care to include factual, causal and goal-ranking presuppositions from relevant but legally non-binding sources, such as academic articles. Thus, a deep-structure expert system would to some extent be able to accommodate competing world-views.

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49 "...[L]egal thought ... is actually lived in experience as imagined speech. That is, when we think it, we are actually seeing ourselves speak it in the presence of an invisible other, as something like a dress rehearsal for the moment of expression itself. And insofar as we see ourselves speaking it, we are adopting the same precaution we require of all our alienated performances—we withdraw our ownmost being from our appearance of an other to the other and secure our distance through the vigilance of perpetual self-observation," Peter Gabel, "The Phenomenology of Rights-Consciousness and the Pact of the Withdrawn Selves" (1984) 62 Texas Law Review 1563-1599 at 1579. See also Karl Klare, "Notes and Commentary: Law-Making as Praxis" (1979) 40 Telos 123-135 at 132. The views of Klare and Bulbus are discussed by Weitzer, who argues for a less skeptical position on rules: see Weitzer, “Law and Legal Ideology,” at 150-151.
This ability to accommodate coexisting, conflicting world-views is possible because the
general principles of deep-structure theory are descriptive rather than prescriptive. It is a theory
of law, not a theory about law.\textsuperscript{50} Deep-structure theory is therefore not inconsistent with many
of the insightful observations of American legal realists, critical studies, feminist studies or
postmodern approaches. Indeed, the designer of a deep-structure expert system should use
methods of critical enquiry to educe the particular deep structure being employed by the courts.
The designer should attempt to characterize the facts of each case in terms commensurate with
each competing world-view.\textsuperscript{51}

An example will illustrate the point. Let us identify the predominant judicial world-view
as $W_{\text{legal}}$ and the feminist world-view as $W_{\text{fem}}$. An example of a fact described in $W_{\text{legal}}$ might
be as follows: “Jane wore revealing clothing and invited herself over to Dick’s for coffee.” An
implicit causal assumption in $W_{\text{legal}}$ is that when women wear revealing clothing and are
friendly this is evidence of consent to sexual advances. The expert system’s description of the
facts could describe the event as “F\textsubscript{1}: Jane initiated a common form of social contact with Dick.
F\textsubscript{2}: Jane wore common public attire. F\textsubscript{3}: The meeting place was private. F\textsubscript{4}: Many men are
sexually aroused seeing women wearing the attire Jane wore.” The deep-structure expert system
could reflect $W_{\text{legal}}$ with the causal assumption ($\text{CA}_1 = F\textsubscript{1}$ and $F\textsubscript{3}$ and $F\textsubscript{4}$ implies reasonable
grounds to believe a woman consents to sexual advances), which would have precedent value
based on the cases in which it appeared. The expert system could also add a conflicting
assumption, warranted by evidence ($i.e.$, the designer asserts it as a provable fact) or warranted
by $W_{\text{fem}}$ (providing citations). The deep-structure expert system could then provide a useful
answer, namely, that case law ($W_{\text{legal}}$) implies reasonable grounds to infer consent to sexual
advances, unless the litigant can disprove $\text{CA}_1$ in evidence or the litigant believes that $W_{\text{fem}}$ has
recently achieved the status of common sense and will soon be reflected in judicial outcomes.

\textsuperscript{50} Lasswell and McDougal, \textit{Jurisprudence for a Free Society}, at 3-21.
\textsuperscript{51} Donald Davidson and Richard Rorty argue that no universal language exists to describe “facts.” On the other
hand, Davidson shows that whenever translation among world views is possible, the meanings of words in two
competing world-views can always be commensurated. Of course, commensuration may require great effort,
empathy and guile. Nonetheless, no general algorithm or methodology exists for translating between languages—a
universal translator cannot exist. Donald Davidson, \textit{Inquiries into Truth and Interpretation} (Oxford: Clarendon
Press, 1985); Richard Rorty, \textit{Contingency, Irony, and Solidarity} (Cambridge: Cambridge University Press,
1989).
The example shows that deep-structure expert systems are not necessarily incapable of anticipating legal developments. Furthermore, a deep-structure expert system would not necessarily have the effect of locking in the law to doctrines with negative side effects. The side effects would become expressed in the causal assumptions of the world-view of the class affected and, unless the expert-system user chose to exclude these "voices" from the precedent database, the expert system would point out the potential need for adjusting the legal system (by recognizing the causal assumptions of the oppressed world-view) so that the law would more optimally reflect the social goal hierarchy otherwise implicit in the law.

Since the principle of equality before the law is traditionally a high-ranking social goal in common law, we would expect the law to be responsive to evidence of suffering. However, this has not been the case. The following chapter will show that certain aspects of the particular deep structure of common law have interfered with the fulfillment of high-ranking egalitarian goals.
Chapter 2
Liberalism

Political liberalism is a particular attempt to fashion a legal order in terms of rule formulations. The "rule of law"—governance by laws rather than the whims of the powerful—is a cornerstone of liberal theory. Critical theory has continually attacked political liberalism as being inherently ideological and oppressive to non-privileged social classes. A common critical strategy is to expose the rule of law as a myth that fails to constrain the arbitrary application and formation of laws in the manner liberals assert is possible.

Some critical scholars argue that the form of legal rules causes oppression. This claim is abetted by arguments that the form of language and reasoning implies liberalism. Critical scholars who do not attack the source—the argument for liberalism from form—attack the result—governance by rules. Since deep-structure jurisprudence asserts that governance by rules is a good thing, critical scholars could dismiss deep-structure expert systems on the strength of existing critical analyses of liberalism. Such a dismissal would be premature because deep-structure jurisprudence neither implies nor derives from liberalism.

In this chapter I will show that while deep-structure jurisprudence can accommodate political liberalism, political liberalism is not a necessary feature of a deep-structure system. In order to clarify how deep-structure jurisprudence differs from liberalism, I will argue that problems with liberalism result from the particular deep structure it assumes and not from general deep-structure principles. In particular, liberalism does not derive from the form of language and reason. Critical scholars should not conclude that the fact liberalism has successfully mystified an oppressive particular deep structure by appealing to the nature of rules, implies that we should reject governance by rules. I will argue that the conception of

1 Liberalism here means political liberalism premised on rule of law and legitimated government action. Richard Rorty defines a liberal as someone whose highest value is to minimize cruelty among humans. I will not use Rorty's definition nor will I consider whether Rorty believes his liberalism entails political liberalism. See Richard Rorty, Contingency, Irony, and Solidarity (Cambridge: Cambridge University Press, 1989).
3 Smith presents this argument in J.C. Smith, Legal Obligation (Toronto: University of Toronto Press, 1976).
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Authoritative rule-making peculiar to liberalism is flawed, without showing that rule-making in general should be rejected. This will leave room to construct a positive theory of rules.

Justifications for liberalism have relied on presuppositions about epistemology—what we can know and the quality of that knowledge—that are too strong. From the perspective of knowledge construction, liberalism is an extreme form of knowledge optimism. Liberalism is a form of modernism. In particular, it makes assertions about human nature and the possibility of social consensus that could not, in principle, be known to be true. This will become clear after we examine complex adaptive systems in later chapters. However, any of several postmodern philosophies exposes these epistemological excesses of liberalism. This chapter will draw on anti-essentialist pragmatism.

The Logical Foundation of Liberalism

Two tenets of liberal modernism are the conception of legal obligation and the principle of formal justice (formal equality).

Professor J.C. Smith in his book Legal Obligation sets out a coherent liberal explanation of what constitutes the obligatory force behind legal obligations. The "ought"-ness of an obligation contains an implicit appeal to reason, which implies an appeal to causal claims where the ends are implicitly agreed upon. One refutes an "ought" by either (i) denying a causal relationship to an agreed end, or (ii) denying that the state of affairs (the end) is desirable (or more desirable than an alternative state of affairs). Legal obligation is the coincidence of moral reason (one "ought" to do something) with an obligation-creating practice in the social order (one is "obliged" to do something). The obligation-creating practice itself must be justified on moral grounds or enlightened social consensus. Moral grounds and social consensus amount to the same thing in most moral theories, since only immoral or irrational individuals would reject what should be the social consensus. Therefore, there must either be social consensus as to the

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4 Smith, Legal Obligation.
ends served by obligation-creating practices or a moral justification for coercing others to agree on the ends. In other words, the obligation-creating practice must be "legitimated."

A typical methodology in critical studies is to present empirical evidence that social consensus does not exist. There are inherent, meaningful social class conflicts based on economic, gender, race or cultural differences and these conflicts preclude the existence of social consensus. Thus the liberal claim that state law-making is legitimated is merely a myth to rationalize the status quo. Critical scholars marshal empirical evidence to show that the unlegitimated effects of liberalism are oppressive to various social classes. Critical analysis then examines how language and reason seduce the oppressed into accepting their lot. In particular, the myth of having a complete, coherent rule system masks causal connections from liberal concepts to class oppression. I will criticize liberalism from the opposite direction—by attacking the use of reason in liberalism.

In liberal modernism, rationality is thought to be essential to any moral order and rationality is absent insofar as arbitrary distinctions are made. Moral philosophers who back modernism have not embraced the possibility that moral principles are contingent and inherently vague (fuzzy) and that moral distinctions could be made randomly or probabilistically, possibly according to stochastic patterns. Moral rationality in modernism is reductionist and non-probabilistic—moral questions are answered by deductive derivations from universal principles using deterministic laws of cause and effect. Vagueness of concepts only reflects our unrefined state of knowledge—ideals are well defined in reality and we should aspire to achieve them.

Liberalism certainly does not challenge this aspect of modernism. Modernist moral philosophy asserts that the logical principle of universalizability constrains all moral judgments. Liberalism applies the principle of universalizability to the domain of legal obligations to derive the principle of formal justice:

Any judgment made in regard to a particular situation, that a particular person is or is not legally obligated to do a particular act, logically entails that the judgment instances a rule of law

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such that anyone in a relevantly similar situation is or is not legally obligated to do the same act.\(^6\)

Thus, an important constraint in liberalism is that a legal rule that creates a legal obligation must be reciprocal, where reciprocity is measured in terms of relevant similarities and differences. Obligatory force ultimately derives from a presumed voluntary compliance by those who are rational; it is an appeal to good reasons as to what similarities and differences are relevant. Legal rules and the legal system must be rationally justified in terms of the common good using good reasons.

In giving content to its conception of moral rationality—the principle of formal justice, relevancy, reciprocity, good reasons—liberalism uses modernism’s conception of the human agent. In modernism, every individual is a cognitive, moral agent who gathers facts, applies knowledge, makes choices, and acts according to those choices. Everyone is presumed to have potentially unbounded capacity to acquire knowledge, make rational decisions, and act on the basis of cognitive deliberation. I refer to these mythic individuals as “robust agents.”

In order to better achieve the common good, robust agents need a degree of stability of expectations, because stability of expectations enhances the capacity of robust agents to acquire knowledge and make rational decisions. Therefore, in the particular deep structure promoted by liberalism, the binding force of an obligation depends on the accuracy of the assertion that (i) stability of expectations, (ii) reciprocity, and (iii) a rational, rule-guided public order, are necessary for the existence and well-being of a community and the social life within it.\(^7\) The liberal justification for coercion and, by implication, legitimacy, depends on the existence of common reason and the possibility of reciprocal treatment.\(^8\)

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\(^6\) Smith, *Legal Obligation*, at 89.

\(^7\) Smith, *Legal Obligation*, at 74.

\(^8\) Smith, *Legal Obligation*, at 84.
Plainly, the liberal manifesto rests on the strength of the claims that (i) all individuals are robust agents, and (ii) there could exist a universal language in which to express good reasons. However, both these assumptions have suffered sustained empirical and philosophical attack. Marxist scholarship shows that social forces largely constrain the capacity of robust agents—life determines consciousness. Freudian and psychological studies make it equally plain that subconscious forces also undermine the myth of the robust agent. With regard to universal good reasons, continental philosophers since Nietzsche have discredited non-perspectivist epistemologies, and Anglo-American philosophers, such as Wittgenstein, Quine, Davidson and Rorty, have discredited essentialist and foundationalist epistemologies. Recent postmodern philosophy focuses on the confluence of social forces and subconscious forces in language. Postmodern philosophers see language as a contingent artifact for describing contingent perspectives of the external world, for constituting the human world, and allocating power within it. Since the 1950s the tide of philosophical thought has ebbed from modernism and the universal knowledge optimism it entails.

From the perspective of this chapter, the major difference between modernism and anti-modernism can be summarized as follows. Modernist reasoning assumes that once it is scientifically shown that \( x \) is the case, or that mathematical logic \( x \) operates, in one context of nature (domain \( X \)), it is always possible in principle to discover a function \( T \) such that \( T(x) \) is the case in domain \( Y \), where \( T \) is a linear (non-distorting) function. Anti-modernism asserts that scientific success in domain \( X \) is no guarantee of success in domain \( Y \). The function \( T \) need not exist in principle, or if it does exist, it might be a non-linear or chaotic transformation. Stated differently, modernism claims that each essence described by language holds universally

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9 Or could be, if they so chose. But if they had the ability to choose and become robust agents, they would be robust agents. It therefore begs the question to suggest that individuals have an option to become robust agents.


11 Toulmin, *Cosmopolis*.

12 As will be argued in chapter four, a deterministic rationality cannot use deductive logic to cross the threshold of a chaotic transformation into a new domain. The transformed function \( T(x) \) only holds probabilistically in domain \( Y \) and the concepts represented by \( x \) will be vague (fuzzy).
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(essentialism). The anti-modern view is that an essence is a collection of relations selected for utility within a particular domain (anti-essentialism). The anti-essentialist, however, must accept that result \( x \) in domain \( X \) is the best available description and may often concede that, pragmatically, we are justified in provisionally adopting \( T(x) \) (where \( T \) is linear) in domain \( Y \) until causal relationships peculiar to \( Y \) can be more fully understood. But that understanding might be in principle only fuzzy, probabilistic and not amenable to deductive reasoning.

The anti-modern view is that there is no universal language for all sciences. We can look for compact explanatory and predictive descriptions (models and theories), but there is no reason to believe, even in principle, that an \textit{a priori} common language relates all fields together or that the principles must emanate from a common mathematics. This does not deny that compact explanatory and predictive descriptions can be useful. One can use descriptions without committing to essentialism. Furthermore, a person who shares the same descriptions and participates in the same discourse as others in a social context because it has proved to have been useful, cannot justifiably dissent until that person can identify contrary empirical evidence or offer a better description. But once such evidence and alternative descriptions achieve a critical mass, the stage is set for what Kuhn calls a "scientific revolution," and a substitute world-view can be constructed.\(^{13}\)

Though constructed, a new world-view must be probabilistically close enough to "reality" to be useful—a constructivist theory of truth does not imply that we can create world-views arbitrarily.\(^{14}\) Perspectivism is not relativism. Complexity theory, which I discuss in detail in chapter four, demonstrates that because of the chaotic behaviour entailed in the evolution of complex systems in the world, there will always be, in principle, a probabilistic gap between any theory describing the world (a world-view or discourse) and reality. This probabilistic gap between world-view and reality ensures that different groups of people will find different

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\(^{14}\) The term "reality" is problematic in any discussion involving postmodernism. In this thesis I generally use the term reality to signify the outside world that exists independently of being perceived or described by humans. This presents a problem, since I can have no idea of what reality is apart from how I perceive it. Nonetheless, the fact that some models lead to obviously bad experiences, but do not once they are amended, implies that it is meaningful to speak about the relationship between models (or world-views) and reality, if only in this negative sense.
world-views more useful to their unique situation. Their peculiar circumstances (language, social history, personal history, resources, biology) constitute their unique constellation of needs and desires.

Once one accepts that linguistic descriptions of the world are only justified as useful within limited domains and may only be provisionally projected as *prima facie* descriptions of other domains subject to empirical falsification, one must question the purported universal scope of "good reasons" in liberal modernism. If different constitutive experiences occur among different peoples in the community, we should examine with extreme skepticism any claim that universal "good reasons" can be sensibly applied to everyone.

Liberal modernism's zeal for universality, coupled with its impoverished conception of human nature (the robust agent), results in an impoverished principle of formal equality. Liberalism presumes that formal equality assures egalitarianism because of the supposed universality of the robust agent myth. "Good reasons" are those that seem amenable to a robust agent—it is the world-view most useful for those inhabiting the community of robust agents.

The presuppositions of liberal common law have evolved to enhance the robustness of the mythical robust agent. Contract and property laws enhance stability of expectation and predictability; division of labour enhances the ability to covert deliberate choice into action. By favouring legal principles that enhance agency robustness, the law would presumably maximize the freedom of people to choose how they wish to achieve their needs and desires. Since the liberal presuppositions of law supposedly enhance everyone's capacity as an agent, and since, by hypothesis, agent robustness is universal, fortuitous differences in wealth are short term and, in the long run, we attribute failure to achieve one's needs and desires to immoral or irrational choices.

Marxist and Freudian approaches typically attack the robust agent myth by measuring the concrete effects of the myth by some ideal standard other than moral, free-will capacity, such as economic materialism or material reality. As noted, in liberalism formal equality is

inadequate because the presumption of homogeneous robust agents confines the scope of relevant criteria. Any departure from the conduct of rational, robust agents is irrational and the resulting inequalities are therefore morally defensible. This means that differences that are relevant from the point of view of Marxists or Freudians, which have richer conceptions of what it is to be human in a social setting, are deemed to be irrelevant in liberalism. Subsequent critical stances have identified other constitutive experiences unique to particular oppressed groups within society, such as women, visible minorities, and overwhelmed cultures. The emergence of successive critical stances supports an inductive argument that no universal language could exist to describe all possible human experience. The emergence of each critical stance is in relation to successively less modernist world-views, each of which purports to have achieved a universal language but which, in fact, fails to account for constitutive experiences of some other group. The purportedly universal language does not empathize with the experiences of the excluded group and therefore deems their experiences to be irrelevant or irrational. To this extent, the discourse disempowers the oppressed—language, rationality and knowledge are thus instruments of power allocation.

The use of language oppresses people whenever a discourse is presumed to contain an ideal foundation from which universal human nature is measured—whether that foundation is robust agency or economic materialism. Even if we expanded the principle of equality to include experiences identified by Marxists and feminists as relevant, from the perspective of an excluded group it would be mere formal equality—the excluded experiences would not constitute relevant differences; we would not achieve substantive equality.

*Substantive Equality*

We might ask whether we could solve the problem of achieving substantive equality by commensurating the current dominant discourse with the current set of critical stances. This strategy would only work if the resulting discourse exhausted the possibilities of human
experience. The anti-modern assertion is that no such universal discourse could exist. Postmodernists argue that we are to a large degree constituted by language and personal experience, and therefore the possibilities for human experience are unlimited. Indeed, the very act of commensurating critical stances into the dominant discourse can create new constitutive experiences, new relevant distinctions. For example, the literary critic Harold Bloom notes that Shakespeare's discourse created the possibility of new experiences. Until the dominant discourse adapts to accommodate these new experiences, the experiences of people in the new groups will be unexpressed in the dominant language and thus be irrelevant or irrational. The complex dynamics of language, society and personality will continually create new constitutive experiences, so that a universal language could never be achievable, even in principle.

Anti-modernism must therefore reject the possibility of a well-defined concept of reciprocity that transcends all possible cultural discourses. Indeed, a well-defined, universal concept of egalitarianism is not possible. If a group within society has different constitutive experiences, the rest of society has no basis to measure whether that group is being equally treated. What would constitute equal empowerment for a social climber, a factory worker, a depressive, and an Amish farmer?

Liberalism throws up its hands and draws a distinction between moral choices and matters of personal taste, the latter being irrelevant to equality, the former being based on good reasons in the discourse of robust agents. Liberalism defends the distinction because of the uncertainty of evaluating matters of taste. Liberalism has created a false distinction—uncertainty pervades all levels of liberalism's moral agenda.

Anti-modernism must address the very difficult problem of constructing criteria to evaluate how well a social order has achieved egalitarian goals. Indeed, why egalitarianism at all? One can derive reasons for cooperative strategies even among egoistic agents, and once altruism and empathy have been internalized and genetically favoured, some recognizable form of egalitarianism can be said to be self-evident to most people. But while naturalistic,

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evolutionary accounts provide reasons why such strategies are very useful for some species in appropriate environments, a universal or philosophical justification for egalitarianism, cooperation, or even egoism remains elusive.

A solution is to acknowledge that even though the human situation is contingent and not universal, the fact is that most of us do find some form of egalitarianism to be self-evidently right. Moreover, we do not feel too bad about coercing others to comply with the same view. It is a contingent fact that humans have survived as a cooperating group because most humans instinctively wish to survive and be cooperative and detest those who do not.

The real issue for most humans is whether they are cruel or they cause other people emotional pain without realizing it, merely because they cannot experience the world in the way other people experience it. Likewise, we are concerned whether we have failed to empower other people merely because we fail to understand what would empower them. An anti-modernist admits that no precise methodology could exist for understanding the constitutive experiences of others. Nonetheless, most people are similar enough that a capacity for empathy, energetically applied with guile, is usually a successful best strategy for commensurating experiences across discourses.

Anti-modernist arguments must not be pushed too far. To the extent a group of people is relatively homogeneous, this will provide a pragmatic measure with which to measure egalitarianism and substantive equality. Thus, most people in North America strongly correlate empowerment with command over resources and transactions—materialism. The fact that this is not necessarily so for everyone does not justify manifestly inegalitarian distribution among those for whom materialism does matter. The fact that ascetic monks renounce worldly possessions does not imply that factory workers are being treated fairly when they live in relative poverty. Marxism, therefore, must be reckoned with—it makes a plausible claim that its account of social reality is superior to that of liberalism. Furthermore, the fact that postmodernism posits close relationships between power and language does not render

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17 This is analogous to Gödel's incompleteness theorem and the incomputability theorems in computing theory.
18 Rorty, Contingency.
insignificant the probabilistic connection of our shared language to reality. The constitution of power is thus no more arbitrary than the constitution of truth.

_Rules Without Dogma_

This chapter shows that if postmodern claims about quality of knowledge and the constitution of self are correct, then liberalism is false. In this chapter I have uncritically relied on the conclusions of postmodern philosophy. Beginning in chapter four I will present my own argument for these conclusions.

My argument against liberalism did not need to assert that the form of legal rules is inherently ideological. Liberalism goes astray when it asserts that all people have the capacity to be robust agents and that good reasons derived from a few universal principles can capture the range of possible human experiences. Therefore, a critical argument that demonstrates the claims of liberalism are empirically false does not demonstrate that governance by rules is undesirable. I will argue that rule-governed behaviour is necessary in order to satisfy individual needs and desires within egalitarian constraints. To the extent the reader shares the goal of survival and agrees that cooperative existence more optimally enhances the quality of human existence, then rules are a good thing.
Chapter 3

Positivism

Positivists might argue that recent formulations of positivism adequately capture the teleological nature of legal reasoning. In particular, Frederick Schauer has developed a teleological positivism, which he calls "presumptive positivism."¹ If the designer of a legal expert system accepts these claims, then presumptive positivism subsumes the deep-structure theory of law and there would be no need to expand it into a postmodern theory of law.

In this brief chapter I will argue that presumptive positivism is inadequate for the same reason that political liberalism is unacceptable—it structurally impedes legal reasoning from empathizing with the experiences of the oppressed and thus unjustifiably entrenches inequalitarian distribution of power. As in the previous chapter, it is important for the purposes of deep-structure jurisprudence to refute presumptive positivism without refuting the possibility of rule-governed justice.

Rules and Justifications

Consider the role of rules from the perspective of presumptive positivism.

The basic structure of prescriptive rules is "All x's must (must not) (may) do r."² A rule relates teleologically to some goal, that is, obeying a rule should have a causal or correlative relationship to the justification for the rule. To illustrate this point, Schauer uses the example of a rule prohibiting dogs from being in restaurants. The justification for or goal of this rule might be to prevent disturbances to patrons' meals. The causal or correlative relationship, however, is probabilistic and inexact. The factual predicate of the rule embodies a probabilistic generalization about the world—most dogs create disturbances. Each rule attempts to fashion the factual

² Schauer, Playing by the Rules.
predicate in a simple manner using features about the world that rule-followers can detect with low enough information and transaction costs to be useful in its real world context. For this reason the concepts forming the predicates of rules are not precise—they are fuzzy.

Schauer claims that this simplification implies that rules must deviate from their underlying justifications. The deviation becomes apparent in what Schauer calls "recalcitrant experiences"—situations in which the context clearly indicates that application of the rule would not advance, or would thwart, the goals that justified the rule. So, for example, a well-trained seeing-eye dog would not violate the justification behind the injunction. In a conversational setting, we can contextually adjust rules on the fly; however, in a non-conversational setting the rule becomes entrenched and acontextual.

Schauer recognizes that justifications may be rules that are instrumental to even deeper justifications. As rules, the intermediate levels of justification will themselves deviate from the deeper justifications. Schauer fails to pursue this to its anti-modernist conclusion, namely, there are no non-probabilistic foundational justifications. The processes of reasoning and language inherently employ rules and classifications based on induction and probabilistic descriptions. In conversational settings we adopt probabilistically useful rules and classifications, unless we have sufficient evidence to warrant an exception to a rule, a revision of the rule, or a rejection of the rule. A sufficiently recalcitrant experience (or a series of recalcitrant experiences) could justify the information and transaction costs to reformulate the rules. Until such new experiences present themselves, the fuzzy, probabilistic, good-enough descriptions, rules and web of justifications have an inertia. This inertia provides the foundation necessary for action. If we become too exacting in our requirement for grounded knowledge, like Hamlet, we become paralyzed by inaction.

The web-like nature of justifications results in part from multiple instrumentality. For example, the legal concept of property rights serves many goals. As a result, the concept of property rights acquires more justificatory force (inertia) than any one of the many goals it

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3 This argument will be developed in chapter four.
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promotes. Nonetheless, neither property rights nor the goals they promote are anything other than fuzzy concepts that are probabilistically constrained by reality. In an anti-modernist epistemology, there are no essential, absolute, or foundational goals; there is merely a network of causal and correlative relations embedded into language that integrate with and to a large degree constitute human needs and desires. Therefore, over time, the genesis of a rule or concept (the original justification) becomes less and less relevant. As the effects of a rule spread, new niches and dependencies are created. The rule soon achieves multiple instrumentality and new interests lock-in commitment to the rule. For example, people may wish to prohibit dogs from restaurants because dogs are smelly, because they are allergic to dogs, because early dog-related traumas resulted in an unconscious phobia, because law-makers have historically banned dogs from restaurants and people have internalized negative, subconscious emotional associations between dogs and meal enjoyment. The adoption of a rule, therefore, over time creates new justifications that rule-makers might not have foreseen. Indeed, the reasons for continued commitment to the rule might arise purely as a result of the rule’s effect on power allocation—poor people cannot afford dog-sitters.

Rules and Power

Schauer purports to analyze rules in terms of power, but his idea of power is quite limited and unsuitable for responding to critical concerns. For Schauer, rules allocate power by limiting the discretion of the person obligated to follow the rule to deviate from the rule in otherwise appropriate circumstances, even where the person believes a deviation is required to better promote the justification for the rule. Schauer claims that a law-maker can defend this limit on jurisdiction either because of the prudential benefit of rules in general, or mistrust of the decision-maker in particular.

Schauer's analysis of jurisdictional power is not the same sense of power allocation that is fundamental to egalitarianism. Power allocation in this sense means political allocation of the
means of empowerment where there is intrinsic competition or conflict among groups. Schauer appears to have constructed his idea of power for the purpose of demonstrating that the rule of law can be effective, that the liberal paradigm of administrative law is well founded. However, he has rigged his definition of power to mask ideology and the concrete disempowering effects of legal rules.

Schauer completely overlooks the broader allocation of power implicit in a rule. Consider the example of a rule banning vehicles from a city park. The rule ostensibly promotes enjoyment of the park, but it also allocates power between conservationists and non-conservationists. Law-makers might adopt the rule as a compromise among powers with no coherent centre of justification, other than an approximation that mediates many conflicting goals advanced by different power groups. Law-makers should not tamper with such a rule unless the tampering preserves the allocation of power implicit in the rule, or they can justify the reallocation of power resulting from the amendment.

Ignoring the power-allocating effect of rules can lead to unjust results. For example, in Reference re Manitoba Language Rights the Supreme Court of Canada ostensibly advanced the rights of the French minority in Manitoba by ruling that the Legislature had to pass enactments in both French and English. This was a major expense for the Manitoba government. Arguably, the practical effect of the decision, in terms of empowerment, was to squander the French community's political influence over budget allocation on a low priority matter. As a result, a liberal principle designed to empower the French minority disempowers them merely because the positivist conception of rules only considers allocation of power in an administrative law sense (i.e., in a way designed to legitimate the rule of law myth).

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Rules for Humans

Schauer correctly asserts that a theory of jurisprudence cannot provide an adequate account of legal reasoning without considering the teleology of the rules—the social goals that justify the rules.

Schauer correctly identifies fuzziness of concepts and the probabilistic nature of rules as unavoidable sources of inaccuracy. However, Schauer fails to observe that this feature of rules applies to all language, reasoning, and other human attempts to cope with and flourish within the world. Without a set of universal and ideal justifications to give content to the rules, presumptive positivism has not provided philosophical reasons to use rules. At best, Schauer provides pragmatic, efficiency-related reasons for favouring the use of rules and reasons based on mistrust of certain decision-makers. But even these reasons are formulated in terms that presume the existence of universal justifications. If one accepts postmodern claims about the quality of knowledge, presumptive positivism does not have a justification for governance by rules. I will argue in favour of rule usage in subsequent chapters without presuming modernist claims about knowledge.

More seriously, Schauer fails to situate rules within a social order in which humans create, compete for and allocate power. Presumptive positivism therefore fails to consider whether rule-making perpetuates the oppressive effect of formal equality. Since this should be a fundamental consideration of any theory of justice, presumptive positivism has an inadequate model of legal reasoning for the purpose of designing legal expert systems.

To create acceptable legal expert systems, we therefore need a theory of law that can justify the use of rules without using the strong presuppositions of liberalism or modernism, and is capable of accounting for the dynamics of power in society. I claim that a postmodern theory of law successfully addresses these issues.

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6 For prudential justifications for using rules, see chapter 7 of Schauer, Playing by the Rules.
The task of this chapter is to set postmodernism on a mathematical foundation and use this to elucidate the constructive aspects of postmodernism. A comprehensive survey of postmodern thinking is beyond the scope of this thesis and is not required. Nonetheless, a brief introduction will help put the aim of this chapter in historical context.

The primary theme of postmodern thought has been that human thinking is not capable of exact, perspective-free knowledge about most phenomena in our world. To the extent that people believe they have achieved or could, in principle, achieve such knowledge, the belief is an illusion and they are living a fantasy. I call this fantasy “knowledge optimism.”

Postmodernism derives its name from the fact that it has been principally a reaction against the intellectual trend known as “modernism,” a pathological form of knowledge optimism. Stephen Toulmin traces modernism to the early 1600s. The social situation in Europe at the time was becoming increasingly acrimonious and chaotic, eventually erupting into the Thirty Years War. Europe needed an intellectual movement that was capable of transcending religious balkanization and reconstituting social order. René Descartes' philosophy of knowledge based on clear and distinct ideas and deductive logic proved successful in this task. Rationalism provided the foundation for Thomas Hobbes's political philosophy based on social contract and the emergence of nation states that were (somewhat) independent of religious authority. The deterministic, Newtonian model of the world in science propelled the momentum of the Age of Reason.

The seeds of postmodernism germinated in many counter-movements to the Age of Reason. Of particular importance was the approach of Karl Marx. Marx discounted the value of knowledge claims based on the deductions of rationalist political philosophy and, instead, focused on the concrete effects of political institutions on the common labourer. Marx attributed

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the appeal of rationalist political philosophies for the dominant classes to the social privileges they indirectly received from the political institutions, not on the philosophy's logical derivation from "self-evident" principles of human nature.

Marx did not extend his suspicion about rationalist political philosophy to the core of rationalist thinking. Friedrich Nietzsche provided the first comprehensive philosophy of doubt, denouncing knowledge optimism about any system. Nietzsche introduced the technique of deconstruction: examining the genealogy or history of a system of thought and attributing its knowledge optimism to self-interest and self-preservation. Nietzsche showed how knowledge optimism related to self-interest based on subconscious needs (decadence), supplementing Marx's focus on social interests.

Because Nietzsche reacted comprehensively against knowledge optimism, unlike previous critical thinkers, Nietzsche had to struggle to create any knowledge whatsoever. Nietzsche is frequently charged with nihilism—the denial of the possibility of knowledge or meaning. I call the claim that it is not possible to have any knowledge about a system "knowledge pessimism." In the next chapter I will argue that Nietzsche was able to create a constructive theory of knowledge based on his idea of will to power. In essence, Nietzsche anticipated the theory of complex adaptive systems.

Many postmodern critiques deconstruct rival theories without acknowledging the plausibility of the theory they attack—they are knowledge pessimistic toward their rivals. Moreover, such critics frequently advocate an alternative theory that is simply knowledge optimistic in a different way and favours their own self-interests. Such guileful strategies have tainted postmodernism as being subjective and arbitrary.

A mathematical foundation for postmodernism fulfills two goals. First, it provides a more compelling argument against knowledge optimism. Second, it provides a more detailed account of how plausible knowledge can evolve without a foundation of certainty.
Attacking Knowledge Optimism

Previous arguments against knowledge optimism have been dissatisfying in many respects. Various forms of romanticism, for example, are merely visceral expressions of intuitive dissatisfaction with excessive rationalist claims. Argument is in the form of vague appeals to intuition, the ineffable, mysticism, holism, emotion, or other cherished forms of non-rational experience. There is no serious attempt to meet rationalism on its own ground. On the other hand, the philosophy of knowledge (epistemology) has attacked knowledge optimism using analytic philosophy based squarely on logic. The efforts of Tarski, Quine, Davidson and Rorty show that essentialism (the possibility of a language based on knowledge optimism) is logically impossible. This refutation from within, however, is not intuitively engaging and is essentially a proof by reductio ad absurdum.

Chaos theory provides the elements of an intuitive and constructive refutation of knowledge optimism. Such a refutation has been formulated recently by the philosopher Stephen Kellert and need not be repeated here in full detail.

Chaos Theory

Kellert observes that "there is no simple, powerful, and comprehensive theory of all chaotic phenomena, but rather a cluster of theoretical models, mathematical tools, and experimental

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techniques.”5 He defines chaos theory as “the qualitative study of unstable aperiodic behaviour in deterministic nonlinear dynamical systems.”6 This turgid definition requires some unpacking.

A “dynamical system” is a collection of components that interact over time. It is an abstract concept that can describe any system, such as a dripping water faucet, the market for a commodity, or the plays of a basketball team. The instantaneous state of such a system is described by assigning mathematical variables to represent features of interest in the system. The dynamics of the system are represented by a rule (in the form of a set of equations) for transforming the current state description into another description for another time. I call this set of equations the system’s “evolution equations.”

A “nonlinear dynamical system” is a system where the evolution equations are nonlinear—variables are not just multiplied by constants, they multiply each other. Generally, this means that there are positive feedbacks in the system.7 For example, when video players and tapes came out in rival VHS and Betamax formats, people based purchase decisions on their perception of which format was more likely to prevail, resulting in a positive feedback as VHS began to clearly emerge as the winner.

Mathematically, the existence of nonlinear evolution equations usually means that the future state of the dynamical system for a specified time cannot be determined by any mathematical manipulation (such as integration) that bypasses the incremental evolution equations. Instead, the future state can only be discovered by calculating transformations, using the evolution equations iteratively to recalculate successive states over many small increments of time.

The situation is more profound than heavy computational workload. Mathematically it has been shown that these systems exhibit sensitive dependence on initial conditions.8 This means that minuscule differences in starting conditions can result in large differences in system

5 Kellert, at x.
6 Kellert, at 2.
7 A positive feedback exists when the result of a process promotes the continuation of that process.
8 A function $f$ on an interval $J$ has sensitive dependence on initial conditions if there exists $\delta > 0$ such that, for any $x$ in $J$ and any neighbourhood $N$ of $x$, there exists $y$ in $N$ and $n \geq 0$ such that $|f^n(x) - f^n(y)| > \delta$. See Kellert, at 12.
behaviour over time. In order to predict the future state of a system within a desired degree of accuracy, the values of the initial state would have to be known with exponentially more accuracy the further into the future the prediction is to be made. This results in the so-called “butterfly effect”: the flap of a butterfly’s wings in Brazil could set off a tornado in Texas.9

Kellert uses the term “predictive hopelessness” to indicate that a variable cannot be predicted within a useful range of accuracy due to constraints on how precisely the initial state of the variables can be measured. Nonetheless, if the sensitivity is not too extreme, short term predictions are possible. For example, John Casti observes that weather forecasters can make useful weather predictions up to five days in advance.10 Casti estimates that the best useful predictions that could ever be achieved would be up to nine days in advance. Kellert calls the amount of time that predictions about a system are useful its “predictively worthwhile time.”

Systems that have little or no predictively worthwhile time are called “chaotic” systems. Chaos theory thus focuses on systems that are unstable. Such systems never settle into a form of behaviour that resists or absorbs small disturbances—a slight nudge can change the behaviour drastically, like a marble on a saddle (unstable) as opposed to a marble at the bottom of a bowl (stable). Aperiodic behaviour means that no variable describing the system undergoes a regular repetition of values.

The fact that a nonlinear dynamical system is chaotic does not mean nothing can be learned about the system’s behaviour. By studying the mathematical properties of the system, we can give qualitative accounts of the behaviour. Instead of asking what the precise future values will be, we ask what characteristics would all solutions have over the entire range of possible starting conditions. This usually results in a topological profile, called an attractor. The topology (or shape) of the attractor, for example, might be a torus (a doughnut shape) or a fractal.11 Even though we cannot know what precise states will follow, we might be able to run

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9 The metaphor is attributed to a 1979 paper by Lorenz. See Kellert, at 13.
10 A useful weather prediction is one that outperforms the strategy of predicting the same weather as the day before. See chapter two of John L. Casti, Searching for Certainty—What Scientists Can Know About the Future (New York: William Morrow & Co., 1990).
11 A fractal is a pattern that repeats at all levels of magnification (like a coastline) and tightly packs into layers without crossing itself, thereby giving the appearance of a texture of higher dimension (like a filo pastry or croissant).
simulations and observe what classes of state configurations could follow and the probability that a particular class would occur.

Thus, chaos theory is the qualitative study of unstable aperiodic behaviour in deterministic nonlinear dynamical systems.

Chaos Theory Defeats Knowledge Optimism

If a nonlinear dynamical system is chaotic, then even if we know everything about how the parts of a system behave and even if we measure the starting conditions and all outside influences with incredible precision, since we cannot measure with infinite precision, it is impossible, in principle, to predict the future behaviour of the system without resorting to statistical prediction. Kellert calls this "transcendental impossibility."12

As a result of transcendental impossibility, chaos theory constructively proves that total predictability or comprehensive knowledge optimism is false.13 The scope of this shortcoming is quite broad, since most dynamical systems in nature and almost all social systems are nonlinear, and all but a handful of nonlinear dynamical systems are chaotic. Any system whose interactions are complex enough to introduce positive feedbacks, will be chaotic in all but exceptional circumstances. Until recently, science has steadfastly avoided chaotic phenomena, treating the non-chaotic exceptions as the rule.14

This pattern of denial is the pathology of obsessive knowledge optimism—modernism. On the other hand, the prevalence of chaotic systems does not imply that knowledge optimism about a system is always false. Many systems are linear and some nonlinear systems are not chaotic. Intuitively, we should expect knowledge optimism to be false wherever a system produces positive feedbacks that can amplify slight disturbances to initial conditions into immensely different behaviour over time.

12 Kellert, at 42.
13 Kellert, at 62.
14 See generally, Kellert, at chapter five.
An interesting example of a nonlinear system is the liberal deep structure presumed by common law. Coval and Smith show that many of the fundamental presuppositions of common law are intended to enhance the capacity of agents, to make us all more robust agents. Liberalism assumes people are robust and morally responsible agents. Since each person's needs and desires are unique, common law has assumed that the best way to maximize social welfare is to maximize the capacity of agents to get things done and let the agents choose for themselves how best to satisfy their needs and desires. So, for example, the common law values very highly property rights and freedom of contract. Agents require knowledge to link actions to their goals. Thus the common law promotes values such as freedom of communication, truth-telling and the ability to predict the actions of other agents. Chaos theory predicts that these rules should produce evolution equations that distribute wealth chaotically. A positive feedback occurs because agents with more capacity for agency have more capacity to enhance their capacity for agency. Wealth begets wealth. Furthermore, there is competition for scarce resources, so more-robust agents are further able to increase their edge. Once the system is chaotically unstable, accidental variations in agency capacity can result in immense differences in distribution of wealth. Factors such as initial wealth, initial social class, psychological trauma and biological variation all affect one's agency capacity. Since the causes of these variations are morally irrelevant, there is no moral justification for the immense differences in allocation of power that result. It is therefore wrong to be knowledge optimistic about the morality of "self-evident" liberal presuppositions.

The falsity of knowledge optimism in all but exceptional cases does not imply knowledge pessimism. Chaos theory shows that chaotic systems exhibit regularities notwithstanding the lack of total predictability. Chaos theory studies how unpredictable behaviour emerges and what are the limits to prediction.


16 Many factors other than common law rules affect wealth distribution, but the rules themselves are manifestly nonlinear. Moreover, the presence of negative feedbacks does not make the situation more rational. For example, water spilled from a glass onto a table undergoes positive and negative feedbacks (surface tension versus gravity). The resulting distribution of droplet formations is chaotic.
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Chaos theory therefore forces us to reconsider what constitutes a theory. The predominant attitude as to what constitutes a theory is that a theory should be able to predict and explain the behaviour of a system. A theory seeks to reduce the behaviour of a system to deductive, cause-and-effect relationships to known characteristics of the system's parts. A theory should be "microreductionist."

Chaos theory shows that the behaviour of chaotic systems cannot be explained as a theory. Experimentation and computer simulation can provide a model as to how the system works, but a theory seeks to answer why a system behaves as it does. The specific behaviour of a chaotic system cannot be deduced from knowledge of the individual components. A cause-and-effect gap exists; complete knowledge about the constituent parts will only give statistical information about the behaviour of the system.

It is in many cases impossible to infer future states knowing just the instantaneous conditions. Often one must also know the history of the system. For example, if you slowly open a water faucet the stream of water will progress from a steady drip, through a succession of period-doubling dripping rates, through a phase transition to a chaotic dripping rate, through a transition to a steady stream, and through another phase transition to chaotic turbulence. For the same flow rate of water, the state of the water stream could be on either side of a phase transition depending on whether the rate of flow had been slowly increasing or slowly decreasing. This historical dependence is called an "hysteresis effect" and can arise in almost any system that undergoes phase transitions as the control parameter is varied. The innately historical nature of such systems precludes deterministic prediction and explanation using microreductionist theories.

The implications of chaos theory force us to reconsider what constitutes an explanation of a system. Chaos theory provides qualitative information about systems. We can learn the relationships among large-scale properties of a system and its long-term behaviour. Chaos theory generates statistical or probabilistic long-term predictions. Quantitative predictions about

17 Kellert, at 93.
a chaotic system tend to have limited timeliness. Chaos theory can give an account of how and to what extent prediction in detail is limited.

In terms of causality, it is impossible to trace causation from the constituent parts to the behaviour of a chaotic system. The phase transition in which system behaviour emerges blurs the causal links to the constituent parts. The system behaviour emerges independently from the causal properties of the strata—the same general behaviour could be manifest in a system of different underlying components, just as different types of hardware can run the same computer software. Chaotic systems are thus studied without reference to the actual matter through which they are manifested. Chaos theory looks for geometric invariants common to many types of systems. Kellert notes that the “theoretical hypotheses of chaos theory assert relationships of topological similarity, not congruence of physical causes, between its exemplary models and actual systems.”18

A modal explanation seeks to fit puzzling aspects of the world into what we know; it seeks to answer why behaviour happens with an answer that states what must necessarily happen in terms of “laws” of nature. Chaos theory emphasizes connections and patterns, but the models it creates need not be deterministic and detailed. Kellert suggests using the term “order” to designate what chaos theory attempts to discover, as opposed to “law.” Chaos theory provides information about geometric orders that accompany unpredictable behaviour; it answers how it happens instead of why it happens.

To summarize, the method of understanding the appearance of unpredictable behaviour is by the construction of models and rules of thumb as to when the models apply to systems in reality. We do this not by breaking systems into their components and then constructing ahistorical deductive schemes, but rather by using experimental procedures that concentrate on holistic properties and historical development. The character of the understanding these models provide is that of qualitative expectability, geometric mechanisms, and order.19

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18 Kellert, at 107.
19 Kellert, at 114.
Therefore, while chaos theory refutes the possibility of widespread knowledge optimism, it also demonstrates that knowledge of a different quality can be achieved nonetheless.

**Emergence**

Since this thesis is ultimately concerned about knowledge claims regarding human interaction, the class of dynamical systems that creates topological orders from the interaction of many "actors" are of particular interest. "Emergence" is the bottom-up creation of systemic behaviour from many agents concurrently following less complex rules without a central controller. This is a special case of the systems studied in chaos theory.

An example will more clearly portray emergence. Computer simulations have been developed to mimic the flocking behaviour of birds. The programmers called their computer birds "boids." They programmed the boids to govern their flying behaviour using three simple rules for interaction: (1) try to maintain a minimum distance from other objects in the environment, including other boids; (2) try to match velocities with other boids in the neighbourhood; (3) try to move toward the perceived centre of mass of boids in the neighbourhood. There was no central controller. The boids acted as independent actors in parallel, reacting to the environment and other boids. The collectivity of boids consistently generated flocking behaviour. Moreover, the simulated flock exhibited realistic characteristics.

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20 The term "agent" could be used in place of actor. However, I prefer "actor" because it emphasizes behaviour, whereas "agent" might imply some self-knowledge or awareness of the rules being followed or why they are being followed. Such awareness is unnecessary for emergence.

21 This has been described as computational emergence; there are other types of emergent behaviour. Computational emergence has been described as a weak form of emergence; however, it is strong enough for the purposes of the argument in this thesis. For a classification of types of emergence, see Peter Cariani, "Emergence and Artificial Life," in Artificial Life II, eds. Christopher G. Langton, Charles Taylor, J. Doyne Farmer, and Steen Rasmussen, Sante Fe Institute Studies in the Sciences of Complexity, vol. 10 (Redwood City, CA: Addison-Wesley, 1992), 775-797 [This volume hereinafter Artificial Life II].

22 For a more lengthy discussion of this simulation and further references, see M. Mitchell Waldrop, Complexity—The Emerging Science at the Edge of Order and Chaos (New York: Simon & Shuster, 1992) at 241, 277-280.
like splitting to avoid objects in the pathway of the flock and rejoining afterwards. Flocking behaviour emerged from the concurrent behaviour of many actors.

Even knowing the boids’ rules in advance, there was no deductive procedure that could predict what systemic behaviour would emerge from a collectivity of boids individually acting according to the rules at the same time. In terms of chaos theory, this should be expected. Indeed, it has been shown that an attempt to deduce emergent behaviour is mathematically equivalent to the undecidability theorem in computational theory and logic—a general theory for predicting what systemic behaviour will emerge is logically impossible. The concurrent, parallel behaviour of the boids created a kaleidoscope of positive and negative feedbacks. There is no general algorithm for describing the large-scale effects of the interactions more compactly than running the simulation and seeing what happens. The only predictions that were possible in compact language, were vague and probabilistic ones about how the flock would tend to form and respond to the environment—the topology of flocks. “Flocking” was the order that emerged.

Evolution—Another Obstacle for Knowledge Optimism

At this point a knowledge optimist might protest that however unpredictable emergence is in general, once the rules of a system have been in place and stable behaviour is observed, this provides a sufficient foundation for laws governing social behaviour to be logically deduced from a hierarchy of principles.

There are two reasons why this qualified knowledge optimism is false. The programmers of the boid simulation found that it was impossible to successfully replicate flocking behaviour by creating a central authority that attempted to control the flock by issuing top-down commands. The centrally controlled flock, for example, could not deal successfully with unforeseen varieties of object encounters. As the exceptions multiplied, the set of

23 For discussion and references, see Waldrop, *Complexity*, at 281-282.
commands became computationally unmanageable. In social theory, Friedrich Hayek observed that top-down command structures in society are much less capable of utilizing vast quantities of distributed information and much less capable of responding to new experiences.24 Usually, it is possible to generate more complex system behaviour from the bottom up.

The second reason is that society always finds itself in evolving circumstances. Systems that generate useful behaviour from the interaction of numerous independent actors are better able to evolve. This is because small changes in the actors’ rules of behaviour can result in large changes in system behaviour. This results from the chaotic nature of the system—small changes tend to be magnified. A system that is able to harness this chaotic behaviour to its advantage is called a complex adaptive system.

Complex adaptive system theory studies how emergent systems evolve as the rules of the actors are varied, the frequency of interactions is varied, or influences from outside the system are added or varied. In a situation where there is natural selection, complex adaptive systems will adapt to persist by evolving more complex behaviour. The behaviour can be usefully viewed as incorporating implicit rules (or a model or theory) about its outside environment and what the system must do to persist in that environment. I call the internalized knowledge about the world in a complex adaptive system its “schema.”

This evolved knowledge falls short of the sort desired by knowledge optimists, but its evolved utility demonstrates that it is useful knowledge nonetheless. Moreover, the process of evolution shows how the knowledge can be continually improved without any notion of what perfect knowledge might be. By showing how complex adaptive systems evolve progressively more useful knowledge, we will have constructively shown how useful knowledge is possible in a world full of chaotic systems where knowledge optimism is not possible.

24 I will discuss the work of Hayek in chapter six of this thesis.
Defining Complexity

Before examining how complexity evolves, it is helpful to clarify what complexity is. The science of complexity concerns itself with both defining complexity and, more interestingly, determining what leads to the formation of complexity in systems.

One mathematical definition of complexity identifies the complexity of a message (or schema) as the shortest computer program (measured in number of bits) that can print the message. A message is said to be “compressible” if a shorter computer program would produce the same message by exploiting regularities in the message. It has been shown mathematically that it is computationally undecidable whether any given message is compressible. In other words, generally we cannot be sure that we have arrived at the most efficient way of describing how a system works.

This definition of complexity, however, would equate fractals, which computers draw using a simple formula and much computation, with intuitively less complex phenomena. The term “depth” has been adopted to signify the number of computer steps a computer program uses when it outputs the message. Thus we can measure the complexity of a schema by how many words or concepts it takes to express it and how much labour it requires to apply it.

A schema that can be compressed into a shorter form without adding significant depth has, in a sense, inflated complexity. We would like to refer to a schema’s complexity as the minimum total length and depth for all possible formulations with the same expressive power, but mathematics demonstrates that there cannot be a universal method for determining whether this minimum has been achieved.

Complexity can also be viewed from the perspective of building a schema to describe a system. Schema-building (i.e., model-building or theory-building) is the process of attempting to formulate a compressed description of a body of experimental data by exploiting regularities

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in the data. Complex adaptive systems evolve a schema about how to persist in the environment and this schema tends to increase in complexity.

*Complex Adaptive Systems*

If, as Stephen Kellert suggests, chaos theory is only a cluster of models, tools and techniques, then complex adaptive system theory has yet to form a cluster. The science of complex adaptive systems is a new, trans-disciplinary theory emerging from the study of complex systems in diverse areas of science—including mathematics, computer science, physics, chemistry, molecular biology, immunology, evolutionary biology, ecology, psychology, economics, anthropology, archaeology, linguistics and history. A complex adaptive system is a special type of chaotic system. It behaves according to an implicit, rule-governed schema of its environment and modifies its schema in response to feedback from the environment. Complex adaptive systems comprise many interacting actors. The "order" that emerges from the interactions helps the system to survive in the environment.

Complex adaptive systems are systems that "spontaneously" accumulate complexity. One of the tasks of the science of complex adaptive systems is to discover why the universe is not simply an undifferentiated mist of energy dissipating according to the second law of thermodynamics. Indeed, the theory of complex adaptive systems hypothesizes that the conditions for accumulation of complexity carve an exception to the second law of thermodynamics.

Chaos theory studies the structure of interacting components in an environment and attempts to determine under what conditions stable orders will emerge. Work on "auto-catalytic" sets of chemical reactions, for example, shows that for any system of reactions to endure in an

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26 Complex adaptive system theory is also known as complexity theory. However, complexity theory is sometimes associated with the older, more limited theory of computational complexity and computability. "Complexity theory" is less unwieldy, but wherever there might be confusion, I will use the expression "complex adaptive system theory."

27 Gell-Mann, at 1.
environment, it must possess self-reinforcing mechanisms. It must produce its own catalysts to promote the continued occurrence of the series of reactions that constitute the system. It is the self-reinforcing nature of a circular chain of reactions that makes the system endure. In the mathematics of chaos theory, such an emerging stability is called an attractor; in complex adaptive system theory it is generally called an “order.” As already noted, the order emerges from the concurrent interactions of the components. The properties of the components and the possible modes and rates of interaction constrain the range of possible stable orders that can emerge from a set of interacting components.

A remarkable feature of emergent systems is that they arise spontaneously, without central control. Systems that possess self-reinforcing mechanisms that withstand destructive pressures from the environment, endure to the extent of the strength of the self-reinforcing feedback and the stability of the environment in which the system occurs. The reason the order is self-reinforcing is that it implicitly encapsulates knowledge about the environment in which it occurs—the behaviour of the order encodes a schema as to how to withstand destructive influences from the environment.

A feature that distinguishes complex adaptive systems from other emergent systems is that complex adaptive systems encapsulate knowledge in something more than a mere look-up table of behavioural responses.28 The structure of the component parts of a complex adaptive system are somehow exploited to capture the regularities of the system’s experience in the environment in a highly compressed form as a schema. The system’s schema unfolds into system behaviour that contains implicit predictions about the future impact of the environment on the system and of the system’s behaviour on the environment.

The schema is approximate (fuzzy29 and probabilistic) because the expressive power implicit in the structure of the components is too weak to completely model the environment. Nonetheless, so long as the schema enables the system’s self-reinforcing mechanisms to be

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28 Gell-Mann, at 10.
29 “Fuzzy” concepts and rules will be discussed in more detail below.
more robust than the disintegrating influences from the environment, the schema is good enough for the system to endure.

There must be a positive feedback loop, a self-reinforcing mechanism that results in the persistence of the schema. The schema is implicit in the order of the system. The set of criteria that the schema must embody for the system to survive is called the "fitness function" for the system in the environment. For example, a bacterium moves in the direction of increasing concentration of glucose, implicitly following a fuzzy, probabilistic prediction that food lies in that direction. The fitness function only requires that the bacterium evolve behaviour that outperforms random searching, so fuzzy rules can satisfy the fitness function.

Why does complexity continually accumulate? It is conceivable that the most robust system in an environment would achieve hegemony and the complexity of systems would advance no further. Certainly this is the case for many systems, such as the formation of eddies in a stream. However, in many environments the structural properties of the elements and the nature of their interaction support more interesting system dynamics. If the environment can give rise to competition between two systems with emergent orders, the survivor will be more efficiently and successfully structured to ensure its survival by resisting destructive influences from the environment and the other system. Once an order emerges from a system, it will unpredictably affect the environment in which it emerges. The added richness in the environment, caused by the new system's behaviour, creates the possibility of a more robust competitor emerging. The form in which the newer competitors can emerge is contingent on the history of the environment, which is unpredictable. Nonetheless, the elements comprising the systems and their environment impose constraints on what types of systems might emerge.

For example, the mind is an order emerging from the biological activity of the brain. We know from chaos theory that such an order is independent of the material makeup of the constituent parts. It is therefore possible, in principle, to create a mental order (a mind) in something other than a human brain. However, the alternative medium must possess sufficient richness in the complexity of behaviour it can support. Skeptics of artificial intelligence assert that a computer is too impoverished. Indeed, it can be argued that the mind requires a chaotic
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system of such subtlety that its sensitive dependence can strategically exploit quantum uncertainty. Similar to the Penrose's hypothesis, it has been hypothesized that "life" is an emergent order that could be created in a computer.

Aristotle's Four Types of Causation

It is useful to review the ideas discussed so far by briefly examining Aristotle's four types of causes.

Philosophy has long been skeptical about knowledge optimism and a conception of cause and effect based solely on microreductive accounts derived from the laws of the material world. In Phaedo, Socrates denounces the poverty of Anaxagoras's explanation of causes, which Socrates interprets to reduce human action to the physics of bones and muscles:

If it were said that without such bones and sinews and all the rest of them I should not be able to do what I think is right, it would be true; but to say that it is because of them that I do what I am doing, and not through choice of what is best ... would be a very lax and inaccurate form of expression. Fancy being unable to distinguish between the cause, and the condition without which it could not be a cause.

Aristotle expanded on this theme and, being less parsimonious and idealistic than Socrates or Plato, observed four types of causation: the material cause, the efficient cause, the formal cause, and the final cause. Consider a clay bust. The clay with its binding properties is the material cause. The sculptor is the efficient cause. The resulting shape is the formal cause. The need to please the sculptor's client is the final cause.

31 Elliot Sober, "Learning from Functionalism—Prospects for Strong Artificial Life," in Artificial Life II, 749-765.
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These categories have continued to influence recent thinkers, resisting the tide of modernist thinking. The reason for this persistence is that chaotic systems preclude microreductionist accounts of cause and effect, a fact that is intuitively clear to subtle observers.

Consider the basic features of a complex adaptive system that emerges from the interaction of many actors. The system has the following: (1) many actors that behave according to rules; (2) an initial state or starting configuration; (3) concurrent interaction; (4) influences from outside the system ("exogenous" influences); and (5) an emergent order.

The material cause of the system is the collection of actors. The efficient cause is the starting state, the history of interactions, and the exogenous influences. The formal cause is the order that emerges. Notice that the chaotic nature of the emergence precludes a single microreductionist cause-and-effect explanation. If the system occurs in an environment in which natural selection acts upon the emerging order, those selective forces are the final cause of the system.

The topology of the order will be general and perhaps probabilistic. Since the system is chaotic, any small perturbation of factors (1), (2), (3) or (4) could result in a new topology that describes the system's emergent order. Complex adaptive system theory studies this evolution. As might be expected, the evolution of new orders is chaotic. Complex adaptive system theory therefore seeks topological models of how new orders evolve.

**Endogenous Selective Forces**

Aristotle and, much later, Darwin, intuitively perceived that outside (exogenous) selective forces were the most fundamental influence on how complex adaptive systems evolved. However, complex adaptive system theory has shown that exogenous selective pressure alone is

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insufficient to account for the tendency of orders emerging from complex adaptive systems to increase in complexity as they do.34

Systems of greater complexity do not spontaneously emerge in whole form; they come into existence by variation of the orders and schemas of existing systems. The selective pressure resulting from the emergence of new competitors increases the strictness of the fitness function so that only those systems with beneficial variations persist. In this way, an a posteriori teleology arises,35 favouring systems that have robust, improvable schemas that implicitly model the environment.

But a valuable, creative modification to a system's order and schema involves overcoming the system's self-reinforcing feedback mechanism. The system requires an "annealing" or chaotic force to move the system from its current "basin of attraction" or order to a slightly different order that encapsulates the improved schema. If the self-reinforcing mechanism is too strong, the system's order and schema are "locked in." A locked-in system cannot improve and its viability degrades as its fitness function changes due to the evolving environment. On the other hand, if the annealing force is too great, the disruption will cause the system's order to disintegrate and the system will not persist.

How does the transition from one schema to a slightly improved schema take place? We know from chaos theory that the details of such a move cannot be predicted with complete accuracy. Nonetheless, a general topology of evolutionary responses is being identified.

Darwin falsely believed that exogenous natural selection was the sole operative feature in evolution. In the theory of pure natural selection, the environment external to the system determines the fitness function for a complex adaptive system—the fitness function is exogenously determined. Random mutations provided the variations required for selection. However, computer simulations show that such a model evolves too slowly.36 We now see that

36 Kauffman, at 307.
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the orders and schemas enable, guide and constrain further molding by selection. The next changes are dependent on the previous gains. Which transitions are available depends on the principles of self-reinforcing mechanisms applicable to the interacting components of the system. The resulting order and schema must persist, which constrains the range of possible responses to selective pressure. Thus the components of the complex adaptive system themselves constrain the selection of viable successor orders and schemas. By examining what types of self-organizing systems can occur in the media comprising the complex adaptive system, generic properties of an entire class of systems can be identified.

Capacity to Evolve

When a system evolves a new schema, the system's behaviour affects the environment in unpredictable ways—perhaps subtly, perhaps drastically. To persist, a complex adaptive system must continue to evolve to accommodate the new changes in the environment. Selection therefore favours systems that are better able to adapt to changing environments. The capacity to evolve must itself evolve. As such, the adaptive capacity must be preserved in the order—the adaptive capacity must have self-reinforcing feedbacks.

A system's adaptivity might be too chaotic, too unstable—a minor variation in structure so drastically alters the system that it cannot easily accommodate minor variations. The alteration of a small part of the system's order unleashes an avalanche of change or "damage" that propagates throughout most of the system and results in disintegration of accumulated order.

Conversely, a system might be entrenched by self-reinforcing mechanisms that are too strong to permit enough change—a minor variation in the structure so slightly changes the order that the system fails to adapt quickly enough to the changing external environment. A change in an overly stable order or schema only alters the behaviour of the system by adding a local

37 A system might evolve a new "order" that does not involve a new "schema." The order is the topology of the system's behaviour; the schema is the model of the world that is implicit in the behaviour.
exception and fails to discover an underlying principle that would permit compression of the schema and result in enhanced power to predict future feedback from the environment. The change does not propagate far enough throughout the schema.

Complex adaptive systems adapt quickest when they are poised on the boundary between order and chaos—a minor variation usually results in slight variations to the order, but on occasion drastically modifies the schema. At this phase transition between unstable and stable systems, there is a “power-law” distribution of avalanches of reform (damage)—many small avalanches, fewer larger avalanches. Sites within a system “communicate” with nearby sites often, and distant sites rarely. A schema accumulates behavioural responses to exceptional feedbacks from the environment (small avalanches propagated locally), until a massive compression improves the quality of the schema (large avalanche propagated widely). Since selection favours quicker adaptation, complex adaptive systems tend to develop an internal structure that poises their adaptivity between order (stability) and chaos (instability). A complex adaptive system on the boundary of order and chaos will tend to develop a complex adaptive subsystem for managing change that itself tends to evolve to the boundary of order and chaos.

Schema Inaccuracy

It is useful to investigate the reasons why a schema might inaccurately model the environment. As already noted, the emergence of systems is chaotic and the effect of emerging systems on the environment is also chaotic. Changes can only be forecasted on a general level and probabilistically. Thus, to the extent the relevant influences of the environment are the result of systems with positive feedbacks or other sources of chaotic behaviour, no schema could model the environment with total precision. Nonetheless, probabilistic forecasting is achievable and useful.

A schema might happen upon underlying regularities by chance, but such a strategy would not prevail over others in the long run. A more sophisticated complex adaptive system
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would add testing of schema by observation, experiment and comparison of the schema with predicted effects. An evolving schema might find false regularities in the environment (superstition, for example). Conversely, an evolving schema might overlook regularities in the environment (denial, for example).

The fitness function implicit in the environment might be too complex for the expressive power of the components comprising the system. The fitness function implicit in the environment might be changing too quickly for the velocity of adaptive change that the system is capable of—as the complexity of complex adaptive systems increases, the complexity of the environment increases and places greater selective pressure on the systems it contains.

The sources of error discussed so far are all exogenous to the complex adaptive system. What Nietzsche discovered and Darwin overlooked is that most interesting complex adaptive systems are themselves emergent systems of interacting component systems. The encompassing complex adaptive system must have self-reinforcing mechanisms to preserve the components and the nature of the interactions. This generates an endogenous fitness function, which may conflict in some respects with the exogenous fitness function imposed by the environment. The schema implicit in the whole system is no longer purely determined by an exogenous fitness function, but is heavily influenced by the emerging dynamics from the interaction of the system’s components.

The capacity for self-reinforcement of any of the components might evolve too effectively in the competition for resources within the greater system. For example, there is a problem of what benefits the individual versus what benefits the species. Certain components may gain a vested interest in preserving an inferior schema (because it gives them relative success) and cause the overall system to lock-in and resist moves to schema that would be more optimal to the system as a whole. Ideology and decadence are examples of this phenomenon in human society.

Another endogenous source of an inaccurate schema is the drive to adapt itself. If a complex adaptive system has a tendency to search for new patterns to test as schemas (as an
evolved strategy for improving schemas), then there may be a tendency to adopt new schemas for their own sake. Successful schemas are abandoned too easily.

Plausibility

As already noted, the "progress" of complex adaptive systems (in terms of developing a more uncompressably complex schema of the environment) requires evolution of the ability to evolve. The complex adaptive system requires an annealing force or a steady injection of chaos to promote schema experimentation—but this annealing force need not be random! A system might evolve an order that uses a schema or strategy for the effective exploitation of chaos by favouring the generation of plausible variations to the schema.\(^{38}\) If this improved the system’s adaptability, however imperfectly, the system would have a selective advantage over system’s without a plausibility strategy. In a sufficiently rich environment, selective pressure from competition would inevitably result in systems with a complex adaptive subsystem for the introduction of plausible change. Of course plausibility could not be absolute since the transformation of orders is generally unpredictable, but this is the same problem faced by the simplest complex systems when encountering the environment—the solution is to start only slightly better than randomness and improve by accumulating complexity.

Since the plausibility function must itself be a complex adaptive system, the plausibility rules are never fixed—they become more complex. Two examples of strategies for generating plausible change are credit assignment and genetic recombination.\(^ {39}\) Credit assignment requires a capacity to sense what is good performance by the system and then reward (increase the influence of) those rules in the schema that seem to be causing the good performance. Genetic recombination is the creation of new rules by recombining the building blocks of the successful rules in the schema. The presumption is that the strong rules have valuable building blocks in

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\(^{39}\) Holland, at 23.
them and that new rules formed by them stand a greater chance of being successful. Computer
simulations of genetic algorithms show that plausibility schemes increase the rate of
convergence to fixed fitness functions. Plausibility, however, does not guarantee discovery of
the most optimal schema.\textsuperscript{40}

Since the plausibility schema is itself a complex adaptive system, it should avoid lock-in
to any fixed plausibility strategy. Any changes to the environment, any changes to the
encompassing complex adaptive system, or any changes to the plausibility complex adaptive
subsystem itself, would change the fitness function for the plausibility complex adaptive
subsystem. The plausibility subsystem must therefore be capable of a high rate of evolution. In
an environment with selective pressure, the most successful plausibility subsystems will evolve
to the edge of order and chaos.

The biological system capable of the fastest rate of evolutionary change, that we know
of, is the human brain. Humans have thus been able to evolve a sophisticated complex adaptive
subsystem for plausibility—language. Language facilitates the preservation of accretions and
compressions to the schema we use to interact with the environment. Collective,
intergenerational knowledge has vastly exceeded the expressive power of previous schema.

\textit{Irony}

In a sufficiently rich environment, a complex adaptive subsystem for plausibility that developed
a complex adaptive subsystem to manage variations to the plausibility subsystem would enjoy a
selective advantage. Thus the next phase-transition of complexity is to develop a self-awareness
complex adaptive subsystem. Thus the plausibility of the language-schema progresses by means
of scientific inquiry. At the individual level, people became concerned to shape their own
character.

\textsuperscript{40} W. Brian Arthur, “Self-Reinforcing Mechanisms in Economics,” in \textit{The Economy as a Complex System}, eds. Philip W. Anderson, Kenneth J. Arrow and David Pines, Sante Fe Institute Studies in the Sciences of
Language has been quite successful at modeling the constraints imposed on humans by the environment—the exogenous fitness function. Scientific method seeks to enhance the plausibility of the plausibility subsystem with respect to knowledge of exogenous constraints. However, the capacity of our language-schema to generate plausible variations to the schema of endogenous fitness constraints has been markedly poorer. There is a current need to increase the expressive power of language to better evaluate the plausibility of language-schema in terms of interpersonal (critical studies) and intra-personal (psychoanalytic) realities.

With the advent of postmodernism, we have evolved a complex adaptive system for ironic examination of the language we use to gauge plausibility, in relation to both exogenous and endogenous fitness constraints. Postmodernism involves an awareness that it is not possible in principle to develop a fixed, universal method of knowing what changes are plausible. As Nietzsche wrote in The Gay Science, any self-creation strategy must adopt “brief habits” on the way to developing more complexity—”enduring habits” are a lock-in to a suboptimal strategy of self-creation, and absence of habits is worst of all. The “will to power,” the need to resist disintegrating influences, drives a healthy complex adaptive system toward greater complexity to evolve at the precarious boundary between order and chaos, between stability and instability.

The complex adaptive nature of knowledge has been recognized by both philosophers and, now, scientists.

Conceptual revolutions are like avalanches of change in ecosystems, economic systems, and political systems. We need a theory of the structure of conceptual webs and their transformation. Pregnant questions are those which promise potential changes propagating far into the web. We know a profound question when we see one. We need a theory, or framework, to say what we know.

42 For example, the various writings of Nietzsche, Heidegger, Foucault, Derrida, James, Dewey, Pierce, Rorty, Wittgenstein, Quine, Davidson, Popper, Kuhn, Feyrerabend.
43 Kauffman, at 316.
But we have no theory of centrality versus peripherality in our web of concepts, hence no theory of pregnant versus trivial questions, nor of conceptual recastings which afford revolutions or wrinkles.44

Any conceptual scheme that is complex and adaptive will undergo avalanches of changes to improve itself and thus cope with exogenous and endogenous evolution of the relevant fitness functions. The conceptual system must have enough order to persist and be useful. But the system must also permit enough change to evolve. We face the problem of generating plausible changes to our plausibility schema in an environment where certainty is impossible. In a world where knowledge optimism is unattainable, we must use the current state of the plausibility function as the standard to measure the plausibility of changes to the plausibility function.

Computers offer the possibility of a further phase transition. The ability to “flight test” complex simulations helps us to gain a feel for what sorts of schema-variations will result in small or large modifications to the schema and their likely effect on the plausibility fitness function.45 Such radically historical dynamic modeling goes beyond the static, reductionist modeling of previous schema in complex adaptive systems, language in particular.46

Law is interesting in this respect because learning to “think like a lawyer” involves developing an intuition to discern when conceptual legal doctrine is poised for a dynamic shift. Moreover, the language of judicial decision-making has become increasingly ironic with respect to law’s developmental topology. The study of the topology of law holds great promise for advancing the study of complex adaptive systems and the ability of humans to fashion a more optimal social order through an enhanced complex adaptive plausibility schema.

44 Kauffman, at 316.
45 Holland, at 18.
46 There may be dynamic schema in the brain that we have not yet identified as such.
Fuzziness and Probability

Let us return to our main issue—how to construct useful knowledge in a world where knowledge optimism is not often possible. The above discussion of complex adaptive systems demonstrates that knowledge pessimism is unwarranted. Complex adaptive systems clearly outperform random guessing. Nonetheless, how well can evolution do?

Simple complex adaptive systems generate orders that exhibit simple behaviour. The schema of the outside environment implicit in such an order is very crude. In the bacterium example, the bacterium behaviour exhibits the rule "move toward increasing concentration of glucose." The schema implicit in this behaviour is that glucose emanates uniformly from its source so that glucose concentration decreases further away from a food source. This schema is not "true" by the standards of a knowledge optimist—the concepts are fuzzy and the prediction is probabilistic—but it is a viable strategy.

The concept "more glucose" is vague or "fuzzy." The success of the bacterium's behaviour does not depend on a precise, crisp concept of "more glucose." Indeed, such precision would be highly unlikely to evolve as a first step. Simple bacteria could only begin with a very rough indicator of "more glucose." Evolving schemas start with rules based on concepts so fuzzy they barely outperform randomness. The schema evolves more exceptions, and the fuzzy rules can become more complicated and precise.

This strategy can be very successful. It has been proven that a system of fuzzy concepts and if-then rules can be made to uniformly converge to any continuous function.47 This means that for systems where knowledge optimism is possible, a fuzzy schema can home in to a solution within any desired degree of accuracy. The possibility of uniform convergence implies that an evolving schema can accomplish the task. It also implies that rival, incompatible fuzzy schemas can evolve down different pathways toward the same solution.

What about discontinuous and chaotic functions—systems where knowledge optimism is not possible? Complex adaptive system theory has identified many factors that improve the

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ability of a complex adaptive system to home in on optimal solutions. The sub-discipline of
genetic algorithms shows how this could be done.48 Indeed, genetic algorithms have been used
to evolve strategies for problems that do not have unique optimal solutions, and have
outperformed humans at the same task.49 This shows that complex adaptive systems are able to
outperform randomness even where knowledge optimism not possible. Though not proven yet,
it appears to be the case that fuzzy schema in complex adaptive systems can evolve to converge
toward useful topological models of chaotic systems.

"Convergence" is harder to measure in this case, since topological models of chaotic
systems are not precise to begin with. Moreover, there need not be a single, unique topological
model that best describes a chaotic system. The choice of fuzzy concepts used in the topological
model will depend on the use intended for the model. Thus there can be several models, all
incompatible, none clearly superior to the others, each clearly better than random guessing.

The evolution of fuzzy schemas in complex adaptive systems thus appears to be
mathematically possible. Indeed, the best method of constructing knowledge about chaotic
systems would appear to be evolution of complex adaptive systems.

Constructed Knowledge

The preceding discussion shows that useful knowledge about the world can be constructed in
the absence of knowledge optimism. The evolution of schemas in complex adaptive systems is
like the slow focusing of a lens. To retain the capacity to evolve, the system should never
attempt to make its focus completely precise. Fuzziness must be retained so that the system can
chaotically experiment to creatively evolve better schemas. Furthermore, since most complex

48 John R. Koza, Genetic Programming—On the Programming of Computers by Means of Natural Selection
49 David E. Goldberg, Genetic Algorithms in Search, Optimization, and Machine Learning (Ann Arbor:
University of Michigan Press, 1989). See generally, Waldrop, Complexity; and Steven Levy, Artificial Life—
The Quest for a New Creation (New York: Pantheon, 1992).
adaptive systems exist in an environment filled with chaotic systems, the object of focus will be blurry in any event.

The strongest argument that useful knowledge can be constructed by evolving, fuzzy schemas is the fact that complex and viable schemas have evolved. The success of living organisms implies that their fuzzy schemas must be usefully good.

**Characteristics of Complex Adaptive Systems**

I will argue in subsequent chapters that self, society and law are all orders emerging from complex adaptive systems.

It is helpful, therefore, to briefly list some of the major characteristics of complex adaptive systems: (1) the emergence of an order of system behaviour that has an implicit schema; (2) a selective force that creates an *a posteriori* teleology in the form of a fitness function; (3) self-reinforcing mechanisms to promote the stability of the schema; (4) a tension between acting according to the rules of the schema and detecting when to create exceptions to the rules; (5) instances of schema inaccuracy based on false regularities or denial of regularities; (6) instances of lock-in; (7) annealing forces to prevent or dislodge lock-in; (8) avalanches of change propagating throughout the schema over time, in sizes that vary according to a power-law distribution; (9) increasing complexity by accretion of exceptions followed by transformational compressions; (10) transformations that exploit the existing structure of the schema; (11) the fitness functions and self-reinforcing nature of complex adaptive subsystems interfering with the viability of the complex adaptive system as a whole; and (12) development of awareness of the developmental logic of change in the schema, both exogenously and endogenously.

Complex adaptive systems affect their environments in chaotic, unpredictable ways. This leads to a never-ending cycle of feedbacks that ensures the fitness function for a complex adaptive system will never remain fixed. The notion of a universally optimal fitness function or
an ideal schema, is not well defined. Complex adaptive systems "never get there.\textsuperscript{50} The system is in a constant tug-of-war with its environment, evolving improvements, followed by setbacks as the environment changes. Evolutionary activity can be measured in so-called "telic waves" of adaptive improvements.\textsuperscript{51} While organisms are in a sense stuck on an evolutionary treadmill, successful complex adaptive systems evolve better and better schemas in response to each setback.

There is no such thing as a fixed, ideal environment. Complexity increases as history unfolds and complex adaptive systems at the edge of order and chaos evolve new media capable of even greater complexity. If knowledge optimism were true, then we would be evolving to an ultimate static order—a dead system. A healthy complex adaptive system, like a healthy personality, avoids lock-in to a static order and thereby ensures continual, responsive and unlimited creativity.

\textsuperscript{50} Holland, at 20.
\textsuperscript{51} Bedau and Packard, "Measurement of Evolutionary Activity."
Irony pervades postmodernism—the postmodern critic probes the contingency of a style, without veiling the contingency of the critical perspective itself.

Postmodern philosophy struggles with the contingency of constructed knowledge. While every fuzzy schema of the world implicit in a viable system is obviously useful, the chaotic aspects of nature mean that no schema can stand above all others. Different schemas are more useful, depending on the unique fitness function for that system. The "truth" in the schema is, in a sense, dependent on the needs of the system to survive in its changing environment. As such, the "truth" is contingent. The problem of philosophizing about contingency in a contingent language that announces its contingency makes postmodern philosophy inherently difficult to appropriate.

Friedrich Nietzsche fully appreciated the ironic condition and correctly identified complex adaptive systems as the source of this contingency. Nietzsche saw even the development of the self as the evolution of a complex adaptive system. Moreover, he saw that the conscious self was an order emerging from many complex adaptive systems operating subconsciously. A true postmodern in spirit, Nietzsche would not present his philosophy without announcing the contingency of himself. However, it is notoriously difficult to understand one's own subconscious profile. This is the core problem of deconstructive postmodern philosophy—Am I doing what I am doing for the reasons that I consciously tell myself and others? Or is there some other force that compels me? It is much easier for a bystander to identify rationalized behaviour. Nietzsche himself makes this point in Human, All Too Human:

491. Self-observation. — Man is very well defended against himself, against being reconnoitred and besieged by himself, he is usually able to perceive of himself only his outer walls. The actual fortress is inaccessible, even invisible to him, unless his
friends and enemies play the traitor and conduct him in by a secret path.¹

But Nietzsche had no bystanders. He was a century ahead of his time; he was not understood. To remain faithful to his postmodern insights, Nietzsche had to display his personality in his writings for future readers since he could not understand himself.

Nietzsche’s writings present a concrete example of self as complex adaptive system—Nietzsche—and the methodology to understand that self—the will to power. To understand Nietzsche’s comprehension of the self as a complex adaptive system, we have to understand Nietzsche.

Understanding Nietzsche

Nietzsche’s writings are episodes of unconscious rage directed at his parents but transferred toward substitute objects. As age eroded Nietzsche’s capacity to repress the deep wounds of childhood trauma, he had to channel his inner anger toward symbols closer and closer to those who destroyed him as a child. Like a serial killer, Nietzsche’s need to vent pent-up affect swelled with the demise of each victim. Finally, rather than confront his mother directly over her violation of his childhood, Nietzsche escaped into insanity so that he could express rage at her openly without fear of committing matricide.

This thesis argues that Nietzsche’s writings are best understood as the encoded cries of a hurt, confused, and silenced lonely boy. As both young child and adult writer, Nietzsche sought one thing above all—to be heard (EH, P, 1) and understood (EH, IV, 9).² Nietzsche never enjoyed an understanding audience.

² Friedrich Nietzsche, Ecce Homo, tr. Walter Kaufmann (New York: Random House, 1967). References to Ecce Homo are abbreviated without footnote as "EH" and use the division labeling of the Kaufmann translation.
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Even though Nietzsche easily smelled the entrails of other peoples’ souls (EH, I, 8), Nietzsche appears not to have been consciously aware of how controlling his own subconscious was. If he had been self-aware, then why was he so obscure? This forces Nietzsche’s readers to consider how to go about interpreting Nietzsche.

There are at least four ways to approach his writings. First, we can piece together what the conscious Nietzsche says. Unfortunately, a straightforward reading of Nietzsche is difficult if not impossible. “Whatever else we may be tempted to say of Nietzsche’s ideas, it is unlikely that we shall describe many of them as sensible. Time after time, Nietzsche tears at the fabric of common sense, at the sense of ordinary language, at the language of reasonable thought.”

Even a thorough and sympathetic translator such as Walter Kaufmann claims that Nietzsche was an experimenter and not a systematic thinker, unified only by intellectual integrity. Indeed, obfuscation appears to be an essential aspect of Nietzsche’s style.

A second approach is to trace how Nietzsche’s subconsciousness expresses itself through his works. Alice Miller observes that Nietzsche’s philosophy was his weapon in a substitute battlefield—he could not confront his deepest emotional problems directly because the lonely Nietzsche could not bear the threat of losing his fantasy that his mother loved him. Nietzsche’s works are the muffled cries of an abused and isolated child who could not voice his pain to an understanding listener. However, this does not mean that Nietzsche’s insights are merely a gripping and sensitive expression of the scars of his suffering and oppression. Nietzsche the philosopher developed highly original and potent analytic tools in his attack on philosophy, ideals and morality—deconstruction and perspectivism, for example. Nietzsche also discovered essential elements of complexity theory and psychoanalysis. Driven by powerful unconscious emotional needs, Nietzsche’s brilliant intellect honed razor-sharp intellectual tools. These tools are his gift to twentieth century thought. Our third approach,

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4 Nehamas, *Nietzsche*, at 15.
5 Alice Miller, *The Untouched Key: Tracing Childhood Trauma in Creativity and Destructiveness*, tr. Hildegarde and Hunter Hannum (New York: Doubleday, 1990) [hereinafter Miller].
therefore, is to identify, examine, and refine the tools Nietzsche created to move forward his subconscious agenda.

A fourth approach is to attempt to construct interpretations from Nietzsche’s work irrespective of his conscious or unconscious intentions. What is the most germane reading of his writings from the perspective of twentieth century concerns? A strong misreading of Nietzsche’s writings may conflict with Nietzsche’s conscious or unconscious intentions, but offer a better overall philosophy than Nietzsche could have foreseen.

For example, Nehamas argues that Nietzsche’s confusing style is an essential aspect of presenting Nietzsche’s perspectivist philosophy. Miller argues that puzzlement is a feature of Nietzsche’s writings as unconscious revenge for the puzzlement the four-year-old Nietzsche endured as his father’s mental faculties deteriorated, and later in attempting to fathom, by himself, the hypocrisy of the severe pedagogy of the Christian women who raised him. Nietzsche is consciously ambiguous: he wants to be understood but he enjoys being obscure—"My triumph is precisely the opposite of Schopenhauer’s: I say, “non legor, non legar” [I am not read, I will not be read] (EH, III, 1). Was obscurity a deliberate masterstroke, or subconscious revenge, or both?

The truth is likely a combination of these factors. Clearly Nietzsche would be attracted to philosophies that appealed to his subconscious agenda—they would feel right. Miller, for example, notes that since Nietzsche was not permitted to speak freely as a child or adolescent, Schopenhauer would have rung true for Nietzsche in place of Nietzsche’s own words. The genius of Nietzsche is that his powerful intellect exposed philosophical dead-ends and allowed him to create the philosophical tools he needed to complete his emotional projects.

A thoughtful reading of Nietzsche shows that he intuitively understood the essential elements of complex adaptive system theory and applied it at many levels. On a philosophical level, he understood that complex adaptive systems require a degree of chaos to disrupt order and avoid lock-in to systems with a manifestly suboptimal relationship to their environment. On

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6 Nehamas, Nietzsche, at 20.
7 Miller, at 85-91.
8 Miller, at 83.
an emotional level, the young Nietzsche (the subconsciousness of the adult Nietzsche) needed to chaotically disrupt the cruel morality (suboptimal lock-in) of those who raised and mistreated him. This helps explain Nietzsche’s fascination with Dionysus. Dionysus plays multiple roles in Nietzsche’s life: a philosophical role—the chaos required for a complex adaptive system—and an emotional role—a character with whom Nietzsche could identify himself.

When Nietzsche’s writings stray from his emotional agenda, his philosophy is dull, banal, lacking in acute empirical observation, often cruel and frequently dangerous. By identifying the elements of Nietzsche’s philosophy that were powered by his emotional needs, we identify the true fruits of his genius. The rest is *obiter dicta.*

*The Subconscious Nietzsche*

Children who are emotionally or physically abused by their parents often sever or repress genuine, healthy emotional reactions from integrating into their conscious experience of selfhood. Such abuse often includes repression of the child’s need to express anger at its parents and compelling the child to honour its father and mother. Young children have an emotional need for parent love, which they emotionally equate with their own survival. All well brought-up children are afraid that their angry words might kill those they love.9 Thus, they idealize their parents and frequently idealize or repress knowledge of the abuse they suffered. Later in life, the repression manifests itself in any of several ways—depression, self-destruction, grandiosity, artistic expression—depending on the history of the person. For Nietzsche, it came out as critical writing. Nietzsche could criticize abstract ideas so that (unconsciously) he did not have to worry someone would die. Even when he enraged people, Nietzsche could defend himself with his intellectual prowess—he would not be facing them like a helpless, guilty child, as his subconsciousness believed he would if he confronted his mother.

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9 *Miller*, at 84.
Miller concludes that Nietzsche’s writings and what is known of his childhood show that Nietzsche was an abused child who could not overcome his idealization of his parents and, instead, lashed out at others.

... [W]hat Nietzsche wrote was his hopeless attempt, which he didn’t abandon until his breakdown, to free himself from his prison by expressing his unconscious but present hatred for those who raised and mistreated him. His hatred, and his fear of it, became all the more vehement the less he succeeded in becoming independent of its objects, his mother and sister. ... Both mother and sister needed Friedrich’s dependence on them until the very end. Since the perfectly raised child had learned at an early age not to defend himself but to struggle instead against his true feelings, the grown man was unable to find his way to real liberation. His writing kept alive the illusion of liberation because on a symbolic level he actually did take steps in the direction of truth and freedom. He took them in his life as well but only insofar as they did not involve the members of his family. ... But [such steps were] still an ersatz solution as long as he was unable to recognize his idealization of his parents, who were responsible for his suffering. For his true feelings (of anger, fear, contempt, helplessness, the wish to be free, destructive rage, and desperate dependence on his persecutors), originating in childhood, gave him no peace and kept demanding new ersatz objects. 10

Miller cannot offer a reductive proof of her claims—of the subconscious, one can only offer a compelling interpretation or narrative based on the known facts of childhood and the peculiarities of behaviour patterns later in life. Since these claims are bold and the literature on Nietzsche does not appear to have absorbed them, this chapter will summarize at length Miller’s observations on Nietzsche’s childhood and its effect on his later writing.

10 Miller, at 90-91
Nietzsche's Childhood

Both of Nietzsche's parents were children of Protestant ministers and there were several theologians in both families. Nietzsche’s father was a teacher and, later, a Protestant preacher. At age thirty, he married Nietzsche’s mother, who was seventeen at the time. He also brought both of his unmarried sisters and his mother into the household at that time. Nietzsche was born when his mother was eighteen. When Nietzsche was two, his sister was born. A brother was born a year after that, but died at the age of two.

Nietzsche’s father loved his son very much and as soon as Nietzsche could talk his father liked to spend all of his free time with Nietzsche. The father must have been proud of young Nietzsche’s developing intellect. Nietzsche would enter his father’s study and watch him “quietly and thoughtfully.” Nietzsche was spellbound when he sat at the piano with his father who would improvise. “This important experience and the warmth the father may have shown his son probably played a role in enabling the boy to experience strong feelings in spite of his rigorous upbringing.”

However, Nietzsche’s father strictly forbade certain genuine, healthy feelings and severely punished young Nietzsche for expressing them. Nietzsche’s temper tantrums resulted in his father taking “energetic measures against this behaviour,” which included locking the boy in a dark closet. Yet for a long time Nietzsche was stubborn “although he no longer rebelled but withdrew silently into a quiet corner or to the privy, where he vented his anger by himself.” The strictness of Nietzsche’s upbringing was intensified by Nietzsche’s grandmother and two aunts, who were also concerned with the proper upbringing of the firstborn child.

Nietzsche’s father died when Nietzsche was four, after eleven months of what was probably a brain disease. The father remained in the house for the eleven months that his mental

11 Miller, at 78.
12 Miller, at 76.
faculties deteriorated. The clever man Nietzsche so admired became stupid. Young Nietzsche no doubt told his father things and asked him questions to use his father as a point of orientation. His father’s responses must have become increasingly perplexing and unpredictable. Young Nietzsche would have been perplexed and scornful, but had to suppress his scorn because he loved his father. The father’s condition and deteriorating behaviour were an embarrassment for the family. We can presume that Nietzsche could not openly express or discuss his reactions to losing his closest attachment figure in such a terrible way.

Soon after his father died, Nietzsche’s little brother died. Nietzsche was the only male in the household. Unfortunately, none of the women treated him with tenderness, warmth or genuine concern. Even sympathetic biographers describe Nietzsche’s mother as cold, stupid, and disinterested. Nietzsche’s grandmother, two aunts and mother all tried to outdo each other in teaching Nietzsche self-control, Christian virtues and to be the strong man of the house. The precocious and creative Nietzsche did not fit well into their Christian pedagogical dogma. “The originality of his imagination and the honesty of his questions were too much for their sense of morality, and so they attempted to silence the child’s curiosity, which made them uncomfortable, by strict supervision and a stern upbringing.” Nietzsche had no choice but to suppress his genuine feelings with all his might.

One biographer describes a scene that clearly illustrates how extreme the boy’s self-denial was. Caught in heavy rain on his way home from school, Nietzsche did not quicken his pace but continued to walk slowly with head erect. His explanation was that “upon leaving school one must go home in a calm and mannerly way. That is what the regulations require.” We can imagine the training that must have preceded such behaviour.

Notwithstanding his outward self-mastery, Nietzsche was very observant of people and could not help but detect hypocrisy—what loving neighbour took pity on Nietzsche when

14 Miller, at 92.  
15 Miller, at 81.  
16 Miller, at 81.
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Christian women beat him? Nietzsche had no one with whom he could share these thoughts, as this would provoke more beatings. He had to repress these questions and feelings, which would compound his feelings of loneliness. So extreme was his repression that he never even revolted at puberty. The diaries he kept from the ages of twelve to fourteen were the kind an adult might keep, written in the well-adjusted, reasonable, and well-behaved way that spoke the internalized voice of his grandmother, two aunts, and mother.¹⁷

Nietzsche’s Delayed Emotional Puberty

The vigour of Nietzsche’s suppression took its toll. In one year of secondary school he had over a hundred illnesses. His constant headaches, sore throats, and rheumatic ailments reflect the words stuck in his brain and throat. Biographers could not identify any organic cause, other than a “weak constitution.”¹⁸ Nietzsche could not maintain his conscious self-mastery forever:

But the questions did not go away. Later, much later, after Nietzsche finished his schooling and had nothing to fear from the authorities—in this case his professors—because he had become a professor himself, the questions and repressed feelings broke out of the prison where they had been locked up for twenty years. In the meantime, by finding an ersatz object they gained social legitimacy. Nietzsche did not direct his criticism at the real causes of his rage—his aunts, his grandmother, his mother—but at the values of his chosen field, philology. Still, this took courage, for they were values that had until then been held sacred by all philologists.¹⁹

Like someone going through puberty, Nietzsche set out to reject everything he had once loved in order to establish new values for himself. He thus attacked truth (Socrates) and the

¹⁷ Miller, at 77, 82, 109-110.
¹⁸ Miller, at 77.
¹⁹ Miller, at 82.
German culture he had grown up in. Nietzsche’s revolt at puberty had been postponed until he had highly developed interpretive and philosophical skills. Thus Nietzsche’s observations have both emotional vigour and intellectual validity.

Nietzsche’s work as a professor at Basel gave him the temporary feeling that truth and freedom liberated him from his dependency on and his rage toward his mother and sister. They needed Nietzsche’s dependence on them and used him for their own purposes all of Nietzsche’s life. Nietzsche’s sister, for example, altered many of Nietzsche’s letters for publication. She “intrigued untiringly to the detriment of his true interests and did not rest until his relationship with Lou Andreas Salomé was destroyed.”

Nietzsche’s breakdown allowed his mother to care for Nietzsche without being threatened by criticism. Brought up to fulfill her duty above all else, she would feel good and noble to sacrifice herself for her child, which society would respect and admire.

But Nietzsche’s work at Basel was not true liberation. He had to conform to the demands of the university, which stunted his swelling need to find liberation and freedom, to vent pent-up affect. This lead to illnesses that resulted in 118 attacks in one year (1879). His illness spurred him to leave Basel and gave him more freedom to criticize the academic system. “All who remain silent are dyspeptic” (EH, I, 5).

Nietzsche contra Wagner

Nietzsche’s fascination, then rejection of Richard Wagner appears to have been a repetition of Nietzsche’s repressed tragic experience with his father. Wagner was a charismatic musician-composer-intellectual who was thirty years older than Nietzsche. Just as young Nietzsche tolerated his father’s hypocritical brutality to bask in his charm and intelligence, so too the adult

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20 Miller, at 90-91.
21 Miller, at 109.
22 Miller, at 93-98.
Nietzsche overlooked the objectionable facets of Wagner’s programme. Only after Parsifal, with its Christian ideals, did Nietzsche become fully conscious of the weaknesses of Wagner.

We can surmise that Nietzsche felt disappointment, rage, and shame at being seduced by his father’s charm. The young Nietzsche was not permitted to express such feelings, which remained imprisoned until he could experience them toward another charming musician. The tenor of Nietzsche’s later attack against Wagner is too strong for an emotionally mature Nietzsche—Wagner had not done anything personal to alienate Nietzsche. The emotional vigour of his attack on Wagner must have derived its intensity from the repressed rage against his father. The perceptiveness of his criticisms obscures the emotional energy that drove them.

Nietzsche’s Late Period

After leaving Basel, Nietzsche’s attacks could proceed with less restraint. But so long as he avoided the true objects of his rage with substitute objects, his attacks merely became less and less restrained. By the time Nietzsche attacks women, he has left the prior grounding of his scholarly objectivity and sensitivity to empirical observation of interpretation, philosophy, psychology, German culture and Christianity. His misogyny is understandable given his childhood situation. Likewise, his sister was manipulative and insincere toward him. His sister and mother made sure Nietzsche remained emotionally dependent on them alone (for example, by undermining his relationship to Lou Andreas Salomé). Nietzsche could not openly show his discontent.

How could he, since he had only one sister and wanted to believe absolutely that she loved him and that her love was more than exploitation and a need to win recognition at any price.²³

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²³ Miller, at 99.
Nietzsche—Self as Complex Adaptive System

Nietzsche therefore lashed out at all women, but lacking his usually keen insight, his targets were generalized caricatures of the women who abused him.

The hyperbolic nature of *Ecce Homo* shows that Nietzsche was increasingly losing his ability to repress his unexplored and unrefined infantile urges (such as pride) as he had had to during his severe upbringing.

Nietzsche’s Breakdown

The cause of Nietzsche’s final breakdown is not agreed upon by biographers. Some attribute it to progressive paralysis entirely unrelated to Nietzsche’s school day illnesses and his severe illness at the end of his Basel period. Some attribute it to venereal disease contracted while visiting a prostitute or treating the injured while he served in the war. Miller argues that Nietzsche ultimately remained unable to vent his rage at his mother and sister directly and had to retreat into insanity.

According to this interpretation, Nietzsche’s ersatz objects no longer served the function of siphoning off his swelling rage. We can speculate that this was because his previous philosophizing had exhausted his emotional and empirical experience—his burgeoning philosophical power outstripped his ability to collect reliable empirical data. Nietzsche was abysmally ignorant of social relations and class issues. Miller notes that Nietzsche never found comfort in social experience:

[Nietzsche] was sure to reap the moral indignation of his contemporaries and of posterity, an outcome he accepted gladly, presumably even enjoyed, because he felt liberated by his daring. A different kind of liberation, such as having insights that could be shared with others, was unknown to him.24

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24 *Miller*, at 110.
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Indeed, Nietzsche's brutal childhood made his formative experiences consist of contempt for the weak and obedience to those wielding power.25 His respect for the weak is derivative and forced—"Where one feels contempt, one cannot wage war; where one commands, where one sees something beneath oneself, one has no business waging war" (EH, I, 7)—hardly heartfelt, compassionate empathy. Nietzsche distrusted pity because no one was there to pity him for his beatings. Thus Nietzsche's imprisoning childhood limited the possible topics he could explore with emotional vigour and the insight of experience.

Nietzsche could not find new targets worthy of his intellect soon enough to stave off his disintegration of self. He was unable to continue to repress his rage but feared it. If he expressed his anger at his mother directly, his deep-set subconscious mind feared that it would kill her. Nietzsche saw Bizet's Carmen several times with great enthusiasm, attracted by its ambivalence and "killing for love."26 But the infantile mind associates death of mother with death of self. He could not overcome this fear of death—"Woe implores: Go, die! [Vergeh!] / But all joy wants eternity—/ Wants deep, deep eternity!" (Z, III, 15; Z, IV, 19).27 Nietzsche was trapped and insanity was his only escape.

Nietzsche's mother looked after him after he broke down mentally. She wrote a letter describing how although her son was uttering terrible screams, he had a cheerful expression on his face. Miller's explanation is that "in her presence, the very little child was allowed to scream loudly for the first time in his life and that he was enjoying the tolerance he had finally won from her. For we can scarcely conceive of someone screaming without a face racked by pain."28

Nietzsche was a victim of his early intelligence—the young genius so successfully suppressed feelings that his subconsciousness could not mature beyond its most primal fear—loss of mother love. It took steadfast courage to maintain his life-affirming Yes, a courage that

25 Miller, at 99.
26 Miller, at 94.
27 Friedrich Nietzsche, Also Sprach Zarathustra, in The Portable Nietzsche Reader, tr. Walter Kaufmann (New York: Penguin, 1954). References to Also Sprach Zarathustra are abbreviated without footnote as "Z" and use the division labeling of the Kaufmann translation.
28 Miller, at 92.
racked his body with pain. One cannot help feeling deeply saddened that this great person suffered so terribly and profoundly from childhood abuse.

Nietzsche the Dancer

Nietzsche identified himself with Dionysus. This is evident from the concluding words of *Ecce Homo*, his last completed work before resigning to “Russian fatalism” (*EH*, IV, 9):

> Have I been understood?—*Dionysus versus the Crucified.*—

Nietzsche here is the child whose cries were unheard, who was abused by those who preached their love for him. We can easily see that the Crucified is the object of his rage, having been transferred from his parents onto the institution in whose name they abused him—Christianity. The adolescent Nietzsche could not express or share his rage with other people, and so as a philologist, he discovered Dionysus as his ally.

Nietzsche was thoroughly familiar with Dionysus through his studies as a student and professor of philology. Many aspects of the Dionysian myth would appeal to Nietzsche’s subconsciousness. The young Nietzsche saw through the Christian ideals that his parents used to vent their own pent-up affect on Nietzsche—he “smelled” the entrails of their souls and was nauseated by the hidden dirt at the bottom of their character (*EH*, I, 8). Young Nietzsche was not permitted to experience his natural emotions and had to repress and stunt them for the sake of abstract, Christian ideals. Young Nietzsche experienced his truth as the veracity of his emotions and experiences, in contrast to the lifeless “truths” of Christian ideals (*EH*, P, 2):

> One has deprived reality of its meaning, its truthfulness, to precisely the extent to which one has mendaciously invented an ideal world.
Dionysus was available to Nietzsche as a close metaphor to represent his allegiance to his natural inclinations over the decadently applied ideals of Christianity. Dionysus was Nietzsche's first analytic tool to attack the hierarchic orderliness of Christian ideals and morality, which he first attacks in the form of Socrates.

Young Nietzsche was forced to suppress his temper tantrums and other outbursts—Dionysus represents the loss of boundary, loss of self that young Nietzsche had to master with self-control.

Young Nietzsche had to dance to the whips of his mother, aunts and grandmother. Dancing is the natural avoidance response to being whipped on the behind; Nietzsche probably had to suppress even this natural reaction. In *The Dancing Song* in Part II of *Zarathustra* Nietzsche associates himself with a little dancing god who cries in the darkness of solitude (young Nietzsche locked in a dark closet, or bathroom), forced to manufacture joy from within his suffering, perhaps blaming himself, experiencing self-pity and fantasizing his own empowerment:

"Indeed, I am a forest and a night of dark trees: but he who is not afraid of my darkness will also find rose slopes under my cypresses. And he will also find the little god whom girls like best: beside the well he lays, still, with his eyes shut. Verily, in bright daylight he fell asleep, the sluggard! Did he chase after butterflies too much? Do not be angry with me, you beautiful dancers, if I chastise the little god a bit. He may cry and weep—but he is laughable even when he weeps. And with tears in his eyes he shall ask you for a dance and I myself will sing a song for his dance: a dancing and mocking song on the spirit of gravity, my supreme and most powerful devil, of whom they say that he is 'the master of the world.'"

The precocious Nietzsche infuriated his mothers by posing questions that threatened to expose the hypocrisy he endured—he chased too many butterflies, he lost self-control. The young Nietzsche knew his observations were forbidden wanderings (*EH*, P, 3) and his hopes
of being understood were groundless. Nietzsche’s fascination with Tristan and Isolde supports this reading. In Tristan the couple finds joy away from the light of social conventions and morality, their love flourishes in the darkness of suffering and tragedy. Young Nietzsche falls asleep in the light (the sluggard!), breaches the morality of light and day (enlightenment, Apollo). He foolishly thinks he will be listened to and understood by those whom he needs to love him. Nietzsche must find joy beyond the daylight of society’s ideals, in the dark reality of genuine emotional experience (Dionysus).

The Other Dancing Song, in Part III of Zarathustra, is arguably the emotional climax of the work. Each of the first three parts was quickly written in just ten days—a pure outpouring of Nietzsche’s subconsciousness. The Other Dancing Song was important enough for Nietzsche to amplify and repeat the Midnight Song in the penultimate section of Part IV of Zarathustra.

In The Other Dancing Song, Nietzsche poetically (unconsciously) describes his experience of being physically abused and emotionally abandoned by his mother. As noted above, mother love is “life” itself for the very young Nietzsche.

The Other Dancing Song

(1)

Into your eyes I looked recently, O life: I saw gold blinking in your night-eye; my heart stopped in delight: a golden boat I saw blinking on nocturnal waters, a golden rocking-boat, sinking, drinking, and winking again. ...

Young Nietzsche has hopes of receiving the light of genuine mother love, which arouses his playful intellect. But these hopes are quickly dashed as the psychologically attuned child senses a beating.

At my foot, frantic to dance, you cast a glance, a laughing, questioning, melting rocking-glance: twice only you stirred your rattle with your small hands, and my foot was already rocking with dancing frenzy.
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My heels twitched, then my toes harkened to understand you, and rose: for the dancer has an ear in his toes.

I leaped toward you, but you fled back from my leap, and the tongue of your fleeing, flying hair licked me in its sweep.

Away from you I leaped, and from your serpents' ire: and already you stood there, half turned, your eyes full of desire.

Young Nietzsche smells the entrails of her soul and is angry at the hypocrisy of her Christian ideals and the fact he must stunt his emotions and carry hidden truths.

With crooked glances you teach me—crooked ways; on crooked ways my foot learns treachery.

The young Nietzsche is at core ambivalent—he is angry, outraged, full of mistrust, but he needs his mother to love him.

I fear you near, I love you far; your flight lures me, your seeking cures me: I suffer, but what would I not gladly suffer for you?

You, whose coldness fires, whose hatred seduces, whose flight binds, whose scorn inspires:

Who would not hate you, you great binder, entwiner, temptress, seeker, and finder? Who could not love you, you innocent, impatient, wind-swift, child-eyed sinner?

Whereto are you luring me now, you never-tame extreme? And now you are fleeing from me again, you sweet wildcat and ingrate!

I dance after you, I follow wherever your traces linger. Where are you! Give me your hand! Or only one finger!
Young Nietzsche longs to love his mother and be loved for his genuine feelings, but unconscious drives (owls and bats) overcome her, confounding the young Nietzsche as she turns against him.

Here are the caves and thickets; we shall get lost. Stop!
Stand still! Don’t you see owls and bats whirling past?
You owl! You bat! Intent to confound! Where are we?
Such howling and yelping you have learned from a hound.
Your lovely little white teeth are gnashing at me; out of a curly little mane your evil eyes are flashing at me.

Nietzsche the hunter tracks decadent unconscious drives. He longs to share his insights with his mother. He wants her to join him as a hound to sniff out the source of hypocrisy rather than be a doe (the object of Nietzsche’s hunt) who leaps away from the hunter. Leaping has overlapping meanings here—the doe’s leaping (his mother chooses to be the doe) and Nietzsche’s leaping (in pain or avoidance).

That is a dance up high and down low: I am the hunter;
would you be my dog or my doe?
Alongside me now! And swift you malicious leaping
celle! Now up and over there! Alas, as I leaped I fell.
Oh, see me lying there you prankster, suing for grace.
...

The mother grabbed Nietzsche’s arm and Nietzsche leaped to avoid the whip, falling to the ground where he entreats the grace she hypocritically preaches other times. His entreaty fails and his tone quickly becomes introverted and sentimental, pining for the golden moment he thought he experienced at the beginning of the poem.

I should like to walk with you in a lovelier place.
Love’s paths through silent bushes, past many-hued plants. Or there along that lake: there goldfish swim and dance.
Now he feels guilt. Miller notes that Nietzsche carried the weight of his mother and sister on his back all his life—"In his own mind Nietzsche was not sitting on the backs of others, but in his life he allowed the person closest to him to sit on his back to the very end."\(^{29}\)

Are you weary now? Over there are sunsets and sheep: when shepherds play on their flutes—is it not lovely to sleep? You are so terribly weary? I'll carry you there; just let your arms sink. And if you are thirsty—I have got something, but your mouth does not want it to drink.

No one thirsts for Nietzsche's insights—the cheeky boy is slapped and Nietzsche is enraged. But he directs his rage at a serpent and witch—he must transfer his pent-up affect onto symbols.

Oh this damned nimble, supple snake and slippery witch! Where are you? In my face two red blotches from you hand itch.

I am verily weary of always being your sheepish shepherd. You witch, if \textit{I} have so far sung to you, now you shall cry.

Keep time with my whip, you shall dance and cry! Or have I forgotten the whip? Not I!

Young Nietzsche fantasizes his empowerment and revenge. Nietzsche was no doubt forced to retrieve the instrument by which his physical torture was administered. This is consistent with the infamous line from On Little Old and Young Women—"You are going to women? Do not forget the whip!" (Z, I, 18). The emphasis on "I" suggests that generally Nietzsche must bring the whip for his own punishment, but this time, in a mocking reversal, he shall make \textit{her} dance and cry!

\(^{29}\) Miller, at 108.
Young Nietzsche cannot sustain his fantasy of revenge and in the second part of *The Other Dancing Song*, his mother plays on his guilt and plucks at his heart. He fantasizes that his grace, *his* light (compare Z, II, 9 “The Night Song”) will win his mother’s love—"But then life was dearer to me than all my wisdom ever was."

In the second part of *The Other Dancing Song*, the conscious Nietzsche asks us to interpret the third part, the Midnight Song, as poem recited in time with a tolling bell—"when you hear this bell strike the hour at midnight, then you think between one and twelve." But once we see the second part as a conversation with his mother, who chides young Nietzsche for talking back (cracking his whip) and accusing him of not loving his mother, then the deeper meaning of the third part becomes clear. Bells toll, they do not count. Moreover, the italics indicate another voice. *Lashes* are counted. The unconscious Nietzsche favours these stylistic choices for a reason. The Midnight Song is Nietzsche’s mantra, his will to life affirming itself in suffering. The lashings are an eternal recurrence in a little boy’s slow-moving perception of time. The whipping has begun—
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One!
O, man, take care!

Two!
What does the deep midnight declare?

Three!
"I was asleep—

Four!
"From a deep dream I awoke and swear:

Five!
"The world is deep,

Six!
"Deeper than day had been aware.

Seven!
"Deep is its woe;

Eight!
"Joy—deeper yet than agony:

Nine!
"Woe implores: Go!

Ten!
"But all joy wants eternity—

Eleven!
"Wants deep, wants deep eternity.”

Twelve!

The Midnight Song moved Gustav Mahler, a fellow abused child,30 to use this poem in the mournful fourth movement of his Third Symphony.

Carl Schorske translates “Weh spricht: Vergeh!” as “Woe speaks: Go, die!”31 and Deryck Cooke translates it as “Grief says: Die!”32 The young Nietzsche, grief-stricken in his fantasy “cave” (Z, III, 15, (2)) (i.e., locked in a dark closet, or in the bathroom) contemplates submission to death. Death is loss of mother love, but the means are ambiguous—does Nietzsche leave his mother or kill her? Is this the abysmal thought? Or is it his fear of death and

32 Cooke, Mahler, at 65.
saying Yes to "life," which means saying Yes to an eternal recurrence? (Z, III, 13 The Convalescent). In Ecce Homo, Nietzsche writes, "the spirit who bears the heaviest fate, a fatality of a task, can nevertheless be the lightest and most transcendent—Zarathustra is a dancer—... he that has the hardest, most terrible insight into reality, that has thought the "most abysmal idea," nevertheless does not consider it an objection to existence, not even to its eternal recurrence..." (EH, III, on Z, 6). The "its" refers to the lashings, his heaviest fate.

Thus Nietzsche could not drive his mother away emotionally. He felt guilty that he sometimes felt unloving feelings toward her (expressed in the second part of The Other Dancing Song). His only hope of joy (regaining mother love, "Lust" not "Freunde" (Schiller-Beethoven)) is to bear the suffering. Nietzsche is "all entangled, ensnared, enamored" (Z, IV, 19, The Drunken Song (10), compare above "Who would not hate you, you great binder, entwiner, temptress, seeker, and finder? Who could not love you, you innocent, impatient, wind-swift, child-eyed sinner?" Z, III, 15, (1)). Joy is a mother love that remains inseparable from hypocritical Christian morality and will not let Nietzsche develop into an emotionally whole, honest and perceptive thinker—"Joy, however does not want heirs, or children—joy wants itself, wants eternity, wants recurrence, wants everything eternally the same" (Z, IV, 19, (9)). Young Nietzsche cannot change his mother by sharing his insights into decadence—she does not thirst for his wisdom. Nietzsche has to elect between rejecting his mother (dying, suicide) or affirming life (a symbol for his mother) and bearing the suffering of being whipped, again, and again, and again—

Have you now learned my song? Have you guessed its intent? Well then, you higher men, sing me now my round. Now you yourselves sing me the song whose name is "Once More" and whose meaning is "into all eternity"—sing, you higher men, Zarathustra’s round!

Is Nietzsche announcing that he is exacting his revenge on his readers as they keeping eternally returning with reverence to his text in the same confounded, self-blaming state the
young Nietzsche must have been in before his authoritarian parents? The eternal recurrence, Nietzsche tells us, is “the fundamental conception of” *Thus Spoke Zarathustra* (*EH*, III, on Z, 1).

Nietzsche’s insight into how to cope with the eternal recurrence drives away the abysmal thought (*Z*, III, 13). Nietzsche endured the eternal recurrence by deepening his insight into decadent morality as he sat alone in his dark “cave” after each whipping; he remained in his cave until he had re-affirmed his emotional need for mother’s love and had declared Yes to life. Nietzsche willed joy out of suffering. Indeed, the unconscious scars from childhood likely meant Nietzsche could only find joy in suffering—an emotional masochism. Hence the visceral appeal of *Tristan and Isolde*, where the social conventions associated with day create the suffering necessary for the lovers’ joy at night.

As already noted, the adult Nietzsche gets subconscious revenge on his readers by being purposely obscure. Interpreting *Zarathustra* is a Sisyphean task. Walter Kaufmann, a careful and sympathetic translator of most of Nietzsche’s works, argues that the eternal recurrence is a bizarre cosmological belief of Nietzsche’s. Kaufmann notes: “It is tempting to construe his philosophy as a reaction against his childhood ... Yet this approach ... bars any adequate understanding of Nietzsche’s philosophy.” Yet Kaufmann dutifully translates the following words with which in *Ecce Homo* Nietzsche describes the secret of his philosophical success: “the hidden history of the philosophers, the psychology of the great names, came to light for me.” (*EH*, P, 3). Surely Nietzsche here is directing us to apply his own methodology in order to hear and understand Nietzsche the philosopher.

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33 *Miller*, at 85-86.
Psychoanalyzing Nietzsche does not rob him of philosophical significance; Nietzsche does not reduce to his psychological origins—that would be a genetic fallacy. But Nietzsche’s perspectivism does warn us that he has created a philosophy for his experiences and he cautions that we should create our own. This is not merely humility and consistent application of his perspectivism—Nietzsche intuitively understands that his experiences are limited. With some understanding of Nietzsche’s subconscious emotional agenda, we can now review Nietzsche’s philosophy with an eye to discerning what carries emotional and empirical validity, and what we can treat as obiter dicta.

There are many distinct themes weaving through the works of Nietzsche—perspectivism, the will to power, the eternal recurrence, psychology, self-creation, deconstruction of motives and of moral systems, Nietzsche’s lack of positive morality, and Nietzsche’s anti-philosophical style. Some of the themes are clearly fascinating for Nietzsche because of his childhood tragedy—the eternal recurrence, his morality of self-creation, his anti-absolutism, his profound mistrust of codes of morality, and his perspectivism.

Of Nietzsche’s themes, the will to power stands as perhaps the most radical and that which has remained Nietzsche’s own. The will to power is Nietzsche’s discovery of complex adaptive system theory, one hundred years before its piecemeal discovery by late twentieth century scientists! The idea of will to power captures the fundamental aspects of complexity—it is a vague formulation of how the second law of thermodynamics ought to be revised.35

The will to power is the teleological drive within complex adaptive systems to seek to prosper within an environment. For example, organisms exist on earth. Those organisms that do not evolve in a way that promotes their own survival, over time, will no longer exist. There is no universal reason dictating that organisms should evolve to better survive. It is a naturalistic

35 A precise formulation of the exception to the second law of thermodynamics is a current project within the science of complex adaptive systems.
fact that the ones that are around are the ones who happened to have adapted well. Thus, there is an \textit{a posteriori} teleology that arises.

The basic precept of evolution—natural selection—was around before Nietzsche assumed his professorship at Basel.\textsuperscript{36} Before taking up his professorship Nietzsche considered giving up philology and going into science.\textsuperscript{37} Was the young Nietzsche smitten by the question of evolution and how teleology could arise in a Godless universe? Nietzsche's continued work in philology, which concerned interpretation, language, psychology and metaphysics. This allowed Nietzsche to intuit the pervasive nature of the will to power, or the drive to create complexity. Tracing the actual historic development of the will to power in Nietzsche's thought is beyond the scope of this thesis. However, the following is reasonable hypotheses as to how the idea of the will to power might arise and spread throughout the themes in Nietzsche's thinking.

\textit{Fantasia on a Theme by Friedrich Nietzsche}

Reality imposes the \textit{a posteriori} telic criterion that all beings that do not immediately dissolve must possess a drive to endure as their fundamental teleology. At its crudest, the will to power is the goal to survive. However, once an environment becomes at all complicated, there will emerge all sorts of instrumental causalities that surviving organisms must react to by forming subsidiary telic criteria. In any system of interest, therefore, there are many more telic criteria that emerge other than bare survival, though survival seems in some sense to be the most fundamental one over time. The subtle mind of Nietzsche would have mocked theories that were crudely constructed without seeing beyond bare survival of the fittest.

A complex adaptive system in an environment evolves an implicit set of rules. These rules embody complicated teleologies that relate to the environment. If the rules are successful,
the system must evolve mechanisms to lock-in those rules so that the beneficial conduct will continue and the system endure.

The philologist Nietzsche saw a similar evolving process in the construction of an interpretation of a text. The text is like the environment; the interpretation is the complex adaptive system. The interpretation is like a set of rules for understanding the text. One's initial interpretation is a crude approximation, simple rules. Nietzsche the interpreter keeps going back to the text and empirically tests his interpretation and refines his interpretation, adding complexity to the rules. The interpretation survives if it withstands the criticism of other interpreters. The pressure to construct more adequate interpretations, a will to power, emerges from the desire to survive rival interpretations.

Having explored this analogy, Nietzsche discerned the same process in the formation of a moral code. Here is where Nietzsche’s subconscious emotional drive would propel his insight beyond that of the crude evolutionary theory of his contemporaries. Nietzsche needed to devastatingly attack the cruel moral code of his parents. Complexity theory provided him with the tool to craft his scattered insights into moral hypocrisy into a deadly weapon. An evolving system is fundamentally historical—the telic criteria that emerge are entirely products of the haphazard path of history—there is no universal endpoint. Thus Nietzsche could look for the historical origins of the rules that formed his parents’ moral code. A moral code is a complex adaptive system that people develop to help satisfy their needs and desires (their telic criteria). Of course, once the moral code is in place, the moral code can only survive if there are doctrines that reinforce the survival of the code. Nietzsche observed that the self-reinforcing mechanisms could become too strong and lock-in to solutions that could later be seen to be manifestly suboptimal. Nietzsche would have been drawn to this insight because he subconsciously detested absolutism.

Absolutism could only be philosophically undermined if Nietzsche could undermine the notion of universal truth and establish perspectivism. Nietzsche saw that the will to power (i.e., the exception to the second law of thermodynamics) is the fundamental organizing force in the universe—objects, beings and essences could only be formed by complex adaptive systems in
response to the will to power imperative. But since evolving systems are contingently historical and never have an end goal, there could never be any ahistorical objects, beings or essences that were more than a temporary response to the current environment from which the telic constraints emerge. All essences are defined by their relationships to those criteria and each other. Thus will to power is the fundamental aspect of any metaphysic—which must be expressed in language.

Nietzsche correctly saw that the attempt to describe reality with language is a complex adaptive system in itself. The conceptual and grammatical framework of language is thus an order that must continue to evolve in order to more optimally relate itself to reality so as to better satisfy telic criteria. Nietzsche applied his perceptive powers to identify many telic criteria that promoted the formation of “essentialism” in language. Nietzsche saw that various self-reinforcing mechanisms in language resulted in reification of concepts and a masking of how they falsified reality. These mechanisms thus interfered with continuing evolution of language and knowledge. Furthermore, they resulted in enduring false metaphysics.

Once the conceptual and grammatical framework of language is seen as an historical attempt to create an order to satisfy a broader will to power (cultural adaptation), truth acquires a will to power of its own. Nietzsche refers to “truth” ambiguously. “Truth” in a particular language order (like “good” in a particular moral order) means that which is a true statement from within that order (“linguistic truth”). But the language order only relates to the environment, it is not reality itself. Since reality is too complicated for language to achieve an entirely accurate schema of reality (knowledge optimism), linguistic truth is in a fundamental sense falsifying. But living according to this falsification (the order) is necessary to survive—action requires illusion. Abandoning the order entirely results in dissolution—one falls into the abyss.

Lock-in to a suboptimal order can be dangerous. The environment could change so that the order is no longer closely related enough to reality to satisfy its telic criteria, but lock-in prevents evolution. In this case, a new order—a new truth—must be forged. Nietzsche saw that

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38 See chapter four of this thesis.
Nietzsche—Self as Complex Adaptive System

over time the order of linguistic truth loses its connection to the telic criteria emerging from the apparent world and mendaciously misrepresents reality—ideals deprive reality of its truthfulness (ideals become excessively falsifying) (EH, P, 2). What a locked-in system requires is something to bump it out of its rut and playfully explore candidates for more optimal constructions of linguistic truths. This destabilizing force has been called “chaos” in modern complexity theory. Nietzsche saw himself as this force in his drive to undermine absolutism and moral codes—Nietzsche called this force “Dionysus.”

We know from complexity theory that chaos is necessary to drive the evolution of complexity, but the chaos must not be too strong, otherwise the system will dissolve into nothing. Indeed, complexity seems to arise where a complex adaptive system can advance by modifying the structure of an old order and reorganizing how the entire new structure relates to the new telic criteria that have emerged in the changing environment. Nietzsche identified this characteristic a hundred years earlier in his genealogy of the moral concept “good.”

In terms of cultural evolution, there would therefore need to be some people who functioned as Dionysus, flirting outside the boundaries of the truth-language-cultural-moral order, being attuned to reality, and seeking ways to chaotically bump the order so it becomes more optimal. Nietzsche’s new philosophers, therefore, dance at the edge of the abyss (risking complete loss of order) hanging by insubstantial ropes. It is ironic self-awareness that makes the ropes insubstantial. The inner strength and drive to survive of these risk-takers—these seekers of knowledge—must be great, a task only for the strong, those teeming in will to power. The greater the degree of falsification in society’s complex adaptive systems, the more “decadent” the locked-in orders have become, the greater the need for Dionysus.

Nietzsche applied complexity theory to the psychology of the formation of personality or character. Nietzsche insightfully saw that the self was a chimera resulting from the consonance or coherence of many drives and agencies within the mind. The personality is a complex adaptive system. Emotional drives and experiences comprise the environment of this system and the human body appears to have a will to power to create a self that can survive and integrate all of its genuine emotions.
PROLEGOMENA TO A POSTMODERN THEORY OF LAW

We know from complexity theory that a steady infusion of chaos results in telic waves of change to the elements of a complex adaptive system. Again, a hundred years earlier Nietzsche observed that in developing our character we should adopt “brief habits” and explore their implications like waves (GS, 310).39

One’s self is “decadent” insofar as it falsifies the empirical reality of emotional experience. One way of doing this is to form one’s character according to a moral code that falsifies genuine emotional experiences. Nietzsche became expert at sensing where people’s constructed self falsified their inner self. Nietzsche had long sensed that the reified ascetic morality of Christianity did not appropriately account for the empirical phenomenon of the genuine emotions he experienced as a child. The moral code had locked-in to an order that failed to incorporate relevant telic criteria emerging from Nietzsche’s personal uniqueness. Since each personality is a complex adaptive system, each person is fundamentally historical and unique, so any rigid moral code is potentially oppressive. Nietzsche failed to develop the theme of using empathy to expand moral relevancy—empathy and social justice were not on his emotional agenda.40

The creation of self by the self is perhaps the most self-reflexive and ironic of complex adaptive systems, more so than language. It is unclear to what extent Nietzsche differentiated healthy emotional drives from unhealthy ones—he was certainly aware of the possibility of self-deception. Nietzsche claims he could smell the entrails of souls, which suggests he had an intuitive notion of subconscious neuroses. Perhaps, if Nietzsche had had a better understanding of the effect of childhood trauma on shaping the subconsciousness, he could have unwound his own twisted subconscious self.

The idea of will to power applied to personality formation leads to Nietzsche’s strategy for coping with misfortune—the eternal recurrence. The will to power must develop a strategy to cope with misfortunes that are out of one’s control, lest one be immobilized by despair.

39 Friedrich Nietzsche, The Gay Science, tr. Walter Kaufmann (New York: Random House, 1974). References to The Gay Science are abbreviated without footnote as “GS” and use the division labeling of the Kaufmann translation.
40 This theme will be explored below in chapter eight.
Nietzsche’s brilliant solution was to use disadvantage as a spur to greater self-creation, such that one would not want to have lived one’s life without that misfortune having occurred. The misfortune is like an inoculation of chaos—the extinction of dinosaurs, for example, arguably opened evolutionary niches that permitted *homo sapiens* to evolve. Would we wish dinosaurs never went extinct? Thus, those with a strong will to power welcome misfortune—joy is wrought from suffering.

As insightful as this is, Nietzsche stumbled onto something dangerous—fatalism. Nietzsche’s eternal recurrence can lure someone into unwisely tolerating a recurring, oppressive state of affairs. The usually brilliant Nietzsche was blind to this danger. This blindness can be traced to emotional roots—the eternal recurrence was Nietzsche’s means of turning his will to power against itself in order to avoid confronting his mother. He was never able to overcome his unconscious fear of displaying anger toward her. As his anger swelled, eventually his will to power to create a self, consumed itself. The subconscious rage was an overwhelming Dionysian pressure to destroy the (falsifying) self-order Nietzsche had created and the eternal recurrence was a lock-in that could only be dislodged at the cost of destroying all order.

Another colour absent from Nietzsche’s palette of brilliance was having positive emotional social experiences. Thus Nietzsche never meaningfully applied complexity theory to politics—he was admittedly anti-political (*EH*, I, 3).

Finally, Nietzsche appears not to have found a way to apply complexity to women. His empirical insight into women was weak, based primarily on the horrible caricatures who ruined his life. He was anti-political and thus had little interest in the empowerment of women.

The weaknesses in Nietzsche’s emotional health should be viewed as warning signs posted at a partially completed real estate development. There is a sign in front of each lot that is still under construction. Nietzsche left it to other thinkers to complete the development. The blueprints for the proposed buildings are still sketchy because Nietzsche only viewed the lots from afar. Today’s builders should amend the blueprints to fit the lots, so long as they respect Nietzsche’s style. One style pervades Nietzsche’s architecture—the will to power (complexity theory). Nietzsche gives us a style that he does not know how to describe in straightforward
narrative (it took science another hundred years). But he has shown us this style by example. It is useful to think of Nietzsche as describing the “general deep structure” of the phenomena he investigates. Thus, for example, it would be a violation of his style for Nietzsche to provide us with a particular morality. Thus Nietzsche only describes how the general principles of complexity theory operate in the area of morality. The particular deep structure of morality will depend on historical circumstances and how truth, language, personality and other complex adaptive systems have evolved. Nietzsche can do no better than recommend that those with the strongest will to power ironically stand outside, beyond good and evil, and become comedians of the ideals. Only thus can the orders evolve more robust ideals.

A Postmodern Tragedy

If Nehamas is correct in characterizing Nietzsche’s life work as an attempt to create a literary character, then the story of Nietzsche is a tragedy without equal. No tragic moment is as moving as The Other Dancing Song because no tragedy is worse than ignorance of child abuse.

Freud was dead wrong about Nietzsche achieving sanity. Zarathustra failed to escape the prison of his childhood. The literary critic Harold Bloom claims that Shakespeare’s Falstaff outshines Nietzsche’s Zarathustra—Falstaff’s power is “sublime pathos, potentia, the drive for life, more life, at any and every cost. ... To exist without a superego is to be a solar trajectory, an ever-early brightness, which Nietzsche’s Zarathustra, in his bathos, failed to be. ‘Try to live as though it were morning,’ Nietzsche advises. Falstaff does not need the advice...”

Nietzsche’s tragedy exceeds his life. Nietzsche’s was clearly one of the great minds of all time—his insights into complexity ante-dated scientific discoveries by a hundred years in an era when scientific knowledge doubles roughly every decade. But Nietzsche’s childhood tragedy compelled him to write obscurely—only now are we beginning to understand him, after

41 Harold Bloom, *Ruin the Sacred Truths—Poetry and Belief from the Bible to the Present* (Cambridge: Harvard University Press, 1989) at 82-83.
most of his important insights have been derived elsewhere. Moreover, his childhood tragedy blinded him to irresponsible resignation to authority and contempt for the weak. Because of its obscurity, his writings were vulnerable to misuse by death-affirming social forces, resulting in the most horrible human holocaust of all time.

Free spirits must hear and understand Nietzsche’s cries and end the tragedy of suffering and lost genius.

Self as Complex Adaptive System

Deconstructive postmodernism emphasizes three tasks: (1) identify false knowledge optimism, (2) identify the sources of self-interest that motivate the false optimism; and (3) identify what induces those who do not share the same satisfaction of self-interest to adhere to or tolerate the false optimism. Effective deconstruction thus requires precise concepts of decadence and ideology, which correspond to the psychological or social sources of self-interest, respectively. This chapter has examined the self as a complex adaptive system to illustrate how decadence can conduct one’s conscious behaviour. The major points may be summarized as follows.

An intellectually maturing human experiences emotional trauma at various stages of life. Particularly as a child, a person will make crude causal associations between event paradigms and the unbearable experience of pain. The immature mind cannot generate a subtle, rational explanation, so it makes an overgeneralized and exaggerated association. This results in a crude, unrefined strategy to avoid repeating an unbearable experience.

A simple example is what happens after one gets violently ill after eating a type of food, lima beans for example. The mind subconsciously generates the feeling of impending illness whenever it infers that lima beans might soon be ingested. The crude association is not complex enough to associate the original illness specifically with the tainted lima beans eaten in the particular case. The subconscious represses the ingestion of all food that triggers the overgeneralized association. Moreover, the conscious mind cannot overcome or revise this
subconscious reaction. The subconscious mind has “locked-in” to a suboptimal strategy. The schema is inaccurate, but just as one subconsciously winces to avoid bumping a bruise for fear of pain, the mind fears that a chaotic bump could trigger the association and recreate the pain. Thus the subconscious mind lures one away from re-evaluating the simplistic, subconscious association.

The subconscious mind can be usefully thought of as containing layers of not-complex-enough associations made in response to a history of emotional trauma. These associations direct one’s behaviour as powerfully as an aversion to certain types of food, but are usually not self-apparent. Indeed, Freud hypothesized that these “agencies” were the primary personality, the conscious mind being secondary. One is decadent, therefore, when one’s subconscious mind has locked in to an inaccurate schema that controls conscious behaviour in a way that the conscious mind is unaware of.

A therapeutic strategy of psychotherapy is to detect the underlying inaccurate schema (an illusion or fantasy) and to unlearn it. One approach to unlearning is to guide the patient to perceive how and why the lock-in occurs. Another approach is to re-trigger the association in a controlled setting where emotional support will cushion the pain (change the outcome) and the benefit of mature reflection can forge replacement associations.

The task of psychotherapy is very similar to postmodernism itself. This might explain why Nietzsche saw himself as developing a medicine for society (exorcising moral illusions) even though he had no meaningful experience with social relations or politics. Had the effects of Nietzsche’s childhood traumas not prevented him from seeing society as a complex adaptive system, Nietzsche might have considered the social dimensions of morality, rather than focusing solely on moral codes as a means of constructing one’s self.
Chapter 6
Society as Complex Adaptive System

Our social habits, practices, manners, customs and culture all interact to constitute many important institutions in our society. It has long been recognized that these institutions have grown and evolved rather than being entirely the product of deliberate human design. This tradition of historical social science has been recently reviewed and made thematic in the work of Friedrich Hayek.¹ This tradition attempts to show that society contains many useful emergent social orders, but the tradition has not developed an articulated, general theory of complex adaptive systems. Indeed, Hayek peremptorily concluded that a general theory of complex adaptive systems in sociology would not be possible.²

Hayek drew upon his piecemeal insights as to how society comprises many complex adaptive systems to argue in favour of an extreme form of liberalism. This thesis claims that the existence and desirability of complex adaptive systems in society do not imply liberalism. Hayek failed to apply comprehensively his insights into the nature of social orders, choosing a blend of knowledge pessimism and knowledge optimism that suited his ideological political values. The distasteful conclusions of Hayek's political philosophy, therefore, do not discredit his insight into the formation of social orders.

The Emergence of Social Orders

A society comprises many individuals who interact in dynamic fashion. An ant colony, which is a simple form of society, is one of the most easily perceived instances of an order emerging from the concurrent behaviour of individuals independently acting according to rules—the anthill phenomenon. The anthill emerges as an entity with discernible, but fuzzy properties—it

is a social order. The topology of the anthill social order is particularly interesting because its properties greatly assist the collectivity of ants to survive in the environment. The fact the social order is under selective pressure means that the preconditions exist for the social order to evolve as a complex adaptive system.

Hayek claimed that many of the social institutions necessary for a successful human society have also emerged spontaneously due to selective pressure. Hayek correctly observed that the fact that some societies persist and others do not creates an \textit{a posteriori} teleology. Therefore, those societies that adopt useful, self-reinforcing social institutions are the societies that are more likely to persist and continue to evolve. Hayek distanced himself from so-called "Social Darwinism" because his focus is on the social institutions that evolve, not the biological characteristics of the individuals in the society.

Hayek correctly observed that the social orders that emerge are in a sense independent of their concrete elements. As in any chaotic or complex adaptive system, the emerging systemic effects may be studied without regard to the underlying matter. The systemic order is a holistic property that emerges from the nature of the relations among the elements, and can occur in any concrete medium that is capable of supporting the relations involved.

Hayek also correctly observed that the individuals comprising the orders act according to implicit rules and that rule-exhibiting behaviour is essential for any complex adaptive system to persist and improve. Hayek observed that the actors from which a social order emerges need not be aware of the rules. The rules need only be implicit in their behaviour. Indeed, this is usually the case. A spontaneous order only requires that the behaviour happens according to rules—that behaviour may or may not be intentional with respect to the purpose promoted by the existence of the emergent order.

Hayek claimed that it is wrong to expect human cognition to be able to fathom all aspects of a social order. Hayek claimed that spontaneously evolved orders are capable of complexity that far exceeds human cognitive ability. Hayek attributed this to the fragmentation of knowledge of particular facts in a society that is too large for everyone to know each other. A
SOCIETY AS COMPLEX ADAPTIVE SYSTEM

spontaneous order distributed over many individuals is capable of organizing information in a manner that a single mind cannot match.

Therefore, no single, top-down planner could be capable of designing a social order that could be as effective as an evolved, emergent social order. For example, air pressure and temperature are emergent, topological features that implicitly describe the average kinetic energy of the air molecules in a volume. Direct calculation would be computationally impossible. If the rules of kinetic interaction of air molecules were changed, the system might lose the feature of spontaneously providing a simple means to measure the average energy of all elements.

Hayek was particularly interested in the emergence of free market orders and how markets exploit transactional information to efficiently allocate goods. Hayek realized that it was in many cases pointless to attempt to manipulate the market directly. An example will illustrate his point. Suppose that in a white-water kayaking course there is a large standing wave that is straight and perpendicular to the shore. Suppose the course designer would prefer a semi-circular standing wave instead. It would be pointless to attempt to directly change the shape of the standing wave—there is no direct, deterministic causal link from wave-form to material elements. Thus, for example, it would be silly to attempt to shape the wave using plywood buttresses—the wave would lose its useful wave characteristics. The wave emerges from the interaction of flowing water with irregularities in the stream bed. It is only by rearranging the rocks in the stream bed that the shape of the standing wave could be usefully altered. Complex adaptive system theory tells us that there is no method to precisely predict the effect of altering the stream bed; trial and error based on experience and plausible guesses are all that can be done.

Hayek arrived at the same conclusion regarding useful social orders. The social orders are abstract and there is therefore no direct method of reshaping them. The social order emerges from the interaction of rule-exhibiting behaviour in individuals. The social order can only be successfully amended by changing the rules.

Hayek observed that society has spontaneously evolved many useful social institutions. Reasoning backwards from the teleology and topology of the emergent social order, Hayek
concluded that the actors must act according to a set of rules that are sufficient to produce the social order. These rules are usually in the form of social habits, practices, manners, or customs. The individuals need not be aware of why the rules are useful, nor need even be aware that they are acting according to rules—most individuals are blissfully unaware of their distinct cultural traits.

Hayek argued that since we cannot observe direct causal links between implicit rules and the useful, indispensable social orders that emerge, traditional habits, practices, manners, or customs have authority even in the absence of an articulated justification.

Hayek considered market allocation of resources to be a social order that is indispensable for the survival of a large society. Though probably correct on this point, Hayek went on to conclude that the only deviations from libertarianism that should be considered are those that reinforce the emergence of useful social orders and ones that maximize the freedom of individuals to maximize self-interest.

A Postmodern Critique of Hayek

The theory of complex adaptive systems supports many of Hayek's conclusions, but his reasoning is incomplete and inconsistently applied. Hayek did not demonstrate in any detail why no single mind could assimilate all the particular facts necessary to design an effective social order. It might be possible that a single mind could assimilate relevant facts within a yet-to-be-discovered conceptual scheme that enables effective social engineering. For example, a finite grammar for a spoken language is capable of generating an infinite variety of expressions. The mere existence of a very large number of relevant facts does not preclude effective measurement, classification and analysis using large computer databases.

Hayek was vague on why fragmentation of knowledge precludes rationalistic social engineering from being as effective as evolved orders. Hayek correctly observed that where there is (1) a large population of rule-following actors, (2) a precise starting configuration,
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(3) concurrent interaction of the actors, and (4) exogenous influences, the emergent order can only be generally predicted with a fuzzy and probabilistic model. Hayek correctly observed that changes to any of the four listed features can chaotically change or destroy the emergent social order. Hayek failed to observe that while the shift to a new topology is chaotic, the topological features of such changes can be studied. Hayek saw that knowledge optimism about social orders is impossible without understanding how and to what extent. Without a constructive theory of complex adaptive systems, Hayek resorted to knowledge pessimism. Hayek pessimistically assumed that emerging social orders are always highly unstable and, therefore, that interference should either be minimal or directed towards reinforcing the social orders. In fact, the stability of emergent orders can vary quite significantly. Moreover, in evolving complex adaptive systems the topological features teeter on the edge of stability and instability and, indeed, evolve adaptive instability. A complex adaptive system must continually move toward the boundary between stability and instability. As a result of Hayek’s failure to observe complexity in the stability of social orders, he assumed that social orders are highly unstable and he was ultra-conservative about deliberate social engineering. Hayek’s prescription was to lock in to stability.

Hayek’s error was to reason that the impossibility of knowledge optimism implies knowledge pessimism. An example will help illustrate the gravity of Hayek’s error. Suppose Hayek had been in charge of medicine and medical research. Hayek would have keenly observed that the living body is an evolved system. Any microreductionist attempt to create a human body would result in a Frankenstein monster. Hayek would have prudently concluded that we should favour minimal intervention in bodily processes when treating patients, lest the cure be worse than the symptom. Hayek would have also correctly reasoned that rationalistic attempts to impose treatment based on a priori philosophical principles would be obviously ill-advised—theory must defer to evidence from experience. But Hayek would have adopted a cruel attitude toward those suffering intolerable, urgent, concrete pain—let the body heal itself. But unbearable suffering warrants immediate, active, plausible medical intervention. We can develop useful schemas about bodily systems that evolve, improve and guide us to
progressively more plausible interventionist medical techniques. The social corpus is no different. A life racked with pain might not be worth living. In response to the prescription of economic faith healers, Keynes noted that in the long run we are all dead.

Had Hayek had the benefit of complex adaptive system theory his normative conclusions should have been different. Complex adaptive system theory gives a more detailed account of why microreductive, rationalist approaches to social engineering are insufficient to constitute a viable social order. Moreover, it provides a constructive account of the evolution of social orders. Therefore, we need not share Hayek's excessive fear of tampering with the conditions for the emergence of social institutions. Indeed, it is only by introducing stress to the social order in the form of desirable constraints that the social order can avoid lock-in and continually evolve. In the case of the market, social planners should attempt to create a more complex market that responds to many social imperatives, rather than attempting to create a "purer" market with simple mathematical properties.

Recent work in economics has re-evaluated many economic assumptions from the perspective of complex adaptive systems. This work shows that unregulated markets behave chaotically and can lock in to manifestly suboptimal allocations of resources. The prescription, however, is not to impose top-down, rationalistic price-fixing. The effectiveness of evolving, market-price allocation of resources should be respected. However, the situations in which inefficiencies emerge can be studied, leading to interventionist strategies that do not impair but make use of the organic, evolving capacity of the market. For example, a technology policy might subsidize new, rival technologies so that the more optimal technology is not squeezed out simply because its rival enjoyed initial advantages that were irrecoverably amplified by positive feedbacks in the market. Hayek failed to seriously consider the possibility of imposing meaningful exogenous constraints on a social order without destroying its capacity to evolve. We can pass legislation that redefines the fitness function that shapes the evolving social order and let the social order evolve its own solution to our new demands. The market can be thought

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of as a genetic programming machine, where the computer spontaneously evolves efficient solutions to intractable problems.⁴

Hayek made another mistake that is common among economists. Though Hayek recognized that the notion of absolute prices is unsound and prices are better viewed as emergent characteristics of a complex, evolving system (a market), Hayek failed to realize that human actors in the system also act according to complex, evolving strategies. Hayek falsely inferred that because an evolved order can implicitly incorporate rules of great complexity and sophistication, the rules used by the actors in the system would be those that are optimal for the creation of that order. Hayek overlooked the fact that the strategies of the actors evolved and would therefore not be perfectly optimal in relation to the emergent social order.

Recent work in complex adaptive systems shows that economists have falsely presupposed that market participants implicitly act with perfect game-theory strategies. Participants only have less-than-perfect evolved strategies.⁵ In terms of mathematics, the economists have favoured the rational-actor hypothesis because it makes the mathematics of the nonlinear dynamical systems yield closed-form (equilibrium) solutions.⁶ Chaotic effects were assumed not to exist. Reality was falsified. Hayek unjustifiably assumed that the market order that spontaneously emerges must be one in equilibrium.⁷ Once this assumption is abandoned, Hayek can no longer reason backwards from the existence of a perfect market in equilibrium to the conclusion that its actors must unwittingly exhibit perfect game-theory, rational behaviour.

The assumption of rationality induced Hayek to overlook layers of complexity within human actors—the fact that the self is a complex adaptive system. As a result, Hayek curtly asserted that the phenomenon of subconsciously influenced behaviour is irrelevant to social

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⁴ Genetic programming is discussed in chapter four of this thesis.
⁵ As noted in chapter four of this thesis, if the strategies were perfect and precise, evolvability would be lost; fuzzy strategies are required to effectively adapt to changing conditions.
theory.\(^8\) While it is true that the existence of a social institution implies that the minimal, necessary conditions for its existence must be present in the behaviour of the actors, Hayek failed to appreciate that the minimal preconditions only require an evolved, good-enough strategy in the actors—not perfect, game-theory strategies. Perfect game-theory strategies are only required so that non-chaotic mathematics can be employed to create simpler mathematical models of market behaviour. Since the actors need not be perfect, there is room for strategies shaped by evolved, subconscious influences. Indeed, it appears that the necessary conditions for market orders are rather weak compared to other subconscious constraints. Hayek overlooked the question \textit{how} evolving social orders influence the creation of the necessary rules in individual human behaviour and therefore overlooked the phenomenon of social orders shaping the development of the subconsciousness.\(^9\)

Hayek's assumption of rationality also prevented him from critically examining the robust agent myth. While Hayek was evolutionary and anti-rationalist with respect to social institutions, he reverted to narrow rationalism in his analysis of its actors. Hayek failed to apply his insights into the complex adaptivity of the social order to all levels of reality, especially the composition of the self.

Because Hayek assumed human behaviour is inadvertently rational and failed to critically examine the robust agent myth, his political philosophy and theory of justice share the shortcomings of liberal modernism discussed in chapter two. His admitted willingness to tolerate oppression and suffering in the name of doctrinaire principles\(^10\) exposes his work to easy charges of ideology.\(^11\) This is unfortunate, as many of Hayek's insights into the complex adaptive nature of social institutions have been corroborated by the science of complex adaptive systems and should not be discredited by his blatant ideology.

\(^8\) Hayek, \textit{Rules and Order}, at 31.
\(^10\) Hayek, \textit{Rules and Order}, at 61.
Social Theory after Hayek

Hayek made several positive contributions to the development of a legal theory. Hayek made it clear that many indispensable social orders emerge from the regulated but independent interactions of a large population of actors. Enduring constraints cause these orders to evolve so that the orders are capable of better satisfying community goals. These orders would be impossible to construct from first principles and microreductionist reasoning. Hayek was correct to warn that insensitive tampering with the rule-exhibiting behaviour of the actors (their traditions) might endanger valuable social orders that have evolved. One of the ways that such social orders could be valuable is to implicitly process vast amounts of data to help accomplish an important social task. Markets, for example, tend to allocate social resources efficiently.

The emerged and evolved nature of the social orders and the implicit traditions that are necessary for their emergence cannot be derived from first principles. One can only observe and make models of them, using fuzzy concepts and probabilistic reasoning. Using the models, we can incrementally tinker with plausible hypotheses as to how to change the system. We must apply models with humility and often defer to an intuition shaped by implicit familiarity with evolved traditions.

Hayek erred by being too conservative. Stephen Toulmin has noted that all legal systems of any sophistication divide into, what we call in our system, law and equity. Law represents the formal model of rules, the doctrine. However, law is always incomplete. In concrete situations that invoke more conflicting values at one time than the law has progressed to handle, judges draw on intuitive notions of fairness. In Nicomachean Ethics, Aristotle referred to this process as practical reason. Practical reason is best performed by a “large-spirited person” with an intuitive knowledge of the virtues—evolved, traditional behaviour patterns that we do not really understand but can observe. An effective judge must thus be both socialized and empathetic.

Hayek properly advised us not to presume tradition should be ignored merely because a microreductionist justification cannot be offered. The process of forming a more complex legal doctrine is an attempt to model that tradition in conceptual structures. The intuitive understanding of tradition that conflicts with conceptualized law, is the domain of equity. Hayek erred by directing us not to focus on the concrete. As Toulmin argues, equity is especially concerned with the concrete, with expansion of context. Without embracing the concrete, empathy is not possible and a judge cannot be a “large-spirited person.” If the development of law is likened to the development of a science, equity represents the results of experiments that do not yet fit the theory. As more equitable experience is chronicled (in precedent), the regularities become apparent. The legal doctrine then readjusts itself, perhaps undergoing Kuhnian doctrinal revolutions of varying extent.\(^\text{13}\) Hayek would have us forego this process, apparently because he believed that social orders would be more stable if they emerged from unwitting behaviour. Had Hayek not been knowledge pessimistic toward conceptualized reasoning about social orders, he might have sensed his inappropriate optimism about the unconscious capacity of human agents and this would have shaken his naive faith in markets.

The success of common law, which Hayek himself praised,\(^\text{14}\) shows that Hayek’s pessimism is unwarranted. Indeed, tradition (implicit rule-exhibiting behaviour) will continue to evolve greater complexity and responsiveness to social goals only if there is a sophisticated body of articulated doctrine. Law makes possible a more refined equity. Moreover, once the conceptualized legal model has developed into a good-enough model, it can be used to generate plausible candidates for effectively engineering the social order, including the extirpation of traditions that are ideological. This is a role Hayek refused to consider due to his misperception of the stability of social orders.

Therefore, if we do not follow Hayek into his pathological conservatism, his insights into the emergent and evolving nature of social orders shows that the process of law and equity


\(^{14}\) Hayek, *Rules and Order*, at 22.
evolved by the common law is an effective general strategy for coping with the fact that social orders are complex adaptive systems.

Tradition, of course, includes ideology and prejudice. To remediate unwelcome side effects of social orders, we need better knowledge about how social orders evolve. Hayek provided no insight here. The legal process has evolved probabilistic strategies as to what sorts of changes can be attempted. One of these strategies is proportionality analysis, which models the interactions among complex social orders using fuzzy goals and probabilistic causation. I argue in chapter ten that this strategy (deep-structure reasoning) is the most plausible way to approach the problem of mediating the need to preserve implicit wisdom and the need to engineer social change.

Structuralism

Another school of thought that concerned itself with social orders was “structuralism.” This movement was inspired by the work of Ferdinand de Saussure. Saussure was a linguist who reacted against stagnation in the historical school of linguistics in the late nineteenth century. Saussure redirected inquiry to the signs that comprised the language system and analyzed how the signs related to each other to form a functioning whole. It was the static structure of language that assigned meaning to signs.

The static structure Saussure referred to was an emergent social order. What functions as the sign is irrelevant—the material cause of the emerging order need only be capable of exhibiting the relationships required for the social order to exist. Therefore, any social practice could be viewed as a static system of signs. This gave rise to a new branch of social science—semiotics.

Structuralist thinkers realized that the existence of social orders meant that humans must have unconscious structures that are necessary for the emergence of each social order, as did Hayek. Structuralists, however, better understood the importance of language and
The anthropologist Claude Lévi-Strauss viewed the static nature of structuralism as a good thing; it allowed for the possibility of an eternal self as constituted by the self-enclosed functioning of a system of elements that comprise a timeless cultural order. Similarly, the psychoanalyst Jacques Lacan viewed each human as the manifestation of a language-constituted unconscious that no self could claim as its own.

Structuralist accounts are disturbing because there is no centre of subjectivity left in the human—people are entirely socially constituted and essentially static, or heading that way. Lacan's model is more interesting because language itself is dynamic and a being totally constituted by language possesses more potential for change. Nonetheless, the model is essentially one of confinement and strict limits on creativity.

In terms of complex adaptive system theory, the problem with structuralism is that it equates constraints on the fitness function that shapes the self with the self. The emergence of social orders places constraints on how the self as its own complex adaptive system can develop—it partly defines the fitness function for the self. The fact that these constraints are greater than we had previously realized does not mean there is no self; it only means that the robust agent myth was mythic in proportion.

The structuralists also fail to appreciate the selective forces that act on social orders. If the social order is not entirely well suited to human reality this will create stress on individuals constituted by that social order. The stress will result in individual adaptation, which will result in evolution of the emergent social order.
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*Foucault*

Michel Foucault’s thinking is a strong reaction to structuralism. Foucault shared structuralist intuitions as to how social orders constitute personal existence. Foucault examined in detail how knowledge systems (discourses) evolve to preserve the existence of social orders, thereby becoming an instrument of power.

Unlike many optimistic structuralists, Foucault saw the power implicit in social orders as confinement. These knowledge-power structures work insidiously to restructure our desires so as to promote the persistence of the social orders. Knowledge blindly evolves as the vessel that constitutes how we interpret our experience of reality, and conceals its constituting role. Foucault develops an ethics of thought that ironically exposes the passive nature of the knowledge vessel. Foucault agitates us to escape and stand outside our socially constituted selves and achieve intellectual ecstasy—the flight from confinement.\(^{15}\)

The problem with Foucault is that he fails to develop criteria to distinguish confinements that emanate from desirable social orders from undesirable confinements. Foucault’s ethic is the pursuit of unconfined desire, ecstatic flight. The pursuit of this intellectual high helps explain his guru-like status among his followers. Also, we cannot overlook how Foucault’s personal life must have shaped which philosophical projects captured the interest of his subconscious mind.\(^{16}\) The need for Foucault to lash out at social constitution of desire, which clashed with his own nature, caused him to overlook the positive aspects of social constitution.

In terms of complex adaptive systems, Foucault failed to fully appreciate that creativity requires constraint and order and that social orders are not necessarily a bad thing. Unlike Nietzsche, Foucault failed to see these constraints as opportunity for self-development. Like Nietzsche, Foucault failed to develop any positive role for social orders. Each sees the fitness


\(^{16}\) Foucault, born in 1926, grew up in Poitiers, on the frontier of occupied France. Confinement by political forces shaped his early life. As well, Foucault was homosexual who participated in sado-masochism. This obviously made him an outsider to the dominant, homophobic social moralities that shaped discourse and explains his acute sensitivity to social confinements that interfere with self-created desire.
function of humans as centered in the self. Nietzsche chose fatalism, Foucault chose flight. Neither was able to construct knowledge with sufficient social or political content to create a discriminating concept of ideology. They were knowledge pessimists toward society. Without a concept of ideology, they had no useful criteria for deciding which social orders were unacceptable or how useful social orders could be engineered so as to empathize with unique individuals such as Nietzsche and Foucault.

The concept of ideology is therefore central to the task of law and must be an important aspect of any postmodern theory of law. We will examine ideology in chapter eight, after showing how law is a complex adaptive system that constructs social knowledge in the absence of the possibility of knowledge optimism.

17 Foucault's flights often took him from his confinement in Europe to San Francisco to engage in self-created ecstasies.
Chapter 7
Law as Complex Adaptive System

The aim of this chapter is to show that the institution of law in our society behaves is a complex adaptive system. In particular, I will show that the schemas used in legal reasoning construct and improve knowledge in an evolutionary manner.

The methodology will be to show how law exhibits all of the major empirical characteristics that have been observed about complex adaptive systems. This is not a proof that law is a complex adaptive system. It is a fallacy of reason to argue as follows:

1. X's are complex adaptive systems.
2. X's are described by model CAS.
3. Law is described by model CAS.
4. Hence, Law is a complex adaptive system.

Whether law is a complex adaptive system cannot be proven at least until a detailed mathematical model is created that identifies the rules of the actors and shows how the legal order spontaneously emerges as a result of interactions. Such work is beyond the scope of this thesis.

On the other hand, in our society the institution of law has spontaneously evolved, it doggedly persists and it defies microreductionist theories of explanation, prediction and justification. This strongly suggests that the legal order is a spontaneous order that has emerged and evolved because it serves a useful function for society—that it is a complex adaptive system. Moreover, we can demonstrate that law and, in particular, legal reasoning exhibit the major features of complex adaptive systems. Once we describe legal reasoning qualitatively as the process of constructing knowledge by evolution, this model will provide insight as to how previous legal theories offer incomplete and distorting models of legal reasoning. The model will also guide future development of deep-structure expert systems. If these expert systems

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prove to be more successful in predicting case outcomes and providing useful argument, such evidence will indirectly confirm that we can appropriately apply the complex adaptive system model to legal reasoning.

This chapter will consider law and legal reasoning in terms of the following features of complex adaptive systems, which were listed at the end of chapter four: (1) the emergence of an order of system behaviour that has an implicit schema; (2) a selective force that creates an \textit{a posteriori} teleology in the form of a fitness function; (3) self-reinforcing mechanisms to promote the stability of the schema; (4) a tension between acting according to the rules of the schema and detecting when to create exceptions to the rules; (5) instances of schema inaccuracy based on false regularities or denial of regularities; (6) instances of lock-in; (7) annealing forces to prevent or dislodge lock-in; (8) avalanches of change propagating throughout the schema over time, in sizes that vary according to a power law distribution; (9) increasing complexity by accretion of exceptions followed by transformational compressions; (10) transformations that exploit the existing structure of the schema; (11) the fitness functions and self-reinforcing nature of complex adaptive subsystems interfering with the viability of the complex adaptive system as a whole; and (12) development of awareness of the developmental logic of change in the schema, both exogenously and endogenously.

\textit{Emergence}

The institution of law is highly abstract and difficult to isolate as a sharply defined, autonomous, emergent social order. However, the fact that it is difficult to create a precise model of the legal order does not prove that no order exists. I will rely on intuitive notions as to what the legal order involves, so as to avoid overlooking important aspects of the legal order by being too eager to define it.

In terms of the material cause of the legal order, it is trivial to observe that law emerges from the interaction of individuals in society. The efficient cause of the legal order includes the
LAW AS COMPLEX ADAPTIVE SYSTEM

formal institutions of law and the fact people tend to act according to rules, both out of habit and as conscious followers of promulgated commands. It is tempting to seek a more discriminating description of the legal order by restricting the actors to the players of roles in the legal institutions, but once the cast of players includes those who are bound by the laws we see that this approach is not helpful. Law emerges from the interaction of actors playing roles in many subsystems of the legal order.

One very important feature of the legal order is the body of precedent decisions and the code of laws contained in those decisions and legislation. Any theory of law that attempts to restrict its enquiry to these phenomena would be impoverished. However, the fact that we can easily identify the corpus of laws and that we can observe entrenched practices of making conscious decisions based on this corpus of laws, shows that the body of laws is a fundamental aspect of legal process.

The body of laws contains an implicit schema that includes assumptions about what individuals need, how those needs are satisfied, what social conventions should be respected, how social orders are created, the relative utility of social orders, and how modification of laws would instrumentally affect all of these. The focus of this thesis will be on the body of rules of conduct implicit in the decisions made by judges and the enactments of legislatures. In this corpus of laws, there are two distinct complex adaptive systems—the development of explicit legal doctrine and the development of an implicit deep-structure schema.

The system of explicit legal rules—legal doctrine—is easily identifiable. It is the focus of legal positivism, for example. On the other hand, many legal scholars overlook the nature of the deep structure of law. As argued in chapter six, social evolution has resulted in people internalizing rules of behaviour that are necessary for the emergence of useful social orders. As Hayek has argued, these implicit rules have not been fully articulated into a conscious, conceptualized scheme. A socialized person will have a good intuition of what to do in most situations, but will have difficulty articulating the result in a coherent, conceptual scheme.
Stephen Toulmin provides a good example of this phenomenon. In the mid-1970s the United States Congress appointed an eleven-member commission to consider the ethics of medical and psychological research on people. When considering the ethics of concrete situations, the commissioners rarely split along philosophical lines or, for example, along the lines of scientist versus non-scientist. In almost every case they came close to agreement, even about quite detailed recommendations. However, when the commissioners sought to justify their conclusions, the principles to which they appealed differed widely.

Law displays the same phenomenon. Judges exhibit remarkably consistent intuitions as to what case outcomes should attach to concrete fact situations and these intuitions are generally more subtle and refined than the legal doctrine. Legal doctrine, therefore, operates in a manner similar to a scientific theory—it is an evolving, provisional explanation of experimental data. A scientific theory or model can be very useful for engineers to solve many problems. However, when scientists encounter recalcitrant experimental data, the theory can only generate plausible possibilities for refinement of the theory. In legal reasoning, judicial decisions provide experimental data—judges use intuition to assign an outcome to a concrete pattern of facts. Judges and scholars then attempt to revise doctrinal models to account for the new experimental data. Legal doctrine, therefore, evolves as a complex adaptive system—it evolves to produce a schema that models the deep structure of law.

The deep structure of law is also a complex adaptive system. It is broader than the corpus of articulated doctrine; it encompasses the internalized rules that judges intuitively follow. As such, it contains an implicit schema about how various types of behaviour are essential for the important social orders that arise, behaviour that explicit doctrine and social science are still incapable of justifying. However, this intuition must also evolve because the social orders are always evolving. Furthermore, like common sense, it evolves (or should evolve) in response to developments in science and the identification of harmful ideologies.

The process of legal decision-making and rule-making thus involves two schemas. The doctrinal schema is the conscious, conceptualized model for decision-making; it is the corpus of

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articulated rule hypotheses (and underlying assumptions) contained in the opinions used to justify previous case outcomes (precedents) and contained in legislative enactments. The deep-structure schema is the body of rules and underlying assumptions that are implicit in the socialized intuition of decision-makers, which the outcomes in precedents chronicle.

There are clearly other aspects of the legal order, many of which affect judicial outcomes. However, the focus of this thesis is on legal reasoning, so the remainder of this chapter will focus on the features that these two subsystems share with complex adaptive systems.

**Fitness Function**

The previous two chapters show how the self is a complex adaptive system and how the interaction of many selves results in the formation of social orders that are complex adaptive systems. We observed in chapter four how problems might arise where the fitness functions of relatively autonomous complex adaptive subsystems (individuals) clash with the fitness function of the complex adaptive system as a whole (society). We may usefully view law as an attempt to promote the necessary conditions for mediating and maximizing the satisfaction of the fitness functions of individuals and the social orders that are useful for society.3

Law has traditionally failed to consider complex adaptive subsystems in the form of groups of individuals, such as economic, gender, racial, ethnic or cultural classes. Critical enquiry has shown that we must consider these phenomena in legal analysis. On the other hand, it is not self-evident that the fitness functions of these groups are as important as the ones for individuals or useful social orders. For example, why should the law attempt to ensure the class of rich people persist as a self-reinforcing order within society? On the other hand, most people intuitively feel aboriginal culture is worthy of support through the legal order. Our conception of

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3 It is not very helpful to begin our analysis by attempting to reduce one fitness function to the other. Individuals benefit from the existence of useful, viable social orders and *vice versa*. The holistic aspect of complex adaptive systems should be a warning to suspend reductionist methodology.
PROLEGOMENA TO A POSTMODERN THEORY OF LAW

the legal order should therefore leave room for the development of heterogeneous fitness functions. Nonetheless, there is a fitness function that shapes the legal order, however vague or inadequately constrained the fitness function is in its current composition.

We have already noted that legal doctrine operates as a complex adaptive subsystem that stands apart from the deep-structure complex adaptive system. The distinctness arises from the fact that the system of doctrine has a fitness function with at least two additional constraints. First, doctrine must justify its results in a conceptually coherent set of rules. Second, doctrine must operate so as to restrict the style of argumentation and evidence that a litigant must adduce before a court, so that judges can make decisions relatively quickly and affordably for litigants. The requirements of conceptual coherency and lower information costs are thus additional constraints not present in the fitness function that shapes the deep structure. Legal doctrine is thus a style of reasoning that is engineered to permit coherent argument within strict limits on information costs.

Self-Reinforcing Mechanisms in Law

Law has many self-reinforcing mechanisms and positive feedbacks that promote stability in legal reasoning. Most obvious is the principle of universalizability, which put simply, means like cases should be decided alike. While the notion of “like” cases might at first glance seem self-evident, it becomes elusive under closer scrutiny. No two concrete fact situations are identical; there are always some differences. Thus, there must be criteria to decide whether cases are relevantly alike. The criteria will either be doctrinal or intuitive, reflecting the two levels of legal reasoning. In doctrine, factual relevancy is determined by the doctrinal categories and rules

5 J.C. Smith, Legal Obligation (Toronto: University of Toronto Press, 1976), 88-108. The principle of universalizability is closely related to the doctrine of stare decisis; however, stare decisis also includes rules for determining which court decisions are binding on which courts. In this latter sense, stare decisis is unrelated to the principle of universalizability.
6 Smith, Action Theory, at 105.
that previous cases used to justify their decision outcomes. In deep structure, judges draw on their intuitive insights into desirable social behaviour to determine relevancy. The deep-structure intuition induces a judge to consider a more refined category of relevant facts than could be deduced from the pre-existing doctrine. A judge would review the previous cases that established the doctrine and distinguish them because the fact situations in those cases did not raise the factual categories under consideration—the judge distinguishes the previous cases. The judge would depart from doctrinal precedent on the basis of factual distinctions that create a new, limited exception in the doctrine. The pressure to follow doctrine in previous cases adds stability to the doctrine by localizing deep-structure intrusions and inhibiting propagation of change throughout the doctrine. The pressure to be consistent with previous outcomes based on similar facts (using deep-structure relevancy) promotes stability in the deep-structure schema.

A related stabilizing influence has been the natural law myth. This is the assumption that a universal, unchanging body of law is being discovered. From the perspective of this thesis, this is not a desirable means of promoting stability in legal reasoning.

A more pragmatic stabilizing mechanism is the implicit requirement that law be conceptually coherent. The need for coherency creates a tendency for small changes to propagate widely. Since judges fear disrupting areas of law or fact situations not under immediate consideration, they tend to create many exceptional pockets to resist the need to propagate change beyond the factual context at issue before the court. Once the precedents chronicle enough exceptions so that underlying regularities become more obvious, then judges can confidently amend doctrine in ways that can propagate widely.

A recent case from the Supreme Court of Canada is a good example of a court localizing doctrinal change. In London Drugs Ltd. v. Kuehne & Nagel International Ltd. the court created a new exception to the doctrine of privity of contract. It has long been a principle of contract law that third parties to a contract cannot acquire rights or obligations pursuant to a contract between other parties. Legal commentators have criticized this rule as being particularly

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harsh where employees accidentally damage goods and seek to take advantage of a clause limiting liability in a contract between their employer and the owner of the goods. The rule is harsh because commercial reality makes it difficult for the employees to negotiate such a limitation with the owner of the goods. Moreover, the contract between the employer and the owner of the goods is generally considered to be the final word on allocation of risk—no reasonable owner of goods who agreed to an exclusion clause with an employer would fail to obtain insurance because it relied on the liability and solvency of the employees. The dissonance between doctrine and commercial reality implied that the doctrine failed to recognize a refining regularity in the deep structure. In *London Drugs* the court was invited to create a broad exception or to relax the privity of contract rule, either directly or through the back door by amending tort doctrine. The majority opinion held that while commercial reality dictated a change in the doctrine, a change that went beyond what was necessary to decide the appeal would result in complex changes to doctrine and have uncertain ramifications. The court therefore carefully fashioned a limited but principled exception based squarely on the facts of the case which, in the majority’s opinion, only resulted in an incremental change in the law.  

The *London Drugs* majority also noted that the limited exception to the privity rule would not open the floodgates to third parties suing on contracts between other parties. This is an example of another self-reinforcing mechanism in law—judges fear creating unexpected and unwelcome, large-scale social changes that imperil functioning social orders. A recent trilogy of cases from the Supreme Court of Canada illustrates the danger of making doctrinal changes prior to generating sufficient fact-based decisions to illustrate competing considerations and exhibit regularities. In *R. v. Askov* the court considered whether criminal charges against an accused should be stayed because the accused was not tried within a reasonable amount of time as required by paragraph 11(b) of the *Canadian Charter of Rights and Freedoms*. The court held that charges should be stayed where a trial for extortion and firearms offences was delayed for

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two years through no fault of the accused but due to inadequate resources. The social consequences of the Askov decision were immense. In the year following the release of the Askov decision there were over 47,000 stays issued in Ontario alone, including offences as serious as manslaughter and rape. By 1992 the number of stays in Ontario exceeded 100,000 and criminal administration was widely perceived to be in a state of crisis. Members of the Supreme Court of Canada began giving public speeches indicating that they had not intended the consequences to be so extreme. The court soon had a chance to revise its position in R. v. Morin. Mr. Justice Sopinka opened his majority opinion by referring to the large-scale consequences of the Askov decision. In Morin the court considered the difficulties of administering criminal justice in the particular region where that particular case arose, factual criteria that the doctrine in Askov failed to take into account. The Morin court held that the doctrinal rules set out in Askov should not be applied as a formula and should defer to a more case-by-case, fact-centered approach. Less than three weeks after the Morin decision, the Supreme Court of Canada released its decision in Reference re Milgaard. In this case the accused had been convicted of murder, had exhausted his appeals, and had served many years in prison. The accused applied to the Minister of Justice for a retrial based on evidence discovered shortly after the trial. Over twenty-one years after the evidence was discovered, the Minister of Justice initiated a reference to the Supreme Court of Canada. In an opaque opinion, the court held that even with the new evidence the accused was probably guilty of the murder but that the new evidence could possibly raise a reasonable doubt for a jury. The court recommended that the Minister of Justice set aside the conviction and direct a new trial. The court also suggested that it might not be appropriate to have a new trial, but if the Attorney-General ordered a new trial and the jury returned a verdict of guilty, the court recommended that a conditional pardon be granted in view of time already served. Since the court held that the accused was probably guilty notwithstanding the new evidence, the decision is best read as an extension of the principle that an accused's trial must be held within a reasonable time. Since the

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state delayed the retrial of the accused for many years, the state arguably violated the accused's rights under paragraph 11(b) of the Canadian Charter of Rights and Freedoms. The court, however, had just delivered the Morin opinion with the Askov debacle fresh in its mind. Retrial applications might have flooded an overburdened administration, resulting in large-scale prisoner amnesty. But the reasoning in Milgaard did not even mention trial within a reasonable time even though this was the effect of the decision in this case. Indeed, there was no doctrinal reasoning at all. The court’s decision is very difficult to apply beyond its own rather peculiar facts; the decision precludes any social impact beyond the range of judicial foresight. The decision will, however, be available as a factual precedent to help refine future developments in the right to a retrial within a reasonable amount of time. The court sought to promote stability by de-emphasizing doctrine and creating an exception based on particular facts.

Another stability-promoting force is the judicial recognition that individuals rely on stability in the legal order to make plans. Transactional commitments presume stability of laws and legal concepts. Reliance is especially important with respect to real property because for most people expenditures relating to real estate require a significant portion of their wealth. We therefore see enduring stability and elaborate structure in the law of real property.12

Less obvious mechanisms to promote stability include the phenomenon that conceptual categories favour certain styles of thinking that perpetuate self-reinforcing self-interests. Critical scholars, for example, seek to identify language-based features such as reification and universalization. Social power dynamics create ideologies that preserve favourable conceptual schema. Similarly, the social order shapes subconscious, neurotic structures in groups of individuals that favour certain conceptual schemas and make their way into the structure of law.13

The common social background and training of judges and lawyers is another stabilizing influence. Finally, the difficulties of finding law (searching for cases) perpetuates the existing

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12 See, for example, the description of the conceptual intricacy of property rights in J.C. Smith, “A Conceptual Model for the Representation of Legal Knowledge,” in Readings for Legal Reasoning and Artificial Intelligence, eds. J.C. Smith & Daphne Gelbart (University of British Columbia: Faculty of Law, 1993), 12-25.
conceptual schema. What is easier to find gets used more; cases indexed according to established categories are easier to find.

**Tension in Application of Schema**

I have already mentioned the tension between law and equity. A judge must grapple as to when to apply doctrine and when to defer to intuition. Doctrine usually proves to be inadequate where a concrete fact situation involves more competing goals than have been worked into the doctrine. In this case, there is tension between the doctrinal schema and the deep-structure schema relevant to the facts of the case.

The deep-structure intuition may also experience such a tension. The judge may find that social orders have evolved, creating a tension in the deep structure. Also, as social science comes to understand the topology of a social order, the judge may realize that an intuitive tradition was stronger than necessary and the tradition can be relaxed to accommodate other constraints. An example of this would be the extirpation of ideologies that had shaped the deep structure.

**Schema Inaccuracy**

The *Askov* example shows how law can develop inaccuracies in its doctrinal schema. The inaccuracy in that case was the failure to realize that the rights of an accused must be tempered by the competing goals of society that require government to budget the resources it allocates to the speedy administration of criminal justice.

Generally the courts overcome a shortcoming in the doctrinal rules by employing interpretation principles or other techniques to bend cases to achieve the proper deep-structure outcome. Once the pattern underlying the distortions becomes discernible, a court can refine the
doctrine accordingly. Thus in *London Drugs*, a history of tension in the application of the privity rule to contractual clauses excluding liability provided the court with ample material to fashion a principled, incremental exception to the general rule and await further fact-based decisions before making further amendments to the rule. The court in *Askov* erred by leaving lower courts little room to give effect to competing social goals, which the *Askov* court failed to foresee.

I will discuss examples of false regularity and denial of regularity in the following section on lock-ins. In landlord and tenant law when determining whether a landlord warrants that leased property is fit for the use intended by the tenant, the common law incorrectly used the doctrinal distinction between fixtures and chattels to answer the deep-structure question “Who was the least-cost insurer?” In contract law, after determining that ensuing events have frustrated a contract such that a court should excuse the parties from further performance, the courts have denied regularities based on restitutionary principles. As will be seen below, in each case the lock-ins of schema inaccuracy had to be dislodged by legislation.

Courts are properly suspicious of making changes for the sake of change. If the court has overlooked competing goals, drastic social consequences might result, as did from *Askov*. The post-*Askov* Supreme Court has adopted a more disciplined attitude, favouring incremental changes in response to specifically identified goals. The majority opinion in *London Drugs* repeatedly emphasized this attitude.

Making doctrinal rules to justify decisions driven by opaque, deep-structure intuition is like squaring a circle. If the initial square is too large, subsequent courts will develop principles of retraction or relaxation.⁴ If the initial square is too small, subsequent courts struggle to extend it. The elasticity of principles of interpretation allows the courts to arrive at correct deep-structure results notwithstanding the unrefined state of the doctrine. However, some doctrinal

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⁴ The Supreme Court of Canada has been struggling to accurately state the circumstances in which a fiduciary duty arises. The plethora of cases following the Supreme Court's decision in *Lac Minerals v. International Corona Resources* (1989), 61 D.L.R. (4th) 14 (S.C.C.), suggests the courts are in a retraction phase. It is submitted that the courts are confusing fiduciary duties with broader, but less demanding duties to act in good faith.
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inaccuracies are too large and stabilizing principles such as stare decisis lock in lower courts into making bad decisions.

**Lock-ins in Law**

Even though doctrinal and deep-structure schemas necessarily labour with inaccuracy (since we cannot be knowledge optimistic about the social order), a healthy complex adaptive system will generate exceptions and refine the schema over time. However, there are self-reinforcing mechanisms in law and we should therefore see examples of inaccuracies being locked-in even after the inaccuracy becomes apparent to critical observers. This appears to be the case. Legal journals are replete with articles by scholars who, in effect, are arguing that the law has locked-in to a suboptimal conceptual schema in relation to the features of the social order under consideration.

Because the transitions from schema to schema are chaotic and historical, positive feedbacks can lock-in historical accidents. A series of three cases from the law of landlord and tenant nicely illustrates how law can become a prisoner of its history.\(^{15}\)

In *Smith v. Marrable* the court held quite sensibly that a lease of a furnished house had an implied condition and warranty that the house was habitable. Shortly thereafter in *Sutton v. Temple* the court held that a lease of land did not have an implied warranty that if was fit for the purpose intended by the tenant. The tenant in this case had leased the land to raise animals. Unknown to the landlord, a substance had accidentally spread on the land that was poisonous to the tenant’s animals, many of which died. The tenant sought to avoid the lease, arguing that *Smith v. Marrable* applied. The court distinguished *Smith v. Marrable* because in that case the contract included something other than the land and fixtures—*i.e.*, the furniture—which implied a warranty and condition of habitability. The court reached the proper result but falsely

identified the regularity that provided the criteria for factual distinction. The doctrinal distinction between real property and personal property did not coincide with the deep-structure concept of least-cost insurer.

As a consequence of this doctrinal inaccuracy, subsequently, in *Hart v. Windsor* the court held that the lease of an unfurnished house and garden did not imply a warranty of condition that the house was habitable. In this case, shortly after the term of the lease began the tenant abandoned the premises because bugs had infested the house. The court considered itself bound by the doctrine in *Sutton v. Temple* because the lease did not include any chattels. The court in *Sutton v. Temple* prematurely created a doctrinal rule without a sufficient body of factual decisions to adequately exhibit the contour of the principle of least-cost insurance. As a result of doctrinal *stare decisis*, English common law locked-in to an inaccurate schema. The doctrinal rule precluded factual distinctions and amending the distinction between fixtures and chattels would have had implications throughout the law. Due to the inflexibility of the doctrine, subsequent courts were unable to decide factual relevancy on the basis of deep structure intuition and had to make harsh decisions. The inaccuracy of the doctrinal rule is evidenced by the distortions that subsequent courts used to impose warranty obligations where the landlord was the least-cost insurer. For example, if a house was leased with so much as a single chair, there was a warranty and condition that it was fit for habitation.

*Stare decisis* locked-in the historical accident of a poor sequence of founding cases, which locked in a false regularity and eventually had to be over-ruled by statute.

There are also examples of lock-ins of denials of regularity. One example is the law of restitution. Canadian courts now recognize a general principle of restitution apart from quasi-contract, whereas English courts deny that an independent cause of action exists.\(^{16}\) The denial of restitutionary principles has lead to problems in specific areas of law, such as the doctrine of frustration in contract law. Since frustration voids a contract, without an independent principle of restitution there is no basis upon which to compensate a party who has partially performed its

obligations to the benefit of the other party. Finally, the legislators passed *The Frustrated Contracts Act* to remedy this shortcoming. However, as Professor Waddams has noted, the legislation itself is an inflexible, blunt, doctrinal solution. The legislation only compensates the partially performing party for limited monetary payments and other limited expenses. Unlike landlord and tenant legislation, the frustrated contracts legislation does not rank high on the political agenda, so amendments are rare. Professor Waddams argues that Canadian common law, now freed from its lock-in to a denial of restitutionary principles, should evolve to reflect deep-structure intuitions about protection of reliance interests and thereby overtake the crude approach of the legislation.

*Annealing Forces*

The fundamental annealing force in law is the continual stream of new fact situations coming before the courts. To the extent that the deep-structure legal schema inaccurately models a social order, or the doctrinal schema is mis-aligned with either the deep-structure schema or the social order, conflict will arise and litigants will bring cases before judges. Judges should intuitively sense the mis-alignment and produce an outcome consistent with their perception of the social order and its relationship to the set of fitness functions that shape the legal order, which should result in change to the legal order. Change in society is thus introduced into the legal order by generating new conflict situations that spawn new case outcomes. New case outcomes reshape the deep structure and, eventually, the shape of legal doctrine.

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18 It is also possible that the deep structure and doctrine schemas are adequate but a litigant is unhappy with the way the conflicting fitness functions shaping the legal order have been mediated. Thus, the legal order might justifiably favour collective interests over individual interests in a particular context, but the individual seeks to challenge the law nonetheless. In other words, society is comprised of individuals and social orders whose fitness functions clash to a significant degree. Nothing prevents a litigant from pursuing a result that unjustifiably favours the fitness function of one subsystem to the detriment of the whole. Such unfounded challenges should not be an annealing force, but probably is in many cases due to judicial ideologies.

19 In *R. v. Salituro* (1991), 68 C.C.C. (3d) 289 (S.C.C.) at 298, Mr. Justice Iacobucci cited the decision of Madam Justice McLachlin in *R. v. Khan* (discussed below) as an example of the Supreme Court of Canada’s “willingness to adapt and develop common law rules to reflect changing circumstances in society at large.” As
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A historical source of disruption to the legal conceptual schema has been the court of equity and, after the unification of the courts of law and equity, the doctrines of equity. Equity began as a court of pure conscience, ameliorating the harsh effects of law.\(^{20}\) In other words, where the common-law doctrine was manifestly in conflict with the deep structure, a court of equity would intervene even though the reasons why could not be articulated. The intervention of early equity courts was criticized as being as arbitrary as the length of the Lord Chancellor’s foot. Over time, equity itself began to develop principles that increased in complexity. Nonetheless, equitable principles have always been applied with a high degree of discretion and new equitable principles have been created much more rapidly than new principles of common law.

In Anglo-Canadian jurisprudence Lord Denning has played a clear role as an annealing force, using and refashioning equitable principles to reformulate legal schemas to better achieve deep structure notions of justice.

**Avalanches, Compressions and Transformations**

The avalanches, compressions, and transformations that occur in the historical development of the doctrinal and deep-structure schemas in law are inter-related. A typical sequence of development in an area of law is as follows. Many pockets of exceptional rules accumulate in the doctrine. The set of exceptions enjoys a period of stability. As the deep structure is refined and the doctrinal schema becomes less capable of providing satisfactory results, judges begin to use pliable interpretive principles to distort the exceptions to handle new cases. Eventually the stress is too great and the baroque collection of exceptions is compressed into a compact set of principles. However, law retains the previous exceptions as exemplars as to how to apply the new principles and these precedents stand as accumulated experience in ranking the importance

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Chief Justice Lamer noted in *R. v. B. (K.G.)* (1993), 79 C.C.C. (3d) 257 (S.C.C.) at 281, such changing circumstances may create compelling reasons to overturn previous decisions, thus overcoming the stability-promoting principle of *stare decisis*.

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of the new principles in relation to conflicting values from outside the narrow area of law to
which the principles apply.

There are many examples of this progression. Professor MacCrimmon, in association
with deep-structure expert-system research at University of British Columbia, used deep-
structure analysis to observe that the myriad exceptions to the hearsay rule of evidence law were
manifestations of two underlying principles—reliability and necessity. Not long afterwards in
R. v. Khan, the Supreme Court of Canada agreed that the existing set of exceptions to the
hearsay rule was inadequate. The court expressly noted the sequence of progression, from fixed
doctrine with many exceptions, followed by a period of attenuation as new cases expose the
tension between doctrine and deep structure in novel fact situations:

The hearsay rule has traditionally been regarded as an absolute rule, subject to various categories of exceptions, such as admissions, dying declarations, declarations against interest and spontaneous declarations. While this approach has provided a degree of certainty to the law on hearsay, it has frequently proved unduly inflexible in dealing with new situations and new needs in law. This has resulted in courts in recent years on occasion adopting a more flexible approach, rooted in the principle and the policy underlying the hearsay rule rather than the strictures of traditional exceptions.

The court therefore completed the progression by compressing the exceptions. How did the court accomplish this? Rather than stretching existing hearsay exceptions or creating a new, singular exception to achieve the manifestly just outcome, the court proposed a new general rule for creating new exceptions to the hearsay rule based on the principles of necessity and reliability identified by Professor MacCrimmon. The compression, however, did not destroy the structure of the law; the exceptions were preserved as exemplars of the general principles as applied in paradigm fact situations. The new principles, being well grounded in regularities

21 See chapter one of this thesis.
23 Ibid., per Madam Justice McLachlin, C.C.C. at 100.
exhibited by thousands of hearsay decisions, have since been used by the Supreme Court to reconsider other doctrines relating to the admissibility of evidence.24

The development of the law of estoppel provides a concrete example for more detailed examination. The example will also show how the science of complexity might assist a lawyer to analyze legal problems. Consider the following factual circumstances regarding the interpretation of a lease:

A landlord leases commercial property. The lease provides for fixed monthly payments of base rent which total $100,000 per annum and provides for annual participation rent calculated as the amount by which 2% of the tenant’s gross sales in a year exceeds $100,000. The initial term of the lease is 20 years, and the tenant has two ten-year renewal options. At the start of each renewal period, the lease resets the base rent to the market rate. The lease does not amend the formula for calculating participation rent and the lease provides that the parties are to set the new base rent without regard to the potential effect of the participation rent.

The landlord sells the property to a subsequent landlord who buys the property without notice of any equities between the tenant and the original landlord. At the end of each of the next nineteen years the tenant pays participation rent with a cover letter that incorrectly refers to the threshold amount of $100,000 as “base rent.” Just prior to renewal, the landlord and tenant begin negotiations on a new base rent and assume without reviewing the lease that they are supposed to calculate participation rent using the new annual base rent as the threshold amount (instead of the fixed figure of $100,000). They assumed this because this is the way such leases are usually structured. However, the definition of participation rent in the lease only uses the figure $100,000 with no reference to base rent. During oral negotiations to determine the base rent for the renewal, the landlord defends its bargaining position by referring to a total rent using the erroneous method of calculating participation rent.

Prior to agreeing on a new base rent, the tenant exercises its option to renew. Negotiations for base rent continue for two years into the term of the first renewal when the landlord discovers the erroneous calculation of participation rent and demands that the tenant pay the higher amount. The parties then settle on a new base rent and agree to submit the interpretation of the participation rent clause to the courts.

Should the landlord be entitled to calculate participation rent using $100,000 as the threshold amount, or should the annual base rent, as adjusted from time to time, be used instead?

This is a hard case. None of the standard doctrines for excusing the tenant from the clear terms of the lease apply in this case. Rectification is not available because the current landlord bought the land without notice of any equities. The participation rent clause, though unusual, need not be amended by implication in order to achieve business efficacy. There is no evidence of custom or usage that deems such clauses to be adjusted without having to so specifically. The landlord was not aware of its rights, so there could be no waiver. Similarly, there was no amendment because the landlord did not intend to vary the terms of the lease. The tenant’s position conflicts with the written lease so it cannot argue that there was an oral collateral contract. There was no misrepresentation because the landlord’s negotiating rhetoric was not uttered with the intent of inducing the tenant to renew the lease. The tenant is arguably estopped from estoppel by representation because the tenant induced the landlord to make the misrepresentation. Similarly, the landlord owed no duty to advise the tenant as to the lease’s legal effect for the purposes of making a decision whether to renew the lease—the tenant is a sophisticated operator that negotiated the lease with legal counsel. Proprietary estoppel is inapplicable because the tenant had not spent any money on improvements or the like. Finally, even if there were estoppel by representation or common mistake (which normally would not apply where the tenant unilaterally exercises a right), the tenant’s remedy would be rescission.
But the tenant lost this remedy when the tenant agreed to a base rent and affirmed the lease. Traditional doctrinal analysis is a labyrinth of dead ends for the tenant.

The fact situation, however, is possibly governed by a new development in the law of estoppel. A recent line of English cases has greatly expanded the doctrine of estoppel. Estoppel by convention had been a special type of estoppel by representation that prevented parties from denying the truth of recitals in agreements. In *Taylors Fashions Ltd. v. Liverpool and Victoria Trustee Co.*, Oliver J. (as he then was) extended the doctrine of estoppel by convention to include estoppel from denying common mistaken assumptions where to do so would be unconscionable. Subsequently, in *Amalgamated Investment Property Co. Ltd. v. Texas Commerce Bank*, Lord Denning seized the opportunity to pronounce the existence of a general equitable estoppel doctrine, embracing promissory estoppel, proprietary estoppel, waiver, acquiescence, relief against forfeiture, estoppel by representation, and estoppel by convention. According to Lord Denning, whenever two parties have entered into a transaction or course of dealing on the basis of common but mistaken assumptions as to the legal effect of an agreement, equity will prevent a party from enforcing strict legal rights that contradict the common assumptions where to do so would be unconscionable, unjust or unfair to the other party.

The law of estoppel prior to the judgment of Lord Denning in *Amalgamated Investment Property* was a collection of piecemeal exceptions. In terms of complexity theory, the law in this area was complex but without depth. Lord Denning identified unifying principles that compressed the law of estoppel. Prior to the compression, lawyers had to stretch and distort existing estoppel doctrines to achieve outcomes that matched the judges' intuitive notions of fair outcomes—the deep structure. When this was not possible, a "Dionysian" judge such as Lord Denning "damaged" existing law by creating new categories of estoppel doctrine in order to achieve the deep structure. Lord Denning acted as an annealing force whose damage to the

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integrity of the legal doctrine spurred it to adapt to better reflect the underlying deep structure. After sufficient experimentation with novel fact scenarios, the underlying regularities became apparent and Lord Denning's chaotic input propagated a large avalanche of change. This resulted in a general equitable estoppel principle that compressed the burgeoning complexity of estoppel doctrine. Thus we see many small changes (distortions of existing exceptions), fewer larger changes (creations of new exceptions) and one very large change (the compression). Thus the changes exhibited the power-law distribution that is characteristic of complex adaptive systems.

The result of Lord Denning's compression may be criticized for being vague, but the old categories of estoppel remain available to provide useful guides for future cases. So, for example, in *Stiles v. Tod Mountain Development Ltd.*, Madam Justice Huddart adopted Lord Denning's general equitable approach but still relied on the doctrine in proprietary estoppel cases to articulate the competing values and fashion an equitable remedy that mediated these values according to the priority accorded in the earlier cases. Thus, the law behaves as a complex adaptive system by exploiting the pre-existing order rather than destroying it.

An analysis of estoppel from the perspective of complex adaptive systems reveals another dynamic associated with the *Amalgamated Investment Property* case. The legal system operates at two distinct but related levels of complex adaptive system—the doctrinal level in relation to the deep structure, and the deep structure in relation to the social order. Lord Denning has at least compressed several estoppel doctrines into an underlying principle of equity. The underlying deep structure of estoppel has been to protect reliance interests, prevent unjust enrichment, and grant restitution where appropriate. What is unclear from cases spawned by Lord Denning is whether the new equitable estoppel principle goes beyond mere protection of reliance interests, to fully enforce bargain expectations. Professor Waddams argues that the deep structure of estoppel cases should be the protection of reliance and restitution. Professor Dawson argues that the nature of commercial relationships in the social order is poorly modeled

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29 See chapters five, twelve and thirteen of Waddams, *Contracts.*
by the transaction model of the deep structure of law, even as supplemented with equitable
doctrines to protect reliance interests. Professor Dawson argues that Lord Denning's approach
marks a shift in the deep structure of the law, not merely the evolution of its manifestation in
document. Our complexity analysis suggests that one could estimate the probability of such a shift
by examining related developments in the law of relationships—including the law of fiduciary
duties, the requirement of good faith in contract negotiation and performance, oppression in
corporate law, and the duty to warn.

Professor Dawson's argument has yet to be tested by the courts. In all of the Denning-
inspired cases so far, the fact situations were analogous to relief from forfeiture cases—
protection of the reliance interest implied enforcement of the expectation interest because the
reliance could not be undone. For example, in Litwin Construction (1973) Ltd. v. Kiss, investors were estopped from rescinding purchase agreements relating to a townhouse
development. The parties had mistakenly assumed that compliance with prospectus
requirements under the Securities Act would satisfy prospectus requirements under the Real
Estate Act. Completion of the purchases was delayed and in the meantime the local housing
market collapsed. The investors, seeking to escape their purchase agreements, discovered that
the developer’s failure to file a prospectus under the Real Estate Act gave the investors a right to
rescind. The B.C. Court of Appeal applied Amalgamated Investment Property and held that the
investors were estopped since the common mistaken assumption had deprived the developer of
an opportunity to remedy the failure to file a prospectus or to re-sell the units before the market
collapsed. The collapse of the market foreclosed the possibility of unwinding the transaction.
Similarly, in Amalgamated Investment Property itself, the bank had disbursed funds and the
estopped party had gone into bankruptcy—there was no possible way of undoing the
transactions to protect reliance interests without also protecting the expectation interest. The new

30 T. Brettel Dawson, “Estoppel and obligation: the modern role of estoppel by convention” (1989) 9 Legal
Studies 16-52.
whether to abandon the orthodox rule of evidence that prior inconsistent statements may only be used to impugn
the credibility of a witness and not be used as evidence of the truth of its content, the larger context of the trend
within evidence law towards greater admissibility had to be considered. In other words, the court was sensitive to
a broad shift in the underlying deep structure of evidence law.
estoppel cases, therefore, have not yet presented an opportunity to choose squarely between enforcement of expectation interests or mere protection of reliance interests.

The hypothetical landlord situation could potentially decide the issue. The common mistaken assumption relates to a money obligation and the continuation of the lease is executory. It would clearly be possible for the court to unwind the transaction by declaring the lease to be terminated or giving the tenant the option of continuing on the basis of the true terms of the lease. On the other hand, a court might decide to enforce the expectation interests and deem the lease to be amended for the remaining 18 years of the lease. Additional facts could influence the outcome. If just prior to the renewal decision the landlord would have wanted the tenant to continue as tenant (due, say, to market uncertainty) and, in order to secure a tenant, would have agreed to amend the lease at the time of renewal to reflect the mistakenly assumed terms, then the tenant could make a strong case that its expectation interest should be fulfilled. In this case, a court might hold that the Denning-inspired cases support fulfillment of expectation interests. If, on the other hand, the landlord had a better use for the property and would have preferred no renewal of the lease, then the landlord would have a strong case. In this case, a court might distinguish the Denning-inspired cases as applying only to protect reliance interests or treat the facts as exceptional. The historical contingency of which facts arose could profoundly influence the subsequent development of the law.

Courts will not rule on hypothetical or moot cases, for good reason. The institutional constraints on the court process mean that judges must make decisions with low time and information costs. Therefore, the expressive power of doctrine is incapable of fully reflecting the deep structure. If the moot issue never comes up in actual situations that require judicial resolution, the inaccuracy of the doctrine can be tolerated. The expressive power of doctrine can be allocated to the more pressing conflicts. Thus the courts engineer around the problem of doctrine's limited expressive power. Using complexity to engineer around the inherent inadequacy of a schema is a feature of complex adaptive systems.

33 Smith, Action Theory, at 108-112.
The same observation applies with respect to the relationship between the deep structure and the social order. The expressive power of the deep-structure schema is necessarily inadequate to fully account for the complexity of the social order. So, to return to our example, if situations that force the courts to decide between transactional-exchange versus relationship-exchange deep-structure models are very rare, then the courts ought not to make the choice. On the other hand, the relationship-exchange model might more efficiently reflect the social order and the deep structure’s expressive power is being wasted on baroque, makeshift adjustments (like estoppel doctrines) to shore up the deficiencies of the transaction-exchange model. In this case a court could achieve a substantial compression by converting to a relationship-exchange model in the deep structure. The compression would free the limited expressive power of the deep structure to more optimally mediate more pressing conflicting values—complexity could be developed along other dimensions. Such a change in the deep structure would constitute a rare, huge avalanche of change.

We thus see that stare decisis reinforces the order in legal-reasoning schemas, and legal reasoning’s flexibility to distort doctrine a little to achieve just results adds further stability. Doctrinal annealing is introduced by judicial encounters with novel fact situations and the judges’ need to achieve intuitively just outcomes where the existing order and distorting techniques are inadequate. The complexity of the system advances from the judges’ ability to reinterpret previous decisions and focus on their outcomes and factual distinctions. In this way, new doctrinal or deep-structure schemas can be created while preserving the collected experience of previous decisions. In this respect, the development of law is like the development of science, which reinterprets previous experimental data after each paradigm shift. However, science differs because it lacks the distinction between doctrinal schema and deep-structure schema.
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Clashing Fitness Functions

The legal order is not a homogeneous whole. There are many subsystems that require self-reinforcing mechanisms that can clash with the purposes of the system as a whole.

One example of a complex adaptive subsystem is the institution of courts of law. For the courts of law to be effective as a social institution they must command some degree of respect in the community. For this reason it is important that court process be public, so that the decisions can be seen to be empathetic to diverse concerns, if not always totally fair in everyone’s opinion. Similarly, rules of discovery and punishment for contempt promote the efficacy of the court process. However, the aim of the legal order as a whole is justice, which is defined by society’s fitness functions. It often happens that the internal goal of effective law courts interferes with the substantive rights of individuals. A good current example is the controversy over the privacy rights of victims of sexual crimes. The efficacy of the court system requires that trials not be conducted in secret. On the other hand, public disclosure of a victim’s personal life, such as psychiatric sessions, can be psychologically devastating. It can be forcefully argued that courts have over-emphasized the subsystem fitness function (effective administration of justice) and failed to adequately satisfy the overall fitness function (substantive rights). Indeed, evidence of continual failure to creatively accommodate the competing goal of respecting the victim’s integrity could probably be linked to patriarchal ideology.

Irony

Finally, law has achieved a high degree of irony. It is not uncommon for judges to make observations about the logic of how law develops. The Supreme Court of Canada in London Drugs explicit sought only to change the law incrementally. In R. v. B. (K.G.) Chief Justice

34 See the section above on fitness functions.
Lamer described the circumstances in which the Supreme Court would not consider itself bound by the principle of *stare decisis*. The factors he listed included the attenuation of doctrine caused by changing circumstances in society at large.

Courts in many areas of law now explicitly apply the principle of proportionality— including cases involving Charter rights, duties of corporate directors, and constitutional division of powers—which had previously only been applied intuitively, as part of the deep structure. In *General Motors of Canada v. City National Leasing* 36 Chief Justice Dickson reconciled a line of division-of-power cases whose doctrine had become hopelessly confusing because judges had attempted to make decisions that conformed to the deep structure of proportionality, but gave justifications in awkward, essentialist doctrinal categories. 37

It is not uncommon for courts to openly admit that they are avoiding making a doctrinal rule because it would be premature to do so prior to the development of more complexity in the lower courts—without sufficient experience, the appeal court might detect false regularities and hamper the development of the law in a manner similar to the three landlord and tenant cases discussed above. Finally, the courts are becoming openly post-modern in their recognition of how the conceptual schema of language impairs the expression of the experiences of oppressed groups in the social order.

Pathway to a Postmodern Jurisprudence

By examining how law operates as a complex adaptive system, the underlying relationship among the various theories of jurisprudence becomes clearer. Positivism focuses on the mechanics of doctrinal rules with little regard for their teleology and tends to overstate the need for stability and the quality of knowledge achieved. Legal realism focuses on law's effect on the social order, with little regard for the coherency of legal decision-making. Critical studies and

37 Proportionality will be discussed in detail in chapter ten of this thesis.
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psychoanalytic-sociology examine sources of positive feedback that lock-in law to suboptimal schema, but these approaches tend to excessively discount the quality of knowledge achieved and overlook the legitimate need for stability in a complex adaptive system.

A postmodern theory of jurisprudence would map the topologies of the complex adaptive subsystems most affecting the task of law. An important result would be a methodology to demonstrate how and to what extent the legal schemas exhibit manifest error—whether from inability to fully model the social order (inherent lack of expressive power), lock-ins due to social-power relations, lock-ins due to social-subconscious influences, or lock-ins due to the nature of language.
Once we have appreciated that society comprises many social orders that constitute the unconscious behaviour of its citizens, the concept of ideology should become an indispensable aspect of a theory of law. We saw in chapters five and six that while Nietzsche and Foucault observed the insidious mechanics of social constitution, they failed to develop criteria to distinguish undesirable social orders from desirable ones. Nietzsche provided guidance as to how to evaluate self-creation, but none as to how to evaluate social orders in terms of collective goals. A theory of law must employ constructive postmodernism to evaluate knowledge claims about social orders so that we can construct a useful working definition of ideology. Using ideology as an analytical tool, a theory of law can begin to identify undesirable intuitive behaviour and develop plausible re-engineering strategies.

Ideology plays a major role in critical analysis; however, a single, coherent, adequate definition of ideology has remained elusive. Roughly, to criticize someone as being ideological is the social science equivalent of criticizing a physical scientist as being unscientific. A charge of ideology, however, is more serious—it goes beyond mere factual error and implies moral shortcoming in a person’s position, specifically with respect to allocation of power within society. A definition of ideology must therefore address the distribution of empowerment among people in a society, consider the quality of the knowledge claims implicit in utterances and gestures, and indicate how standards of what constitutes knowledge and empowerment are mediated through the use of language and other means of signification in social practice. The range of ways in which critical scholars use the term ideology reflects the range of philosophical positions on what types of empowerment matter or how knowledge is constituted.

It is difficult to construct a definition of ideology that is both philosophically coherent and useful. The contingent structures comprising any particular social order (including its philosophical presuppositions) to a large degree constitute what qualifies as empowerment and

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IDEOLOGY

knowledge claims in that social order. Critical analysis uses working definitions of ideology based on the standards of knowledge and empowerment claims in the contemporary discourse of academia. As a result, many critical stances construct operating definitions of ideology that covertly presuppose contingent philosophical standpoints about empowerment and knowledge that the participants do not feel disposed to challenge. Since many critical stances emerged in a social order constituted by modernism, these stances failed to examine their own dependence on the modernist world-view. Thus classical Marxists operate with a microreductive definition of ideology that measures empowerment in terms of class control over material resources and mystification in terms of variance from a fixed universal truth. Critical methodology often adopts a knowledge pessimistic stance toward select foundational elements of the world-view being critically examined—for example, arguing that liberalism has wrongly universalized an impoverished, individualistic conception of human nature—without critically examining its own self-evident truths. I call this "credit-card anti-essentialism"—the critical scholar is knowledge pessimistic until the preset spending limit has been reached. On the other hand, critical scholars who have embraced deconstructive postmodernism on issues of empowerment and knowledge have produced operating definitions of ideology that are vacuous and politically toothless.2

Postmodern Construction of Knowledge

Complexity theory shows how to acquire teeth without submitting to the illusion of modernism—knowledge optimism. Eagleton, for example, retreats into the modernist utopian fantasy that a "just" society is not only well defined, but is achievable in principle and that once justice was achieved, ideology would disappear.3 Complexity theory implies that "just" can be no more well defined than could be the notion of an optimal evolutionary being—optimality can be defined only in terms of an existing evolutionary landscape, the being can only seek to

2 Eagleton, Ideology, at 7-10.
3 Eagleton, Ideology, at 28.
improve its position in that landscape, and the landscape will change unpredictably due to the side effects of the being’s change of position. Likewise, justice can be defined only in terms of current social context and we can only seek to improve justice, not aim for some fictional, universal standard. Applying Eagleton to Eagleton, by being knowledge optimistic about what “just” means, he promotes a value congenial to himself in the form of a naturalized and universalized mystification.4

As noted, a difficulty with deconstructive postmodern stances is they provide no standard by which to measure the relative importance of power struggles or competing interests. Put another way, a modernist cannot understand how to measure relative empowerment and create a prescriptive egalitarianism in the absence of fixed universal truths, that is, without being a knowledge optimist. A deconstructive postmodernist usually proposes pragmatism (i.e., trivializes or downplays the problem), or resigns to nihilism, despair or radical subversion.

From the standpoint of complexity theory, the problem of creating a standard to measure empowerment originates from the impossibility of achieving knowledge optimism wherever systemic behaviour emerges in a social order. It is well and good to be ironically aware that our models of social orders use non-unique, fuzzy conceptual schemas that can only achieve probabilistic accuracy, and to be aware that to the extent the models are inaccurate our knowledge is mere construction.5 However, our urbane irony yields negligible cash dividends because we have no general means of knowing precisely how the causal descriptions are or will be inaccurate. Moreover, it is not just a matter of eventually discovering accurate causal descriptions—at some point it is in principle impossible to improve the precision of what we know about social orders.

What is possible is to fashion schemas of social orders and the causal relations among them that reduce the negative impact of the inherent inaccuracies. The schema of knowledge can be re-engineered so that the vague, fuzzy concepts upon which it is constructed models the

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4 Eagleton’s six strategies of legitimation could be applied to his own position. Eagleton, Ideology, at 5-6.
5 Though constructed, the knowledge is constrained by coherence and performance imperatives imposed by biology and the particular social orders through which we are constituted. See the discussion in chapter six of this thesis.
social order with adequate accuracy, but also plays within the fuzziness so as to more optimally satisfy the needs and desires of the citizens. This can happen in at least two ways: select concepts and activities to exploit what is knowable, and use the inherent imprecision to accommodate values other than factual accuracy.

Scientific inquiry, for example, has historically avoided chaotic systems and focused its study on reductive systems. But even where systems are chaotic, we can construct concepts and activities so as to decrease reliance on the chaotic aspects. We achieve practical progress by designing technologies that emphasize what we can predict and rely on our capacity to respond to unpredictable events. For example, we know that turbulence in a stream is chaotic and that we cannot predict it with precision. Nonetheless, canoeing is a useful technology that copes with the unpredictability of turbulence by exploiting what we can predict (buoyancy and paddling response in still water), and by observing and responding in real time to what we cannot predict, generalizing our experience into probabilistic rules of thumb. We simply do not attempt to design technologies that would depend on accurate prediction of eddy formations. Similarly, we can engineer systems of knowledge to achieve more optimal overall satisfaction of our needs and desires.

Another example of engineering around inherent uncertainty is how we might choose to react in an encounter with a tiger in the jungle. We could either run in all cases (and risk needless flight in the case of a friendly or sickly tiger) or in each case we could attempt to discern whether the tiger was a threat. In this example it would appear to be more optimal to adopt the former attitude. Replace "a tiger" with "a foreigner." Viewed in isolation, the prejudicial reaction is plausible—people are less capable of predicting personality outside their own culture. We adopt innumerable presumptive attitudes to deal with uncertainty, which become conceptualized in language and form the basis for hierarchies of further choices. Our discourse emerges as a web of inter-related causal descriptions and conceptualizations of presumptive attitudes. As the discourse matures and refines itself, the discourse reshapes the

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"original" presumptive attitudes to account for new needs and desires that emerge from the discourse. Thus, returning to our modified example, in view of the evolving constraints of sharing a global community, it now appears more optimal to reverse our prejudicial attitude toward foreigners, even though the new attitude would not necessarily represent reality any more accurately and could even be less accurate.

Stated in the language of complex systems, a knowledge system cannot model a social order with total precision. The schema for the knowledge system could be any of an infinite variety of equally valid, but incompatible forms. The imprecision allows the system to experiment to improve the factual accuracy of its schema. Imprecision also allows the schema to respond to other fitness function criteria other than factually accurate modeling of the social order and to optimize in terms of other fitness functions in society. But imprecision also leaves room for knowledge schemas to become the unwitting vessels of rigid concepts that perpetuate undesirable, evolved social orders or of other lock-ins that unduly favour certain social suborders to the detriment of society as a whole. As noted in chapter seven, the fitness function of the class can conflict with that of individuals outside the class or society as a whole. Even though society as a whole is worse off, the members of the privileged class are better off. Moreover, unwarranted knowledge optimism in the discourse can dupe non-members to accept or tolerate the injustice.

The crucial point for present purposes is that we can meaningfully speak of overall improvement of a knowledge schema without requiring an absolute, universal standard to measure correspondence with reality. We can train competent canoeists even though we cannot create a precise theory of turbulence. With discourse, however, belief systems are much too self-integrated for critics to easily measure the relative success or failure of isolated causal descriptions and the presumptive attitudes they serve. Philosophy of science has been relatively successful in developing methodologies for testing isolated causal descriptions, but Kuhn and Feyerabend have shown that even scientific progress is a complex system that eludes any

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universal methodology. In the realm of social sciences, hierarchies of complex social systems abound and the strategy of selectively focusing on solvable problems in which to test isolated causal descriptions has been a much less useful method of minimizing the impact of unavoidable knowledge gaps about chaotic systems.

We have no means to measure success or failure from outside our existing web of beliefs and practices, our discourse. How do we measure the appropriateness of a knowledge schema without the possibility of knowledge optimism? The measure of appropriateness cannot be factual accuracy. For one thing, we have no transcendental perspective to evaluate correspondence to reality. Moreover, factual accuracy is just an especially empowering means to satisfy our needs and desires—it is but one aspect of the fitness functions constraining individuals, society and groups within it. The more accurately our descriptions can predict physical reality, the better we can devise physical technologies; the more accurately our descriptions can predict social reality, the better we can devise instrumental social technologies. We do not seek factual accuracy for its own sake—it matters only because it is very useful in satisfying, or providing additional means to satisfy, our needs and desires.

Merely identifying the problem of evaluating the schema of a discourse as being how to satisfy more optimally our needs and desires does not simplify the problem. As already discussed in chapter six, social orders to a great extent constitute our desires. Unique needs and desires could only exist in the context of a particular discourse. How could we know whether a locally optimal satisfaction of all needs and desires in one discourse would be more optimal than modifying the discourse so as to substantially reshape and reconstitute the very needs and desires by which optimality would be measured?

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9 Economics, the dismal science, has been criticized from within as focusing only on those phenomena for which it has a mathematics (the economics of diminishing returns) and ignoring complex phenomena. See M. Mitchell Waldrop, Complexity—The Emerging Science at the Edge of Order and Chaos (New York: Simon & Shuster, 1992). In other words, economics has "excluded" unwelcome features of social reality, exposing the discipline to criticism for being ideological insofar as diminishing returns economics promotes a capitalist conceptualization of economic activity. See Eagleton, Ideology, at 5, 27.
Defining empowerment as the ability to satisfy needs and desires does help clarify the relationship between power and knowledge. Factual accuracy is clearly an important aspect of empowerment—it results in technological empowerment and it clarifies how biological needs and desires can be more optimally satisfied or reshaped. However, because there is necessarily a gap between the factual accuracy of discourse and the reality of social orders, and because that gap partly constitutes what qualifies as empowerment, power cannot be reduced to factual accuracy.

But even in the absence of absolute standards, we can be certain that the knowledge schema in our discourse is accurate to a useful degree. Because of the technological success of many sciences, we can justifiably be confident that within their domains of applicability, these sciences have achieved a high degree of accuracy beyond randomness. We can relate these to obvious biological needs of humans (food and shelter) and confidently develop a set of minimal criteria for empowerment. To the extent we share the same biology and basic desires, there is a contingent common ground from which to construct demands for a minimal degree of mutual empowerment.

Attempts to achieve consensus beyond obvious physical needs have been notoriously controversial. Each political philosophy offers its version of human nature and basic human needs. Consensus is elusive because early childhood experiences shape the human subconscious into myriad forms, creating, for example, neurotic needs for social connection

10 Davidson argues that the fact language works logically implies that we must have a core of fairly accurate beliefs about reality. Donald Davidson, *Inquiries into Truth & Interpretation* (Oxford: Clarendon Press, 1985).

11 This presumes there is sufficient common ground to accept egalitarianism as a constraint. This thesis does not take up the task of defending egalitarianism, which is acknowledged to be a non-trivial issue.

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or individualistic achievement. People who share common neurotic needs adhere to political philosophies emphasizing those aspects of "human nature" most true to them. An appeal to what we confidently know about human nature, therefore, does not advance significantly our problem of evaluating the knowledge schema in a discourse.

These difficulties, however, compel humility, not resignation. We can make progress in much the same way we construct a meaningful interpretation of a literary work. When we interpret a text we continually refine our understanding (looping around the hermeneutic circle), constructing an interpretation that minimizes dissonance with the text and provides insight into, and even modifies, the understanding of the world we bring to the text. We never know for certain whether our interpretation of a particular trope in the text is correct; we gain confidence as dissonance is reduced and our understanding more sensibly coheres with the text and our experience. Constructing an interpretation is like spinning a web—the strength of the web cannot be reduced to a few privileged foundational strands. The web’s strength derives from having innumerable contacts with external reality (empirical observations) and a well-engineered pattern connecting them (discourse). Improving discourse and the social order is a Lilliputian task; human rationality is too inept to intelligently impose a Leviathan approach.

In terms of complexity theory, a discourse is a complex adaptive system for satisfying the fitness functions for individuals, society and groups within it—it empowers. The prime instrument for maximizing overall satisfaction is factual accuracy—knowledge. But knowledge schemas also mediate the conflicting fitness functions of individual, society and groups within it—they allocate power. The discourse evolves as a complex adaptive system by frequently testing its relationship to reality to improve its satisfaction of the operative fitness functions. The current state of discourse provides a plausibility function for interpreting empirical observations and testing the viability of the discourse. Indeed, the discourse is the only plausibility function available, since humans have no privileged access to reality apart from constructed discourses.

14 The metaphor is from Stephen Toulmin: “If the political image of Modernity was Leviathan, the moral standing of ‘national’ powers and superpowers will, for the future, be captured in the picture of Lemuel Gulliver, waking from an unthinking sleep, to find himself tethered by innumerable tiny bonds.” Cosmopolis—The Hidden Agenda of Modernity (Chicago: University of Chicago Press, 1990) at 197-198.
This is a version of a pragmatic, coherence theory of truth. Coherence defines what truth can be for participants in the discourse because the participants have no means of measuring factual accuracy directly. Our language includes truth statements about what empowers us. Thus we have in our language justification for making evaluations of empowerment and the basis for rhetorical argument. However, insofar as our argument transcends the domains of different complex systems (which includes almost all of social sciences and more of the physical sciences than we have so far admitted), we must argue with humility and accept that the force of our assertions is always rhetorical. Argumentation involves generalizations that we assert will continue to match experience and can be applied by analogy to different domains. The coherence of language provides a measure of the plausibility of such strategies, but analogy and coherence never guarantee correspondence with reality—modernism universalizes pathologically. The degree of plausibility provides the only available basis we could have to evaluate arguments. This includes plausible claims about the needs and desires of people in a society and, therefore, claims about the relative importance of power struggles. A definition of ideology that avoids modernist illusions need not be toothless—modernists just want to bite off more than they can chew.

_Toward Egalitarian Empowerment_

Since we have an available strategy for measuring empowerment, we can address allocation of power. Egalitarianism argues for equal distribution of empowerment. Within a single discourse we can therefore generate competing arguments of comparable strength as to whether empowerment is unequal and the reasons for the inequality. Evidence of unequal suffering supports a forceful argument that the discourse should be re-engineered. Nevertheless, the

The availability of meaningful argument does not mean that egalitarian issues can be simply resolved. Causal links are difficult to establish—does soft pornography diffuse or amplify male sexual aggressiveness? The standards of plausibility in argument itself therefore have implications for allocation of power.

We can provisionally define ideology as the unwarranted but plausible manipulation of the suppleness of argument merely because it affects the allocation of power in a non-egalitarian manner. The manipulation can either be consciously intended or a teleology created *a posteriori* by selective pressures implicit in the structure of the situation. It is insufficient for a critic to identify an argument as ideological simply because it is rhetorical in form (it is naturalizing, universalizing, exclusionary, etc.). A critical analysis should identify to what extent the argument is plausible, discover how it exceeds its plausibility, and expose how this excess relates to the ideologue's interests in allocation of power.

For example, arguments in favour of hierarchy are criticized as ideological. Arguments for hierarchy are rhetorical (since social organizations are complex systems) and the result of implementing hierarchy has manifest consequences for allocation of power. However, hierarchy is plausible as a pragmatic solution to the problem of the information and transaction costs of attempting to reach group consensus in a context constrained by time or other budget pressures. A software project requiring thousands of programmer-years of effort could not realistically be completed in a reasonable time frame without authoritative budgeting decisions made by less than all of the programmers involved. The decision would be better made by a manager (or, more realistically, a management team). The decision-maker(s) would preferably have expertise in making such decisions, creating a sensible division of labour. On the other hand, the authority of a manager in budget decisions could not justifiably be extended to the programmers’ baseball team. Such an extension of hierarchy would be unwarranted and an

argument that the software manager should, *ex officio*, be manager of the baseball team would be plainly ideological.\(^{17}\)

Any top-down justification for the allocation of power will probably be ideological if there exists a plausible, alternative, bottom-up justification. Applied to the problem of judicial legitimacy, legitimacy only exists to the extent it follows from factors such as the experience and expertise of judges, the fact people take a formal dispute-resolving procedure more seriously, and the benefits of more predictable outcomes. Liberalism justifies authority by an appeal to the abstract notion of social consensus. Liberalism thus compounds unjustifiable knowledge optimism in both directions—going up to the abstraction of social consensus, and coming down through the concept of legitimacy. Because there are more plausible justifications for a less embracing concept of legitimacy, any oppressive effect of liberalism caused by its unjustifiably expansive concept of legitimacy is ideological.

Our provisional concept of ideology must be further refined to account for the fact that there are multiple discourses, even within a single community. We lack absolute means of knowing how empowered a person is whose experiences are constituted by a different discourse. For example, an autistic person may have a very strong need to possess an object in order to maintain a sense of control and orientation within the environment. The dominant discourse might adopt the attitude that people in a group should share possession of objects, and lack any recognition that the experience of losing control of an object could be fundamentally dis-empowering to someone. Such a discourse would view removal of the object as a trivial dis-empowerment. Forcing the autistic person to share possession would be unjust and inegalitarian. However, this judgment assumes we could view the situation from a bird's-eye perspective and presume all other things to be equal. But a bird’s-eye perspective is, in principle, impossible. A non-autistic person could only come to perceive the inegalitarian treatment by empathizing with the plight of the autistic person and expanding the dominant discourse to account for autistic experiences. The non-autistic person must commensurate the

\(^{17}\) Of course there could be independently good reasons, such as the manager’s extensive experience as a professional baseball manager. These collateral arguments should not be called ideological, even though they affect allocation of power.
clashing discourses. The non-autistic person could only empathize by inferring from the strength of reactions common to both discourses that possession is very important within the reality of the autistic person. If the autistic person did not display negative emotions in a manner intelligible to a non-autistic person, the non-autistic person would be inadvertently oppressive.\textsuperscript{18}

But to characterize inadvertent oppression as inegalitarian presumes there is sufficient common ground between the discourses to be able to say the suffering of one is disproportionately worse than the other. The results of Donald Davidson's work are important in this respect. As noted above, Davidson argues that the fact we can successfully translate between languages logically implies we share a core of common meaning based on common experience.\textsuperscript{19} The existence of common ground affords the practical solution to the problem of commensurating different discourses. In attempting in good faith to empathize with other experiences, we have a pragmatic strategy to expose inadvertent oppression. Logically, we know that no universal translating algorithm could exist, but the strategy of empathizing in good faith has yielded good practical results.

The problem of commensuration is similar to the legal problem of conflict of laws. Fixed rules lead to contradictions and manifestly unjust results—the unlimited range of plausible legal solutions to social goals makes it impossible to specify a universal methodology with any precision. Ideally, a judge would attempt to understand why an issue is important in the other legal system and to gain some feeling for how important it is. Only then could the judge engineer a legal result that could optimize the satisfaction of each state's interests. In the final analysis, the judge is allocating power. The wisdom of the result depends on how much the judge has been able to empathize and how successfully the judge applies these insights within egalitarian constraints.

\textsuperscript{18} In the film \textit{Lorenzo's Oil} (United States, 1993), the mother of a child who was unable to communicate for several years, eventually discovers that she had been oppressive to her son by continuing to read children's stories appropriate to the age of her son when he lost his ability to communicate. The oppression could only be detected once the child could signify displeasure in a manner intelligible to the mother.

\textsuperscript{19} Davidson, \textit{Inquiries}. 
PROLEGOMENA TO A POSTMODERN THEORY OF LAW

Generalizing this to any dispute between non-homogeneous persons, the prime quality we could want in a judge is the capacity to empathize. Given that Canadian judges are typically chosen from a pool of chronic over-achievers who need to succeed in order to maintain self-esteem, and given that inability to empathize is characteristic of over-achievers,20 and given that this condition is aggravated by the extremely narrow range of experience and homogeneous backgrounds of such people,21 we would have to conclude that the selection procedure for Canadian judges is seriously defective. As noted in chapter six, in *Nicomachean Ethics* Aristotle asserted that empathy was essential for the “large-spirited person” to successfully engage in practical reason.

Many critical scholars have pointed out the seriousness of this lack of capacity for judicial empathy. Carol Smart, for example, shows how male-oriented thinking simplifies a woman’s experience of being raped and creates legal categories that are too simplistic.22 A court will acquit a rapist if it deems the woman to have consented, or if it has any reasonable doubt whether she consented. The dichotomy of consent and non-consent is far too simplistic to capture the precarious position a woman typically finds herself in. She may seek intimacy, yet not sexual intercourse. She may accurately perceive a very real threat of violence and have to submit and feign consent, pleasure or at least not resist. Yet the dichotomy of consent and non-consent fails to capture these dynamics. In terms of complexity theory, this embarrassing failure of law is not the fault of the structure or logic of law. As discussed at length in chapter seven, legal *doctrine* is typically inadequate in responding to all the values involved in a concrete situation. In this situation judges are supposed to draw on intuition to sense the inadequacy of the doctrine and should either bend the doctrine to achieve the right result or create new exceptions to refine the doctrine. The consistent, blatant failure of the judiciary exposed by Carol Smart and others is clear evidence of ideological barriers preventing the judiciary from empathizing with women’s experiences and responsively reshaping the law. The misogynistic

20 Miller, *The Drama of the Gifted Child*, chapter 2.
22 Carol Smart, *Feminism and the Power of Law* (New York: Routledge, 1989), chapter two. The following discussion merely considers one aspect of Smart’s much more complete analysis.

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Patriarchal ideology has been well studied. I only add my earlier observation that those with a neurotic drive to achieve typically lack a capacity to empathize, particularly with those who suffer under tyranny. Loading the judiciary with hard-driving, verbally abusive, grandiose, litigation lawyers is not the prescription for egalitarian justice.

The importance of empathy has been re-emphasized in recent years under the banner of pragmatism, but it should be noted that empathy is a necessary and not a sufficient condition for social evolution toward egalitarianism.

Egalitarianism will usually be more difficult to achieve than simply empathizing and favouring the party most hurt in a particular dispute. We have to heed Hayek's advice and consider the possible effects of such changes on the emergence of desirable social orders. The entire social context must be considered—for example, implementing a guaranteed annual income scheme might make more sense than the chaos caused by relaxing the law of theft.

As well, not all conflicts about allocation of power can be neatly adjudicated so as to maximize equality of empowerment in a manner that can be justified in the language of each of the respective discourses. At some point the possibility of commensuration is exhausted and the parties simply haggle for greater power. Ideally, the outcome of the negotiation would reflect the resolve of each participant where resolve reflected the acuteness of the parties' needs for greater empowerment. The parties disagree on principles, but reach a treaty as to how to share power. They would then entrench the negotiated allocation of power into their respective discourses through rules, myths or other modifications of discourse. These rules need not have any direct purpose in modeling reality, they need only cause the groups to respect the negotiated allocation of power.

Unfortunately, existing power imbalances tend to distort the outcome of such negotiations. The parties to the negotiation must have minimal empowerment in order to be...

23 See comments regarding Nietzsche and his blindness to tyranny in chapter five of this thesis.
26 Institutional competency would be an issue if the courts were presented with these alternatives. The courts have very limited ability to reallocate power except piecemeal in response to narrowly framed questions.
27 Not all negotiation problems necessarily result from power imbalances. For example, cultural differences might result in persons from one culture being disposed to understate their needs, while the opposition might tend to overstate theirs.
able to state their needs with resolve. Oppression typically undermines the resolve of the oppressed and silences their voice at the table. It is a Catch-22 situation, the oppressed have to become empowered before they are empowered enough to voice their experiences and become part of the discourse (and part of the rationality that frames the language of moral argument). Obviously the oppressed must acquire power by other means before they can expect any benefit from rhetorical (rational) argument or negotiation—whether by acquiring technology, by acquiring economic power, by mobilizing sympathy in powerful third parties, by terrorizing. The available strategies for empowerment are generated by the contingent social context.

The pragmatic problem of measuring relative empowerment is therefore not as intractable as is the philosophical one. The real-world constraint that a discourse must produce a viable social order ensures that human discourses overlap enough so that we are, with effort, generally capable of detecting symptoms of oppression and systemic dis-empowerment. Moreover, our increasing understanding of the subconscious mind assists us in exposing “false” needs and desires deriving from the subconscious symptoms of obvious forms of oppressive childhood trauma. Experience shows that we share sufficient common understanding to make considerable practical progress before we became philosophically bogged over knowledge uncertainty.28 Eagleton is therefore not justified in scurrying for cover under the modernist umbrella in order to legitimate critical analysis.

Defining Ideology

Let us now attempt to define ideology with some precision.

Our first attempt is to define ideology as the gap between discourse and factual accuracy—ideology based on a correspondence theory of truth. To sharpen our definition, we could bifurcate factual accuracy into correspondence with physical reality and correspondence

28 Of course the possibility of progress does not ensure progress. Those enjoying the benefits of ideological allocations of power are rarely embarrassed by arguments that expose inegalitarian oppression. See Bakan, "Constitutional Interpretation," at 327-328.
with social reality to reflect the fact that discourse partially constructs the phenomena to which empirical statements about society relate. Three problems with this definition are immediately apparent. First, there are no means to measure the gap—no critical analysis of an ideology could meaningfully compare discourse to the way the world really is. Second, this definition would call all discourse ideological because knowledge gaps pervade all discourse about the social order—knowledge optimism is nearly always false in relation to social phenomena. Third, the unavoidable fuzziness of knowledge about social orders and other complex systems is important so that the discourse has enough “play” to be able to experiment, develop complexity and thereby continually improve its satisfaction of its multiple teleological constraints.

Our second attempt is to define ideology as where a speaker uses language in a manner incoherent within the discourse shared between speaker and critic, or at least within the speaker’s own discourse—ideology based on a coherence theory of truth. This would capture the falseness, distortion and mystification referred to by false consciousness definitions of ideology. To accommodate evolution of the discourse, the standard of coherence should not be pathologically strict. The problem with this definition of ideology is that it is not helpful where discourses are not homogeneous and allocation of power cannot be finessed by common standards of plausible argumentation.

This leads to a third attempt to define ideology based solely on allocation of empowerment. Ideology is interested in allocation of power through the process of producing ideas, beliefs and values in social life, that is, through the use of discourse for manipulating power relations. But allocation of power per se is not a bad thing. Two cultures with uncommensurated discourses may sensibly negotiate a treaty that each side respects by adding incoherent myths that do not accurately represent factual reality to their respective discourses.

This leads to our ultimate attempt at definition: ideology is the bad-faith use of discourse-related tactics by an oppressor to dis-empower people where there is a coherent justification from within the oppressor’s discourse not to do so. “Bad faith” as used in this

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29 The term “speaker” here includes someone who performs a social practice that conveys meaning with the same effect as speaking.
definition includes failure to make a reasonable effort to empathize with the oppressed, where reasonableness is a function of how obvious it should be from the standpoint of the oppressing discourse that it is causing noticeable discomfort to the oppressed. This definition might appear somewhat odd because a concept would not be ideological until there was good reason (from the perspective of the oppressing discourse) to believe that the concept causes oppression. The oddity is necessary, otherwise all discourse would be ideological because a perfect discourse could never be achieved. The “good reason” standard changes as the quality of knowledge improves as the schema of the discourse is constructed.

The intuition behind this definition of ideology is that one is being ideological once there are justifiable grounds to say one should know better. If a colony of aliens stranded itself on earth and we could not understand them, it would be pointless to say we were being ideological when we said, “You just can’t please those aliens.” But once we have justification to suspect we are causing them great suffering, our statement would indicate lack of genuine desire to empathize and would be ideological. We would either be deluding ourselves, or we would lack genuine desire for egalitarianism.

Our definition of ideology also accommodates the possibility of ideology by non-dominant discourses. Persons in a non-dominant discourse are ideological when they perform speech acts that are unjustified within their own discourse. For example, a critical scholar might advocate the abolition of legal rules when, as is argued in this thesis, the use of rules can be justified in the critic’s own discourse. At first glance this may appear to be too strict and unduly critical of morally defensible, rhetorical civil disobedience done for the purpose of correcting a manifest power imbalance. However, the solution for the non-ideological scholar is to weave the empirical observation of unfair suffering into the discourse, from which a non-ideological argument could then be made. Of course, an activist may well choose ideology as a means to facilitate political change, but it remains ideology nonetheless.

31 For example, people might adopt fantasies in order to allow them to satisfy subconscious sadistic desires that exist because their helplessness as a child had been abused. See Alice Miller, For Your Own Good: Hidden Cruelty in Child-Rearing and the Roots of Violence, tr. Hildegarde and Hunter Hannum (New York: Noonday Press, 1990).
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This definition of ideology is true to the intractable nature of ideological battles; they result from the difficulty of proving that there are causal links from concepts in a discourse to particular miseries suffered by the oppressed, and the ease with which causal links can be rhetorically denied. The standard of proof one requires will clearly be a matter of debate and one's charity will be colored by self-interest. The "bad faith" element captures this. A good faith attempt at egalitarianism requires empathy, which may require that one relax one's standards of proof or disproof.

Finally, the requirement for bad faith in our definition does not restrict itself to self-conscious ideological activity. On the other hand, it avoids calling an activity ideological merely because the activity has an effect on allocation of power. "Bad faith" includes any unwarranted manipulation of the suppleness of argument that occurs because it affects the allocation of power in a favourable manner, whether the manipulation occurs consciously or it occurs because of a teleology created a posteriori by selective pressures implicit in the structure of the social situation. In other words, if the ideology functions as a self-reinforcing mechanism to a social order that is undesirable in kind or in degree, then the bad faith element of the definition has been met. But of course we cannot say bad faith is present until the self-reinforcing effect is discoverable within the discourse.

Using the Definition of Ideology

In chapter five we briefly noted that deconstructive postmodernism should involve three tasks: (1) identify false knowledge optimism, (2) identify the sources of self-interest that motivate the false optimism, and (3) identify what induces those who do not share the same satisfaction of self-interest to adhere to or tolerate the false optimism.

The concept of "decadence" signifies the process where an individual clings to false beliefs because they serve false subconscious needs. The distinctions between true beliefs and false beliefs, true needs and false needs are problematic—the distinction is as changing and as
imprecise as the constructed knowledge that improves but can in principle never achieve knowledge optimism. Ideology is correspondent to decadence—ideology applies to the relationship between the individual and social orders; decadence applies to the relationship between the individual and subconscious orders.

Constructive postmodernism concerns itself with the construction and quality of evolved knowledge. It considers to what extent knowledge is falsely optimistic; it recognizes that knowledge pessimism about ideological positions is rarely justified. Some critical scholars have noted that successful ideological positions must contain some element of empirical validity, otherwise it would be unlikely that others would adhere to or tolerate the ideology. It is trite negotiating lore that the other side is unlikely to negotiate in good faith while under the impression that its concerns have not been understood. This may help explain the rhetorical impotence of critical scholarship. Put simply, they overstate their case. So long as they do, the ideologues will only incrementally relent with trepidation.

The courts are in a similar position. In chapter seven we saw that the post-Askov Supreme Court of Canada is very wary about screwing up important social orders. It is well and good to show how the institution of private property contributes to oppression and arguably violates the Canadian Charter of Rights and Freedoms. However, private property is useful for many reasons, and until critical scholars can show to what extent private property is useful or how its utility can be otherwise met, we can expect and do see only incremental erosion of property rights through taxation and regulation in response to social goals.

Courts are particularly ill-suited to making non-incremental changes since they have virtually no capacity to foresee the effects of change on the social order. The information costs are too high for the litigation process, which is already prohibitively expensive for most. The legislative process is much better suited to commissioning in-depth studies about the potential effects of non-incremental change. Courts will only make such shifts once facts become relatively undisputed within the scientific community, legal scholarship, or have otherwise percolated to the level of common sense. Thus years of feminist scholarship have now made it

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common sense that obscenity is objectionable because its degrading images of women and children promote oppressive conduct. Of course revulsion toward obscenity was always present as an unarticulated tradition. However, because this tradition lacked an articulated justification, it incrementally eroded under pressure from “progressive” civil libertarians who branded censorship laws as unjustifiably prudish. Obscenity laws suffered incremental erosion until the extent of their utility could be articulated in feminist discourse.

I am not advocating Hayek’s extreme position that tradition is inviolable and law-makers should only legislate to entrench libertarian values. However, legislatures and courts must consider the limits of their institutional competence. Presented with evidence of oppressive effects, they must experiment to reverse the oppressive effects, but courts in particular must limit themselves to incremental experiments that seem plausible according to their deep-structure schema about society. Since law is a complex adaptive system, we can expect that the steady introduction of incremental changes will lead to avalanches of effective change from time to time.

Unlike other complex adaptive systems, we cannot simply dispose of the results of failed social experiments, as evolution discards its mutant rejects. More radical changes require more knowledge about the utility of existing social orders, how they might be affected, how their utility might otherwise be met and what side effects of change can be expected. An essential aspect of critical scholarship, and legal scholarship, should be to analyze and make available the results of research about social orders for use by law-makers (including judges). Only this way can courts increase the magnitude of the increment in incremental change.

Social orders are emergent systems, so we know that we cannot make predictions about social orders with precision over time. However, by modeling such systems by simulating the relationships and interactions of the agents on computer, we can “flight-test” changes to social orders and acquire an intuition for their topologies. Such models would enhance the

34 Another dividend from critical feminism is that we now have criteria to identify obscenity that are more useful than the community standard test, which tended to introduce ideological prejudices.
competence of legislatures and courts to implement less potentially damaging, plausible, non-
incremental change.

Since the legal process is a social order, composed of many suborders, that must be
integrated with the rest of society's social orders, there must be a social science of law entirely
separate from legal reasoning. For example, only by creating computer models and flight testing
variations in laws of contempt, openness of trial, and other process-related laws, can courts
navigate the problem of victim rights other than with incremental changes based on blind
intuition.

Merely identifying ideological thought is insufficient to cause positive change. As
Professor Ury observes regarding negotiation, one must build a "golden bridge" so that the
ideologues can change their positions to accommodate other interests without fear of sacrificing
their own legitimate interests.\footnote{William L. Ury, \textit{Getting Past No: Negotiating with Difficult People} (New York: Bantam, 1991) at 90.} By studying social orders as complex adaptive systems, critical
scholarship can begin to allay the understandable fears that retard social progress. Nonetheless,
even if legitimate interests are acknowledged and accommodated, ideologues might still not be
disposed to negotiate allocation of power in good faith, and the ideologues might need to be
warned about the "best alternative to a negotiated agreement."\footnote{Ury, \textit{Getting Past No}, at 113.} Once negotiation fails, we leave
the domain of critical scholarship and enter the domain of social action.\footnote{I do not mean to imply that social action should be delayed until negotiation proves impossible. Unrest and
violence have social costs, but so does negotiation.}
Chapter 9
A Brief Survey of Legal Theories

Law is a complicated social order. It is thus not surprising that there are many legal theories. Each theory privileges some aspect of law or its effect on society and seeks to describe all legal phenomena in relation thereto. A legal theory is typically knowledge optimistic about its privileged aspect and knowledge pessimistic about those aspects that are the foundations for other theories. Each theory criticizes the others' unjustified knowledge optimism and falsely reductive nature. Because the legal order is a complex adaptive system, we know that knowledge optimism about the legal order is false and that any reductive theory will be ultimately distorting.

Lasswell and McDougal distinguish between a theory about law and a theory of law.\(^1\) Theories of law are those designed to guide the participants in legal process; theories about law seek enlightenment about the process with the aim of improving the system. An analogy would be the difference between a theologian in a particular religion (a theory of religion) and an anthropologist (a theory about religion). We can clarify this distinction using the theory of complex adaptive systems. Society comprises numerous social orders, the institution of law being a particular cluster of related orders. Some legal theories reduce law to the practical dynamics used in the legal order without directly considering the effect of the legal order on other social orders or even the effect of the practical dynamics on the legal order itself. These limited perspectives are called theories of law. On the other hand, one cannot construct insightful prescriptions for changing legal process without an appreciation for the practical dynamics. Indeed, in a postmodern jurisprudence the distinction between theories about law and theories of law breaks down because legal reasoning must be fully ironic. Legal reasoning must directly incorporate a theory about law and consider limitations on institutional power due to institutional incompetence. The only difference between legal reasoning and legal scholarship

should be the extent of the resources each has for advancing knowledge about the legal order—practice is generally reactive, scholarship should be proactive.

This chapter will survey five legal theories that have preoccupied jurisprudence for some time: natural law, the historical school, positivism, sociological jurisprudence, and American legal realism. The survey will examine the legal theories in terms of selective knowledge optimism and knowledge pessimism, standards of justification, the legitimation of authority, allocation of power, and the implicit model of legal reasoning.

Natural Law

Natural-law theories ground “authority” in transcendental sources—sources that cannot be tested empirically, such as theology or metaphysics. Authority is to be distinguished from “control,” which is effective, naked power without a moral or political justification. Authority for decisions comes from a special type of justification. This justification is based on the decision’s causal relation to goals; it is teleological. Two important contributions of natural-law theory, therefore, have been the distinction between authority and control, and the teleological style of reasoning from goals.

The major problem with natural-law theory is that the goals are logically deduced from \textit{a priori} metaphysical sources—there is little empirical justification for the goal clarifications. Rather, goals are deduced from knowledge-optimistic theologies or metaphysics. For example, a Kantian approach infers goals from the grammar of language and logic. But there is no agreement on what \textit{a priori} metaphysics are true and no criteria for deciding among them. Moreover, we know that the knowledge optimism is false. The strength of the natural-law theories rests solely on how well the metaphysics happens to model the topologies of the many social orders in society. Most natural-law theories do well in regard to social institutions such as truth-telling, but very poorly with regard to economic and political realities.
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Justification in natural law is by logical deduction from metaphysics. Since the metaphysics are contingent on the intuition of the elites of the philosophy, it is possible for the legal reasoning to account for social orders with clashing fitness functions by reformulating the axioms of the metaphysic. Traditions can thus have indirect authority through the contingent selection of axioms.

However, in natural-law reasoning the logical derivations force consistency over incompatible contexts so that the grammar of deductive logic inappropriately constrains the implicit models of social orders in a natural-law schema. Chaos theory tells us that different emergent social orders cannot be linked deductively, and that each social order must be separately modeled empirically using fuzzy concepts and linked to other models probabilistically. Natural law's inherently distorted models of social orders impair the ability of natural-law reasoning to forecast the effects of changes to law on social orders. This has not directly concerned natural-law jurisprudence because it focuses on the metaphysical authority of goals rather than empirical effects on society.

Since the logic of the metaphysic is what is primary in natural law, experience is interpreted only in terms of the abstract. Only recalcitrant experiences that are strong enough to warrant re-evaluation of first principles are accommodated. As a result, the natural-law style of reasoning is inherently unempathetic to ways of experiencing reality that differ from the intuitions of the mandarins of the metaphysic.

Natural-law schemas also fail to take direct account of the allocation of power in society. Apart from the fact that its inherent incapacity for empathy defines away much oppression, allocation of power is seen as the justified byproduct of acting according to moral principles. Power accumulated according to moral principles is justly retained. This weakness is aggravated because the principles emerge from the intuitions of the makers of the dominant metaphysic. These intuitions are shaped by ideology and decadence, but natural law has no tradition of subjecting these intuitions to critical analysis. The oppressed must depend upon the ability of the philosophical elite to be profoundly self-critical without any philosophical tools for critical deconstruction.
To summarize, natural law privileges the notion of authority based on justifications that are teleological to goals. This is a necessary aspect of a theory of law; however, natural law binds the teleology into reductive logic and restricts goal formation to the structure of deductive logic and the privileged intuitions of the elites of a very narrow discourse.

Natural-law justifications are only indirectly empirical. The style of reasoning is inherently unempathetic to alternative discourses. Inegalitarian allocation of power is rationalized and virtually immune from critical analysis. The distorted modeling of social orders impairs the possibility of effective social engineering through law.

The Historical School

Whereas natural law focuses on goals logically derived from abstract metaphysics, the historical school of jurisprudence privileges concrete social orders. In the nineteenth century the historical school promoted the notion that the culture of a community incorporated some sort of *geist* or soul. However, the historical school failed to develop a theory about social orders and provided little normative direction for law-making.

Hayek and the structuralists can be seen as later forms of this tradition. The central insight is that people unconsciously embody the customs that are required in order for social orders to emerge. The social orders are given privileged status. The advantage of the historical school over natural law is that the historical school is sensitive to the effects of law on the community. Unfortunately, the historical tradition lacks a good theory about the formation and persistence of social orders and is therefore too knowledge pessimistic about the possibility of using law as an instrument of change—all diachronic change is accidental. Complexity theory, on the other hand, shows that while we cannot be knowledge optimistic about diachronic change, we can have topological knowledge and achieve plausible teleological instrumental change.
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Authority in the historical school is located in tradition. Since there is no theory about social orders, there is little possibility for justification. Legitimacy comes from consensus as to whether the laws properly reflect or support traditions. Hayek refined this analysis to some degree, by empirically identifying some of the necessary conditions for certain economic social orders.

Allocation of power is not directly considered. The legitimacy of the traditions and their necessary preconditions justify the distribution of power that results.

The historical school is plainly inadequate in terms of the capacity for empathy and critical analysis.

Positivism

Positivism (or analytical jurisprudence) has until recently been the dominant theory of jurisprudence. As such, much academic effort is put into shoring up its more obvious deficiencies. Positivism is therefore more of a moving target than other legal theories.

Positivism is a reaction against both the transempirical notions of theological and natural lawyers and the vague diffuseness of the historical school. Positivism purports to be empirical by studying the use of rules in legal reasoning; it is the study of the necessary conditions for conceptualized rule systems to govern human social behaviour. As such, positivism can come dangerously close to natural law; however, the content of the rules is determined by the existing corpus of the common law rather than the intuitions of the philosophical elite. The ability of positivism to model social orders, to form teleological goals, and to consider the effect of laws on social orders, is thus parasitic on the extent to which common law has in fact been not been positivist.

Positivism’s obsession with rules precludes it from appreciating the full dynamics of actual legal reasoning. Positivism can only prescriptively argue for rationalization of the body of

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rules without providing a satisfying account of how new rules arise. For positivists, such advances are merely ineffable discretion where rules are not determinative. Because of positivism’s knowledge optimism about conceptualized rule systems, it vastly overestimates how deterministic common law doctrine is or can be, and thus vastly underestimates the degree of “discretion" in legal reasoning.

In positivism, the authority of “discretionary” law-making is deduced from the idea of sovereignty. The legitimacy of this sovereignty depends on knowledge optimism regarding the existence of some sort of political will that funnels the interests of all members of society. This reductive notion of political legitimacy is absurdly simple and clearly fails to capture the very complex problems of modeling and mediating the conflicting fitness functions of individuals, multiple social orders and social classes. The typical stratagem is to project some “self-evident” form of human nature on everyone so as to simplify the complexities enough so that the idea of a funneled political will can appear plausible.

Positivism’s need for political legitimacy blinds it to the complexities of social orders. Therefore, even though current forms of positivism look for policies or goals to guide the exercise of discretion, their simple model of society precludes an empathetic and critical negotiation of policies and goals. If positivism were openly empathetic, then the political legitimacy of the sovereign would be exposed as myth and authority would be undermined. Furthermore, in positivism the goals and policies are weakly inferred from the body of existing rules, retarding the capacity for progressive change. Empathy and responsiveness to critical analysis only enter into positivism indirectly through equity, the dynamics of which positivism cannot explain.

Another problem with positivism is that it is knowledge optimistic about the power of conceptualized rules to manage human social behaviour—authority and control are not clearly distinguished. Positivism fails to focus on the concrete effects of rules on social orders, compounding its inadequacies at empathy and critical analysis.

The success of positivism is entirely parasitic on the ability of judicial legal reasoning to be sensitive to the necessary conditions for the emergence of social orders and to conceptualize
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these intuitions. While legal reasoning has operated in the nature of a complex adaptive system, positivism has attempted to lock legal reasoning into a microreductionist rule hierarchy.

Regarding allocation of power, positivism's naiveté regarding political legitimation and the effectiveness of doctrinal rules precludes insightful analysis of power distribution in society.

Sociological Jurisprudence

Sociological jurisprudence has made major contributions to legal theory by focusing on the effect of law on social orders. Another contribution has been to emphasize the divergence between the doctrinal laws and the laws actually followed by citizens—the difference between authority and control is appreciated.

The quality of sociological jurisprudence of course depends on the quality of the social science. Social theories that privilege a single social order or set of social orders give the advantage of more insight but are not comprehensive. Moreover, such theories give good insight into the concrete effects caused by laws, but since they have lacked models of social orders as complex adaptive systems, they have been less successful in prescribing a means to plausibly engineer change without endangering other social orders. The major shortcoming of sociological jurisprudence has been a failure to integrate empathy and critical analysis into legal reasoning itself.

Sociological jurisprudence has successfully dismembered the knowledge optimistic myths of positivism and natural law, but has wrongly presumed knowledge pessimism toward rule systems and actual legal reasoning. Sociological jurisprudence has yet to fully deal with the problem of clashing fitness functions. Sociological jurisprudence needs to apply complexity theory to construct a positive theory of legal reasoning and to mediate among conflicting fitness functions for individuals, social orders and classes. I will argue in the next chapter that this is best accomplished by a hierarchy of fuzzy goals that are causally related probabilistically.
Sociological approaches have not yet developed an empirical means of goal clarification. In chapter seven I argued that courts do this as part of legal reasoning, but institutional constraints mean courts should follow rather than lead this sort of inquiry.

To summarize, sociological jurisprudence has immensely expanded capacity for empathy and critical analysis in legal thinking about law. As such, sociological jurisprudence has initiated more change than other legal theories, which tend merely to describe and rationalize the status quo. Sociological jurisprudence has tended to overlook the constructive aspects of legal reasoning and provided little guidance for integrating critical methodology into legal reasoning. Sociological jurisprudence has also failed to elucidate the problem of egalitarianism within the context of conflicting fitness functions for individuals, social orders and classes.

American Legal Realism

Legal realism has been principally a reaction against positivism’s obsession with systems of articulated rules. Legal realism’s principle contribution has been to show that doctrinal rules underdetermine judicial outcomes and that judges are humans who make decisions based on intuitions, including prejudice. Legal realism shifted the focus of attention from the verbalized legal doctrine in decisions to the factual outcomes and their effect on society. In its extreme, legal realism could become a form of behaviourist psychology. A more informed legal realism finds authority in people’s empirical perspectives about social consequences. Judges make decisions that are responsive to people’s views about values and their expectations about sanctioned authoritative choice, as informed by social science.

A major shortcoming of legal realism is that this hefty agenda has swamped efforts to produce constructive guidance to either decision-making in general or the clarification of social goals in particular. The massive undertaking of Lasswell and McDougal to set out the tasks for a

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3 Dean Roscoe Pound began an inquiry into goal clarification but merely extrapolated goals in the corpus of existing laws and made no empirical study of social orders, their interactions and their effects on egalitarianism.
theory about law is merely preliminary work. Lasswell and McDougal also sought to redress the lack of clarification of goals; however, the set of values they postulate is essentially a principled outline of what they perceive to represent a consensus of enlightened perspectives on the matter. There is little ironic awareness of how a set of relatively few values from which other goals are logically deduced inherently fails to capture the full dynamics of social orders. While in principle it is impossible to precisely model social orders and the conflicting necessities and priorities of individuals, social orders and classes, theshortcoming must be appreciated in order to temper one’s concept of authority and legitimacy. The concept of authority in legal realism is therefore as vague as its prescription for legal decision-making.

The lack of a detailed procedure for ongoing goal clarification also makes this approach inherently resistant to empathetic responsiveness to different experiences. Vagueness impairs the formation of keen critical analysis. Vagueness also precludes any working criteria for stating or evaluating justifications for law-making decisions.

To summarize, current forms of legal realism are careful to avoid the narrow preoccupations of other theories of law, but only offer vague platitudes instead.

A Postmodern Theory of Law

Having pointed out some shortcomings of other legal theories, I will briefly apply constructive postmodernism to the issues discussed in this chapter.

The major presupposition in the postmodern theory of law is that legal reasoning has outperformed any other human strategy for mediating and satisfying the conflicting fitness functions of individuals, social classes and social orders. The main evidence for this is its dynamic as a complex adaptive system that resists reductionist attempts at reform and shows an evolving balance between theory construction and experience.

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This is not to say that legal reasoning has been perfected. The influence of natural law, positivism and liberalism, for example, has significantly impaired the capacity of law to empathize with the experiences of the oppressed. Additionally, legal reasoning has been slow to evolve critical ironic stances. However, I will argue in chapter ten that this is not inherent to legal reasoning. Legal reasoning, like all schema-building enterprises, has an inherent amount of play that is available for the purposes of good-faith experimentation, more complex mediation of conflicting fitness functions, or decadence and ideology. Legal scholarship has now evolved critical ironic stances and legal reasoning must do the same. Nothing about the nature of complex adaptive systems or the institutional constraints of law-making precludes such a development.

Justification cannot be as totally precise as positivists would like, but is not as vague as in legal realism. Insofar as judicial decisions must be sensitive to context and unarticulated preconditions for desirable social orders, we have to trust the decision-makers to be empathetic and thoroughly socialized. Admittedly, this presents a problem for authority and legitimacy. How long should traditional obscenity laws resist libertarian encroachment in the absence of generally recognized justifications? Judicial wisdom is a slender straw, but with enhanced critical capacity, more representative staffing and more emphasis on empathy, the severity of the problem can be reduced.

Allocation of power remains a problem because the problem of what constitutes egalitarianism has been finessed in this thesis. Critical analysis helps identify sources of obvious inegalitarian distribution of power, but critics have been too knowledge optimistic in their utopian alternatives. Progress on this issue will require substantial advances in what we know about social orders. We need a good sense of the value of a social order to society and the necessary conditions for its continuing emergence. For example, the institution of truth-telling is not destroyed by principled exceptions such as lying to a killer who asks where his intended victim is hiding, but rampant, arbitrary lying undermines the benefit of being able to trust others—the social order dissolves. Legal reasoning has rudimentary techniques, such as
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proportionality analysis, but the quality of such reasoning is a direct function of the quality of knowledge about social orders.

A postmodern theory of law thus does not differ immensely from other theories of law. It principally seeks to make explicit what other theories accomplish in an implicit and distorted manner. A postmodern theory of law focuses on how legal reasoning works as a whole rather than seeking to describe the process of law in terms of the phenomena that are most amenable to reductionist accounts. Legal reasoning in a postmodern theory of law must contain a theory about law. Legal reasoning in a postmodern theory of law attempts to be radically self-critical, but is only incremental in response unless it can be reasonably sure that essential social orders would not be endangered. A postmodern theory of law is not embarrassed by problems with legitimacy; the problem is announced and judges gain respect by demonstrating good faith, socialization, ironic self-awareness, and the capacity to empathize.

The next chapter will show that legal reasoning in a postmodern theory of law is not left vague, as in legal realism. It will provide constructive, plausible criteria for decision-making regardless of the quality of knowledge about social orders. It will show how the quality of legal decisions improves with improvements in the quality of knowledge about social orders and how critical insights and different experiences can be taken into account.
Chapter 10  
Evolving the Deep-Structure Model

In this chapter we will re-examine the deep-structure model of legal reasoning and address three questions. Is goal-based reasoning the most plausible strategy to cope with incomplete information about social orders? What would a computational model of goal-based reasoning entail? Does this approach accommodate general critical concerns?

**Goal-Based Reasoning**

Society is a complex adaptive system. Society emerges from the collective, concurrent behaviour of its citizens. The needs of the citizens and the disintegrating pressures from the environment define a fitness function for the society. A society persists because enough of the citizens have internalized the rule-governed behaviour necessary for the society to maintain the social orders that are required for the society to satisfy its fitness function. Law is an undertaking to improve the ability of society to satisfy its fitness function by manipulating the rule-governed behaviour of the individuals. The basic task of legal reasoning, thus conceived, is to consider the impact of proposed rules on useful social orders.

What are useful social orders? Most of them are intangible and vague. Truth-telling is an example of a useful social order. If people tell the truth then the communications of others can be trusted, which has tremendous value for society. If this social order breaks down, a community moves from an atmosphere of trust to an atmosphere of distrust. Truth-telling is so important that we seem to have evolved physiological reactions to promote truth-telling (guilt and embarrassment), which good liars unlearn. We have a good intuition that truth-telling is a virtue to be honoured.

Of course mere survival of society is not a strict enough fitness function to satisfy the aspirations of most people. Indeed, we might not agree that maintaining society is a good in
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itself; one might seek to derive all social goods in terms of self-interest. We tell the truth because
we want to be trusted and that gives us an advantage coping in society and in the environment.
However, there are free-rider problems where individuals are able to externalize costs—it might
be in their self interest to lie and exploit the naïve from time to time. This suggests that laws
should be passed to discourage such conduct, but how would one justify those laws without the
notion of collective interest. Social orders are chaotic systems so we may have to accept that
precise causal links cannot always be made between beneficial social orders and individual self-
interest. Conversely, one might attempt to derive self-interest from the interests of society. To
persist, a society must satisfy some minimum level of its citizens' individual needs. However,
this approach has difficulty justifying as much respect for the individual as we intuitively feel is
necessary.

More than two thousand years of moral philosophy has not resolved the problem of
mediating clashing fitness functions for individuals, classes, and social orders. If a clear moral
theory were required for legal reasoning there would be no legal reasoning. Since the deep
structure of law is a complex adaptive system, the solution is to start with vague strategies that
are little better than random, and then improve by increasing complexity. We decide obvious
cases, then proceed to refine our approach through incremental experimentation and empirical
observation of the effects that are obviously good or bad.

Since legal reasoning concerns itself with social orders, the simplest and most
straightforward reasoning strategy would centre on Aristotle's four types of causation. The
material cause is almost always the same—people. The efficient cause of a social order always
includes the rules that govern behaviour (tell the truth). The formal cause is the end product (an
atmosphere of trust). Since we have no direct instrumental control over the formal cause (we
cannot legislate an atmosphere of trust), the formal cause is not a direct concern. The final cause
is the selective factor that creates an *a posteriori* teleology in favour of the formal cause (the
utility and well-being engendered by living in an atmosphere of trust). Often it is difficult to
articulate the final cause and the social goal is referred to by identifying the formal cause (the
atmosphere of trust), or perhaps the rules themselves where they are obvious (truth-telling).
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Therefore, the two prime causal invariants about social orders are that they serve goals and that rule-governed behaviour brings them into existence. Therefore, the form of legal reasoning that requires the least amount of information is goal-based. We begin with an imprecise, general strategy and seek to improve as the quality of our knowledge about the social order improves.

We do not begin with precise information about social orders—neither the goals they promote, nor the rules necessary for them to emerge. We begin with intuitions that we conceptualize in terms of vague goals—truth, safety of person, freedom—and virtuous conduct—truth-telling, respect, tolerance. However fuzzy these goals and rules are, we have a good-enough intuition to sense that they often conflict in concrete situations.¹ The social order of truth-telling might compel one to tell the truth, whereas the social order of safety of persons might compel one to lie to avoid harm. How does one resolve the conflict without more information?

The most straightforward way is to conceptualize our intuitions of each social order as a named goal—truth (b₁), safety of person (b₂). Our dilemma presents two possible outcomes: favour truth over safety of person (b₁/b₂); or favour safety of person over truth (b₂/b₁). Without more information, we must decide which is more important. Since we do not have a precise moral theory, we draw on intuition and favour safety of person. All things being equal and not knowing more, we favour b₂ over b₁. This is our first precedent.

Suppose we knew more about the social orders. For example, we observe that certain systematic exceptions to the truth-telling rule do not impair the social order of trust that is so important to society. In fact, we learn empirically through incremental experimentation that if we limit exceptions to truth-telling to concrete situations where it is necessary to lie to preserve higher-ranking social goals, then people will still trust each other when they speak. This additional information (empirical, sociological evidence) allows us to make a qualitative advance in the structure of our reasoning. We can universalize the alternative outcomes into rules and

¹ Defining truth becomes very difficult when closely examined. A whole philosophical tradition has struggled with the problem. Likewise, what constitutes a violation of personal integrity—rape without physical injury, emotional abuse, harassment, jocular play?

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then consider what the relative impact would be on each affected social order. Thus, for example, if favouring $b_1$ over $b_2$ would significantly impair $b_2$, but favouring $b_2$ over $b_1$ would only slightly impair $b_1$, then we should favour $b_2$.

Coval and Smith have shown that this is indeed what courts do when they confront hard cases. The reasoning is not arbitrary; it is rule-governed but uses very fuzzy concepts (truth, safety of person) and probabilistic reasoning (promotes, significantly impairs, is more important than).

Once the court has some information as to the probable impact of a generalized outcome on either of two affected social orders, the court can do more than simply intuitively assert which social order is more important. Simple "weighing" of competing principles or rights only applies in the simplest cases. With additional causal information, the reasoning can become much more structured. The situation is shown in the following diagram.

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Where there is no information about the impact functions, a court can only presume $R_1$ promotes $S_1$, $R_2$ promotes $S_2$, $R_1$ impairs $S_2$ and $R_2$ impairs $S_1$. The court is forced to decide by ranking the value of $S_1$ higher than $S_2$, or vice versa. Moreover, the vagueness of the causal relations means that the relevancy function that maps fact patterns to rules will likewise be fuzzy. But if the court, through social science evidence or evolved common sense, learns that $R_1$ would probably significantly impair $S_2$, or worse, would destroy $S_2$, then the court would have reason to favour $R_2$ even if $S_2$ were not as important as $S_1$. This is the substance of the proportionality rule.

As information gets better, the reasoning becomes more subtle. Thus, in estimating the probable impact of an outcome, the proposed universalized rule need not be presumed to be absolute. Judicial irony about proportional reasoning means that the universalized rule could be presumed to be in the most minimal form known to be required to promote the social goal, and
subject to principled exceptions to account for the possibility of significant impact on other social goals. As judicial knowledge about the causal links from proposed rules to social orders becomes more precise, the concepts forming the predicates of the rules become less fuzzy and the estimates of the degrees of probable impairment to the social orders become less vaguely probabilistic.

The structure of legal reasoning increases in complexity as the common law develops better models of social orders (goals) and their relationship to rules. A social order might contain instrumental subgoals, that may themselves be social orders. The social order of collective bargaining, for example, would probably be significantly impaired in most cases if the employees were denied the right to picket during a strike. The social order of property ownership, for example, promotes many different goals, including personal privacy and economic self-determination. In the Supreme Court of Canada case \textit{Harrison v. Carswell}, the court had to decide whether employees of a store in a shopping mall would be permitted to picket in front of the store entrance, which was on the property of the mall owner. Employees in a mall face an anomalous factual problem because there is no publicly-owned thoroughfare leading to the entrance of the employer's place of business. The right to picket becomes ineffective because remote picketing has a much less potent effect on the customers of the store. The balance of power lists toward the employer. On the other hand, the right to control access is a fundamental aspect of property rights. This was a hard case.

Without more information, the court had to honour existing precedent and rule that the general social value of property rights outweighed the general social value of collective bargaining. However, with more causal information the reasoning could have progressed beyond a crude weighing. Essentially, the court viewed property rights as an indivisible whole. Counsel for the employees should have emphasized that property rights are instrumental to more

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\item The same structure applies to constitutional evaluation of legislated rules, except one of the rules already exists. An implication of this structural difference is that the rule's causal link to the social order being promoted and the rule's minimality cannot be presumed and must be established. Moreover, constitutional considerations might impair the ability of a court to make exceptions in concrete situations where a legislated rule significantly impairs another important social order.

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than one social goal.\(^5\) A court would be entirely justified to reason that if people lost control over access to personal-use property, then the social goal of personal privacy would be seriously impaired. Additionally, many commercial enterprises would be impaired if they totally lost control over access to their property. However, in a case where a business generally permits public access to its property, the pursuit of commerce would not be significantly impaired if a principled exception to the right to control access were made for store employees who picket peacefully. There are many examples where property rights are relaxed to permit what is necessary for other important social goals. The Harrison v. Carswell court could have reasoned that the value of collective bargaining rights expressed in precedents and statutes justified this limited encroachment on property rights. The damage to collective bargaining was disproportionate to the damage to the goals served by property rights in the particular concrete situation. The court locked-in to an essentialist concept of property as an indivisible right, rather than seeing property as merely a social order whose value derived from its instrumental role in promoting other social orders.

The subtlety and complexity of legal reasoning improve with the quality of knowledge about social orders. However, since the social orders are emergent systems, chaos theory informs us that the models of the social orders will always have to use fuzzy concepts and probabilistic reasoning. In other words, except in isolated pockets where hierarchies of deductive reasoning are constructed (such as the Personal Property Security Act\(^6\)), the courts must resort to proportionality analysis to mediate disputes arising from fact situations that invoke conflicts between desirable social orders.

Even where a fact situation is clearly within a deductive scheme, it is always possible that the rule affects a social order that has not been accounted for in the regulatory scheme. Therefore, a court always retains equitable discretion to create principled exceptions to specific rules where the universalized outcome of a fact situation would disproportionately impact

\(^5\) I am unaware of what arguments were actually made to the court.

\(^6\) This is the Canadian legislation for the registration of security interests in personal property. An example is where borrowers give collateral for loans other than real estate mortgages.
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another desirable social order compared to the rule's contribution to the social order promoted by the regulatory scheme.

The elaborate code of rules could either be common law (such as the rules against perpetuities), or legislated. The two situations are not very different. In the case of legislation, rules of interpretation are used to bend the rules to reflect conflicting social goals. Where this cannot be done, the Canadian courts can now use the Canadian Charter of Rights and Freedoms to introduce the conflicting social goal.\(^7\) The court's approach to legislation is thus similar to the law and equity dynamic discussed in chapter seven.

The complexity of the proportionality analysis will reflect the quality of judicial knowledge about the least-well understood social order and the rules it requires. Where a concrete fact situation pits a rule from a detailed code against a rule that promotes a vaguely understood social order, a court must ascend the deductive scheme of the code until social goals of roughly the same generality are being compared. Thus, a court does not compare picketing to property rights; picketing must be seen as a rule to promote collective bargaining, which is instrumental to promote the right to a basic wage and the goal of egalitarianism. Similarly, property promotes privacy and the right to earn a wage. Since these goals are roughly comparable, the disproportionate impact on the first set of goals is more obviously important than the negative effect on the goals served by property rights. A coherent and precise moral enquiry was not necessary to make the decision—the topmost social goals could remain vague and \textit{sui generis}.

Examples of this process include judicial review of decisions from expert tribunals and the use of expert testimony. The tendency of the expert is to undervalue the importance of social goals outside the domain of expertise; the tendency of the court is to fail to appreciate the causal importance of a fact or rule within the expert's domain. The difficulty in commensurating precise rules with vague goals creates a significant opportunity to mystify ideological law-making.

\(^7\) Things are not all that simple. Not all desirable social orders are reflected in the constitution and the rankings are not made clear. There is also the question of the political legitimacy of the courts overruling legislation.
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Chaos theory implies that in principle we cannot achieve a universal, precise, non-probabilistic schema to account for the causal relations among rival social orders. This means that legal reasoning will remain at core fuzzy and probabilistic, even when there is a precise hierarchy of rules encoded by legislation, even in the civil code tradition. Lothar Philipps gives a good example from a German statute.8 The rule provides that a person involved in a traffic accident may not leave the site of the accident until somebody arrives who is willing to take the driver's name and information on the car and the accident. Notwithstanding the seemingly precise rule, the courts have evolved principled exceptions that vary according to the facts—the amount of time elapsed before someone arrives, the extent of the damage, the time of day. Philipps shows how fuzzy logic is capable of reproducing the results of the courts without precise information about what goals are being served. The courts can only express vague intuitions in the form of fact-oriented conclusions, such as no one should have to wait many hours at night where there is only minor damage. As the case law develops, the fact patterns illuminate the contours of relevancy. By identifying the social goals being promoted, the causal relations that define the relevant distinctions can be articulated with more precision.

Legal reasoning, therefore, is rule-governed but inherently imprecise. The degree of imprecision will be a function of the quality of knowledge about the social orders causally affected in a concrete factual situation. As the quality of knowledge improves, the legal reasoning can be further refined to accommodate critical analysis. A court, for example, is prone to overestimate the strength of rules that are necessary to preserve a desirable social order. As social science improves, the addition of new causal assertions can show how to plausibly weaken the rules to accommodate other social goals. With more knowledge, the damage to the other social order need not be as extreme before it satisfies the proportionality test. Critical scholars, therefore, have an important role in expediting the introduction of causal evidence into judicial recognition, and exposing instances where the courts are implausibly ignoring such evidence.

Evolving the Deep-Structure Model

Critical scholars have noted the tendency of law-makers to create knowledge-optimistic codes of precise rules (a symptom of legal positivism), or to reify instrumental social orders into indivisible rights (a symptom of natural-law jurisprudence). This tendency interferes with the ability of legal reasoning to properly apply proportionality analysis. In these cases, the decisions of law-makers can be justifiable criticized without the need for a precise moral theory or philosophies that assume better knowledge is available. The decisions are wrong on the basis of the quality of available judicial knowledge—the knowledge contained in precedents, what is proven in court, and common sense.

Finally, once improved knowledge about social orders allows courts to weaken their formulations of the rules necessary to maintain social orders, the courts can more fully account for the social goal of egalitarianism. For example, it took over a hundred years of experience for courts to learn that the atmosphere of commercial certainty fostered by the reliability of contractual promises would not be undermined by principled exceptions for unconscionability, mistake and oppression.

Computational Goal-Based Reasoning

The inherent imprecision of legal reasoning presents a problem for computational models in expert systems.

One strategy would be to focus on deductive rule codes and hope that the fact situations presented to the expert system were not causally related to social orders for which we do not have as precise a model. But the need for hope means that we can never know whether the expert system has produced a reliable result, or reliable argument in the case of argument generation. A vague but important goal can create a fuzzy category of relevant, exceptional facts that could probably significantly impair the social order associated with that goal. As most litigation lawyers know, all cases are hard cases—positivist models simply will not do.
In contrast, deep-structure jurisprudence captures the properties of legal reasoning that fundamentally work with vague concepts and probabilistic causation, and refine the reasoning strategy as the quality of knowledge improves. We therefore seek an expert-system design that can handle imprecision and improve as information is added. The expert-system design described in chapter one begins to capture some of these requirements.

The key elements of the deep-structure expert system are factual descriptions of case scenarios, factual assertions, causal assertions, goal descriptions, goal rankings, and judicial outcomes. The minimum content of a case precedent contained in the expert-system database is a set of factual descriptions and a judicial outcome. The expert-system designer develops a set of working hypotheses as to the principles underlying the doctrine in an area of law. These principles lead to identification of goals, causal assertions and factual assertions presupposed in the judicial decisions. These elements are utilized according to general deep-structure principles of legal reasoning. Thus, when analyzing a hypothetical situation, the system will attempt to link the hypothetical facts to recognized goals using recognized causal assertions. Whenever the hypothetical facts invoke conflicting goals, general deep-structure principles are employed to favour one goal over the other in the particular context. Using general deep-structure principles regarding the ranking of legally recognized sources, the strength of authority warranting the elements in competing arguments is used to form conclusions as to the most probable legal outcome. The particular deep structure of the legal system emerges from the elements contained in the particular case precedents represented in the database of the expert system. Finally, by including causal assertions, factual assertions and goals recognized by alternative sources (such as critical literature), the expert system can generate plausible arguments contrary to the most probable legal outcome. The person consulting the expert system is left to judge whether the social science assertions could be proven in evidence or would be accepted as common sense.

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Evolving the Deep-Structure Model

No one has attempted to implement the deep-structure expert system model described in this thesis. Such a project would be nontrivial but it does not appear to be impossible in principle.

The kernel of the system would be a proportionality inference engine that employed a fuzzy logic to deal with vague concepts and estimates of probable causal impairment. The dispute would define the potential conflicting outcomes to be considered, which would be universalized into proposed rules. The inferencing would use the initial set of hypothetical facts and the database of precedent causal assertions to search for goals that were causally linked to the proposed rules. Proportionality analysis would then attempt to discern whether one of the goals would be disproportionately impaired. If proportionality analysis was indeterminate, then the precedent database would be searched for cases that ranked one goal higher than the other.

There are several degrees of enhancement that could be added to this kernel. The topmost social goals could be analyzed in terms of instrumental goals or constituting social orders (goals). This information could be exploited to infer more about goal ranking. Goal relationships would also enable additional inferencing about probable causation—promotion of an instrumental goal would transitively promote another goal, for example.

Generating universalized rules will be quite difficult, particularly since proportionality analysis presumes the proposed rule is minimally strong for the purposes of the social order it promotes. While this might appear to create a computationally intractable problem, we can borrow a complexity-building strategy from complex adaptive systems. Therefore, we can begin by assuming less information than we actually have, and evolve more complex strategies. Development would stall if detailed logics were applied in early stages.

Following this strategy, increasing the refinement of the goal relationships would effectively create more precise models of relevant social orders. Development along these lines could continue until the system was capable of modeling detailed rule codes. However, it would be premature to introduce such schemes until the system was capable of handling cases involving less precise models.
PROLEGOMENA TO A POSTMODERN THEORY OF LAW

The most profound implementation problem will be the language in which factual, causal and goal assertions are expressed in the expert-system database. The courts embarked on the evolution of legal reasoning with a detailed, intricate and organic language. Computers, on the other hand, must begin with crude, representational markers for the existence of relevant facts. In order to support an ever-expanding (large-spirited, empathetic) notion of "relevancy," cases must be capable of an ever-expanding vocabulary. In the area of computerized retrieval of legal precedents, Judy Dick has confronted the problem of open-ended relevancy with relative success. However, her solution of enriching the expressive power of the language primitives creates problems of computational intractability in the logic of proportionality. The interim solution for a deep-structure expert system will have to be to begin with a restricted factual vocabulary and add only enough expressive power to accommodate the existing cases and critical perspectives.

A Critical Look at Expert Systems

In the first part of this chapter I have applied insights from complex adaptive system theory to sketch the elements of deep-structure legal reasoning in greater detail. In the second part I have briefly sketched how a computational model of goal-based legal reasoning could be developed. Since deep-structure expert systems could thus evolve toward increasingly faithful renditions of the deep-structure model of legal reasoning, it is compulsory that the designer of such systems initiate critical inquiry into the effect of such systems. I conclude this chapter by addressing a series of critical questions regarding expert systems, and deep-structure expert systems in particular.

EVOLVING THE DEEP-STRUCTURE MODEL

Contra Rule Usage

Deep-structure expert systems use rules. Some critical scholars argue against rule usage, but complexity theory establishes that rule usage (whether explicit or implicit) is necessary for a system to more optimally satisfy teleological criteria. If we assume for present purposes that we agree that social teleology should include survival of the social order and be subject to the further constraints that undisputed human needs should be satisfied in roughly egalitarian fashion, then rule usage per se cannot be criticized.

Contra Explicit Rule Formulations—Alienation

A less extreme rule criticism endorses implicit rule usage but criticizes explicit rule formulation. Some critical scholars argue that it is psychologically alienating for humans to consciously evaluate whether their actions would comply with express rules. This argument is weak. Humans have achieved considerable success in coping with the environment, relative to other species, because of language (self-conscious communication) and the cultural evolution that ensued. The power of language is that it enhances human ability to generate plausible strategies for responding to challenges presented by the environment, and our ability to preserve successful strategies. Critical scholars who advocate rule-less custom bear the burden of demonstrating that the psychological harm of self-conscious adaptation outweighs its manifest benefits.11

11 Especially because the very success of language has created a social order that threatens the physical environment that humans depend upon. The teleological constraint of survival requires even greater abilities to plausibly adapt our social order. It would be folly to retreat into un-selfconscious evolution of custom as a strategy to cope with environmental issues.
A person might be able to achieve greater teleological success by modeling the complexity of the environment with an implicit, internalized complex system in the mind—a form of intuition. Merely duplicating the actions of an external complex system would not work because complex systems are too sensitive to starting conditions and environmental influences (i.e., they are chaotic) for a parallel complex system to be accurate. This would be like attempting to predict the precise pattern of spilled water by mentally visualizing the spillage event—it cannot be done accurately. Nonetheless, an internalized complex system that did not simply attempt to mimic an external complex system might be capable of more precision than a linguistic conceptualization. One could argue in favour of implicit complex systems rather than explicit formulation in ratio-deductive language. For example, a good billiards player successfully internalizes the complex physics of billiards without any cognitive formulation of the physics.12

Even if one’s internalized model is not a complex adaptive system, implicit rules are often much more efficient than conceptualized thinking. Computer scientists who study complex adaptive systems observe that non-conceptual solutions are often more computationally efficient and criticize conventional artificial intelligence research as being too obsessed with constructing cognitive representations.13 Similarly, some philosophers argue in favour of virtue-based ethics over consequentialist ethics because the computational requirements of the latter are too demanding.14 Furthermore, the cognitive processes of formulation into discourse and conceptual reasoning create opportunities for error and obfuscation.

On the other hand, it is not clear whether such implicit systems are appropriate to human culture. Unlike other complex adaptive systems, human societies lack the luxury of testing many rival implicit models. A billiards player can ruin countless shots in practice. Other species can experiment with implicit, genetic rules by simultaneously creating many candidates and

EVOLVING THE DEEP-STRUCTURE MODEL

sacrificing the losers on the altar of natural selection. The egalitarian constraint forecloses this option for human societies. Society must therefore evolve by selecting only highly plausible rule candidates. Explicit rule formulation enhances our ability to analyze and restrict adaptations to highly plausible candidates. Furthermore, uncritical reliance on implicit rules has proven susceptible to unconscious ideological or psychological abuse.

Rule Indeterminacy

The use of rules to regulate the social order might also be rejected because rules are too indeterminate. The indeterminacy will inevitably be exploited by dominating social groups whenever rules are used for purposes of social regulation.

This argument fails to recognize that rule indeterminacy is an essential feature of the human condition, whether the rules are explicit or implicit in custom. The possibility of domination is equally present in societies governed by custom—the selective pressures implicit in a custom-driven society will just as surely lead to evolution of customs to entrench the powerful. While conscious manipulation of social practice creates the possibility of ideology, it also creates the opportunity for critical review.

Furthermore, the critical argument is inconsistent. If rules are too indeterminate to produce a coherent teleology of goals and policies, then how does the critical scholar account for the success of rules in implementing the teleology of entrenching the dominant class? Rules, therefore, are capable of implementing a teleology notwithstanding their inherent indeterminacy.

Furthermore, complexity theory demonstrates that the indeterminacy is required to prevent excessive order and permit chaotic experimentation. The evil is not rule indeterminacy but the fact that ideological abuse has replaced good-faith play. The solution, therefore, is not to reject rule formulations as a means of regulating the social order. There are manifest benefits to such

15 As Schauer observes, rules need not be formulated into linguistic expressions—custom is as much a rule as is a specific formulation of the rule. Frederick Schauer, Playing by the Rules—A Philosophical Examination of Rule-Based Decision-Making in Law and in Life (Oxford: Clarendon Press, 1991). In particular, both unarticulated and internalized causal models remain subject to chaotic constraints on prediction.
rules, which have been admitted by some critical scholars. The unavoidable nature of rule indeterminacy implies that critical studies (the detection of ideology and decadence) will always be a necessary and important element of intelligent cultural evolution.

The critical questions for the deep-structure expert system, therefore, are whether its design perpetuates liberal denial of rule indeterminacy and whether it facilitates critical exposure of any bad-faith abuse of the play in rules. The two questions are inter-related. As to the first question, the entire deep-structure approach is premised on the indeterminacy of doctrinal rules. We know from our definition of ideology that ideology is present when judges overlook plausible arguments that egalitarian constraints are unfulfilled due and this happens because of the judges' "bad-faith" application of indeterminate doctrinal rules. These plausible critical arguments would be based on evidence of suffering that could be causally attributed to certain types of factual situations. The deep-structure expert system facilitates the development of critical argument by accommodating the addition of causal assertions that events exhibiting certain fact combinations violate social policies. The factual context to be considered by the deep-structure expert system is always expandable—relevancy is an open-ended function. An emerging feature of the deep-structure expert system is that whenever there are relevant causal assertions of oppression, the system will generate critical argument, complete with warrants of authority associated with each element of the argument.

The deep-structure expert system evaluates the relative plausibility of arguments using the law's rules for resolving conflicting assertions based on respective warrants. Since proof of assertions by evidence in court has the highest warrant, the deep-structure expert system ultimately relies on the expert-system user to predict whether critical assertions could be introduced into the legal system through evidence and critical arguments would thereby have greater plausibility within the legal system.

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16 See, for example Patricia J. Williams, "Alchemical Notes: Reconstructing Ideals from Deconstructed Rights" (1987) 22 Harvard Rights-Civil Liberties Law Review 401-433.
17 The criticism would be more effective if the causal link related to intermediary goals that were more specific than the general goal of egalitarianism. More plausible proofs can be constructed with more specific causal assertions.
Evolving the Deep-Structure Model

The deep-structure expert system respects rule indeterminacy because at all times it contains conflicting causal assertions of different warrant. The expert system user may reconsider whether causal assertions relied upon by the various arguments remain plausible in view of changes in the social order. The indeterminacy must come from the user because the deep-structure expert system only models the structure of judicial decision-making in the legal order and not the social order. Evolution of the social order is exogenous to the deep-structure expert system. Evolution of the particular deep-structure of the expert system is introduced by means of user assertions or the addition of ground-breaking precedents of high warrant.

A valid criticism of the deep-structure expert system is that it relies on the user to add critical sources to the database and relies on the user to make judgments as to which competing causal claims are more plausible. The first concern could be alleviated through automatic collection of critical material. The second concern is unavoidable. The social order determines what is plausible and this is exogenous to the deep-structure expert system. The deep-structure expert system only purports to be a tool, so these judgments are left to the tool-user. The user might choose to ignore critical argument generated by the deep-structure expert system, but at least ideological effects would have been exposed.

Coherency Constraint

Deep-structure expert systems derive their usefulness insofar as they incorporate the essential features of any complex adaptive system and they measure plausibility in a manner consistent with language's pragmatic solution to epistemological limitations. This suggests possible shortcomings. In general, complex adaptive systems need not be subject to the coherency constraints of language. A complex adaptive system, for example, could function successfully using inconsistent rules that are selected for application probabilistically. On the other hand, applying the coherency constraints of language appears to be the most effective strategy for generating plausible alternative rules. And, as noted above, unlike many complex adaptive
systems, human culture is constrained from simultaneously testing multiple experiments and letting the losers be annihilated by the brute force of selection. Until we understand complex systems better, it appears that language is the best alternative for generating plausible adaptive strategies.

**General Deep Structure Not Complex**

It might be argued that the deep-structure expert system is too weak because it does not itself constitute a complex adaptive system. This objection misses the point that the system is intended to avoid the unpredictable complexity of legal doctrine and relies on the user to monitor unpredictable developments in the social order. The general deep structure is not complex because the form of human reasoning capacity is likewise constrained.

The deep-structure expert system has the potential to become a complex adaptive system. Its potential complexity is obscured by the fact that its database continues to retain precedents regardless of later developments. As new precedents or causal claims are added, the premises of arguments will be affected, creating the possibility of positive feedbacks, lengthy reiterating arguments and chaotic results. The deep-structure expert system designer must decide whether to re-evaluate all arguments each time a potential premise is affected by an intermediate computation. The current design of the system does not, which is justified only because performance constraints generally preclude humans from working out the full implications of revising a particular belief.\(^{18}\) To what degree courts will attempt to make the deep structure coherent depends on the intellectual energy each court is willing to apply to the task. The current design assumes that in each case courts only seek local consistency and leave it to subsequent courts to deal with the deeper inconsistencies that are important enough to require additional judicial decisions.

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\(^{18}\) Harman, *Change in View*.  

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**Inability to Model Social Order**

A major shortcoming of the deep-structure expert system is that it only attempts to model the deep structure of the legal order. No attempt is made to predict changes to the social order or changes in language. However, complexity theory demonstrates that predicting such changes is impossible. It would be a flaw in the deep-structure expert system to purport to do so. Changes to the social order are accommodated to some degree by allowing changes to the causal assertions, factual assertions and goals.

However, evolution of the language and, in particular, evolution of the concepts used to express goals and assertions are serious problems for the deep-structure expert system. Change in the language is not directly accommodated in any way analogous to how changing factual and causal assertions are accommodated. The seriousness of the language problem will be directly proportional to the rate of change in language compared to the rate of change in the legal order. The deep-structure expert system will be useful to the extent the pace of change in the legal deep structure exceeds the rate of evolution of the language.

**No Model for Doctrinal Rules**

Legal doctrine is a pragmatic response to the problem of information costs. Doctrine has to finesse the gap between what is provable in court and what is capable of justification outside of institutional constraints with the benefit of time and other resources. Moreover, doctrinal rules cannot predict improvements in knowledge about social orders. As a result, doctrine functions as a collection of myth-like rules designed to efficiently regulate the bulk of contentious social problems it handles. A strength of the deep-structure expert system is that it avoids doctrinal concepts, except to the extent such concepts enter the deep structure through the social order and the language of causation. The deep-structure expert system accomplishes this by shifting the
burden of information costs onto the user, who decides whether various assertions could be proved.

At this stage of its development, the deep-structure expert system provides no link to doctrine at all. All argument is in terms of deep structure and it is left to the user to convert deep-structure arguments into doctrinal arguments. It would be useful if the deep-structure expert system could also generate argument in terms of doctrine. However, it is difficult to model the relationship between deep structure and doctrine. Doctrine is a constrained system of rules that evolves to pragmatically match the legal order’s evolving deep structure. It is not possible to fix a set of rules for creating doctrinal rules to efficiently implement the deep structure. Doctrine is a complex system that evolves as chaotically as any other complex adaptive system—doctrinal revolutions are analogous to the scientific revolutions described by Kuhn. The additional constraint on the evolution of doctrinal rules is to maintain simple, low information cost rules that still closely match the more subtle, underlying deep structure.

There are strategies for generating doctrinal argument from deep structure, even in the absence of a fully articulated theory of the relationship between doctrine and deep structure. For example, the advocate could draw on unprovable policy assertions via metaphor to manipulate the judge into intuitively favouring one interpretive canon over another. Similarly, such metaphors suggest possible factual distinctions as candidates for doctrinal amendments.

Description of Social Goals

The relationship of the deep-structure expert system to social goals is also problematic. No philosophical justification can be offered that privileges one particular description of law’s

20 This is equivalent to the problem of deriving a set of rules to deduce genotype from phenotype. Doctrinal rules are the genetic building blocks, and the effect of doctrine as a whole is the phenotype.
21 The enhanced degree of subtlety is proportional to the extent of increased budget for information costs enjoyed by the deep-structure model. Doctrine is pragmatic by channeling the worst effects of information deficiency away from the most common matters the courts encounter. In this respect, doctrine attempts to manage inaccuracy in a manner similar to discourse. The difference is that the court’s inherent institutional knowledge gap can be identified from outside the system, whereas there is no such transcendental perspective to evaluate discourse.
Evolving the Deep-Structure Model

Implicit goals over any other. The characterization of goals is purely a pragmatic attempt to formulate a conceptual system that accounts for the results of judicial outcomes and produces arguments that are empirically plausible. It will doubtless be the case that judicial outcomes are more complex than the deep-structure model. Nonetheless, it is probably the case that only by creating and testing deep-structure expert systems could additional complexities be revealed—Newtonian physics was the foundation for discovering relativity and quantum physics.

A damaging criticism of the deep-structure expert system is that the constitution of the social goals is not made transparent to the user. The deep-structure expert system would be improved if it could generate critical argument about the goal formulations. This is only accomplished indirectly through the introduction of critical causal assertions. This limitation of the deep-structure expert system is related to its general inability to deal with evolution of language.

Paratexts

The use of deep-structure expert systems can be criticized for stifling the potential variety of forms of legal argumentation. Ronald Collins and David Skover argue that the modes of expression and communication in legal process have a profound effect on the law itself. The authors predict that the introduction of electronic media will transform the appellate process in a manner similar to how shifts from orality to writing, and from writing to print, previously transformed the nature of common law.

The shift to print has had a decontextualizing effect, consistent with the general trend of modernism. In print media, facts and reasons are abridged to suit the typographic text. Rules are derived from the texts to govern future cases. Typography thus enhances the modernist values of uniformity, predictability, universality, and analytic applicability of printed commands, and at the same time, denigrates all that is personal and subjective, particular and disorganized, fluid

and open-ended.\textsuperscript{23} If the appellate courts elected to view "paratexts" (the creations of any electronic media, such as a videotape of the evidence presented at trial or a videotape of contract negotiations), it would be difficult to remain immune from contextual messages. The authors ask whether law could continue to pursue abstract principles of law once paratexts are used and conjecture that the era of paratexts would move law away from "Gutenberg jurisprudence" and closer to a "gestalt jurisprudence," which would be premised on the notion that a case could not be severed from the entirety of its context.\textsuperscript{24}

If this were indeed the trend in law it would deal a severe blow to expert systems, which are entirely rule-oriented. Deep-structure expert systems entirely lack ability to integrate perceptual analysis of videotapes into its conceptual deliberations. Presumably, the appellate judge would become like an art critic—"I know credible evidence when I see it!" An advocate would learn evidence law by viewing the tapes relied on by appellate courts. Case reporting would be utterly transformed.

The "paratexts" scenario is another form of implicitly rule-governed behaviour. We do not have to abandon language and rule-governed reasoning in order to re-contextualize appellate decision-making. Decision-making can be re-contextualized with empathy. Paratexts will be very useful in enhancing the capacity of appellate judges to empathize with marginalized subjective experiences and should be encouraged. However, enhancing the capacity to empathize serves the goal of enriching the discourse to reflect new relevancies. It would be a mistake to abandon deep structure for some form of aesthetic capacity.

\textit{Access to Expert Systems}

The final criticism of deep-structure expert systems considered here is whether the availability of expert systems would itself cause oppressive results. This question could only be resolved

\textsuperscript{23} Collins and Skover, "Paratexts," at 534.
\textsuperscript{24} Collins and Skover, "Paratexts," at 551.
through empirical inquiry, which is beyond the scope of this thesis, so the comments here are merely speculative.

Access to expert systems could become a privilege effectively restricted to dominant social groups. To the extent expert systems were an effective tool, restricted access would exacerbate power imbalances. On the other hand, the trend in computer technology has recently been in the other direction, namely, decentralization of computing power. Transferring legal expertise from the intuition of a small number of privileged experts into a more public domain would be analogous to the creation of public libraries. Even if technology remained beyond the reach of many oppressed groups, expert systems could be used to great effect by the "cadres." Indeed, Marx and Lenin spent a good deal of time in public libraries in London and Switzerland to great effect, notwithstanding much of the proletariat could not read.

Assuming, then, that deep-structure expert systems could be accessible to those who would use them in good faith, would expert systems be useful or harmful? To the extent that expert systems merely make law more efficient, they would perpetuate and entrench existing patterns of social domination. On the other hand, expert systems might increase access to legal advice for disempowered groups. Their limited resources would therefore be used more effectively. Even if this did not give them a greater direct voice in the development of the law, a deep-structure expert system would help expose the ideological elements of the particular deep structure perpetuated by the legal system. To the extent ideology was made more generally apparent, either the prospects for reasoned change would be enhanced (by undermining legitimation of power imbalances) or the manifest impossibility of rhetorical argument or negotiation would signal the need for alternative means to seek empowerment. Disempowered groups would thus waste fewer resources seeking a legal solution to their problems and pursue strategies outside the legal process.
Conclusion

It is possible to design expert systems that avert the worst ideological features of liberalism and legal positivism. It is even possible to design expert systems to assist in the formation of critical argument. It is not possible to prevent bad-faith users from ignoring the critical possibilities of expert systems—you can lead a horse to water but you can’t make it drink.

Deep-structure expert systems suffer some of the same inherent limitations as does the human intellect. Transformations in the social order are unpredictable. The deep-structure expert system accommodates such change by allowing the user to add competing factual and causal assertions of different plausibility (warrant). The deep-structure expert system does not directly accommodate conceptual changes in the discourse, and this is a serious problem that should be addressed in future work. For the time being, deep-structure expert systems are useful to the extent conceptual change is relatively slow.

Whether the availability of deep-structure expert systems will be progressive or regressive for oppressed groups is an empirical, sociological question. It is similar to asking whether the availability of better, cheaper lawyers would be beneficial. If only the powerful got them, egalitarian goals would probably suffer. If both sides got them, the subtlety of argument would be enhanced, enhancing the likelihood of more egalitarian social solutions.25

Awareness of critical argument could result in more sophisticated ideology. In response, critical studies would have to sharpen critical analysis even further. In response to this, ideology would become even more sophisticated, to which criticism would again have to respond, and so on. The result of such a predator-prey arms race should be more complex and useful social theories with which to analyze and redress social problems.

25 Adversarial relationships (including predator-prey, parasite-host, mutual competitors) tend to increase the pace of evolutionary development. See Levy, Artifical Life, at 201-202.
Concluding Observations

Classical jurisprudence has not developed useful models of legal reasoning because it begins by asking questions unrelated to the question how legal reasoning works. The presupposition in classical jurisprudence was that progress would be made by making concepts analytically clear and coherent, so that underlying conceptual and normative problems would be exposed.

The theory of complex adaptive systems shows that this approach was misguided by attempting to create clarity, certainty and precision where none was warranted. The genius of legal reasoning lay in its ability to reach decisions using poor quality knowledge and imprecision, and to steadily improve the quality of decision with the quality of institutional knowledge.

We have seen that the disease of assuming there is precision where none exists (modernism) can be cured by postmodernism. Critical thinking is the program of exposing knowledge optimism, the interests it serves, and the means it employs. But critical thinking alone does not produce social reform. Insights from complex adaptive systems must be employed in a program of constructive postmodernism.

The philosophical purpose of constructive postmodernism is to show how meaning and creativity remain important features of the human condition. The operational purpose is to show how to build bridges from ideological, modernist positions to solutions that can be seen to respect their justifiable concerns.

By demonstrating how knowledge about social orders is constructed, constructive postmodernism shows how legal reasoning can continue to progress in incremental fashion without being ideological. Computational modeling of legal reasoning will be instrumental to refining the structure of legal reasoning and facilitating exposure of the vehicles of ideology. Moreover, computational modeling will facilitate empirical verification of postmodern jurisprudence.

The theory of complex adaptive systems shows another important role for computers—simulation of social orders. The ability to simulate evolutionary processes has allowed scientists
to derive new principles of evolutionary change that they have verified by subsequent
observation of nature. Computer simulation of emerging social orders, by simulating the
interactions of rule-following agents, has potential for vastly improving the quality of our
models of social orders. This alone would permit law-makers to be much less incremental and
speed the pace of plausible social reform. Legal scholars should be especially concerned with
modeling the social orders constituting legal process.

Finally, computer simulations based on the principles of complex adaptive systems
allow one to "flight-test" variations to rules. This offers the possibility of discovering more
complex and optimal solutions to the problem of mediating the clashing fitness functions of
individual, class and various social orders.
Glossary

**Attractor**

The mathematical structure that describes the topographical properties (the geometric shape) of the nondeterministic regularity in the behaviour of a chaotic nonlinear dynamical system.

**Chaos**

*Chaos Theory*—Denotes the condition of a nonlinear dynamical system that exhibits sensitive dependence on initial conditions such that complete deterministic knowledge about the system is impossible.

*Complex Adaptive System Theory*—Denotes increasingly aggressive alteration of the elements of a nonlinear dynamical system to disrupt or vary the system’s attractor. The promotion of increased instability of a system’s attractor over time.

**Computational Model**

A computational model is a model that is specified in concepts and relationships that are capable of being simulated on a computer. The ability to simulate a model allows us to better visualize, test, vary or refine the model. Computability also implies favourable mathematical properties that suggest the logic in the model is more easily capable of existing in physical processes.

**Constructive Postmodernism**

Construction of knowledge about the world by evolution without perfect information, without perfect language, and without the possibility of perfect knowledge about reality. The study of the evolution of knowledge by complex adaptive systems.
Decadence  The state where inappropriate associations in the subconscious mind (neuroses) control an individual's behaviour but this neurotic control is disguised by rationalizations based on knowledge optimism.

Deep-Structure Expert System
A legal expert system is a computer program that a person can consult for advice on a legal issue. A legal expert system based on legal positivism programs the logic of a code of doctrinal rules (such as tax rules). A deep-structure expert system ignores doctrinal rules and analyzes legal precedents in terms of the social goals they serve. A deep-structure expert system decides legal questions by projecting the ranking of goals implicit in the precedents to the hypothetical facts being considered.

Doctrinal Rules  The express rules set out in statutes and court decisions. For example, the tax code is a set of doctrinal rules. In contract law, the rule that a contract is unenforceable unless there is consideration is a doctrinal rule.

Dynamical System
A collection of components that interact over time. The instantaneous state of such a system can be described by assigning mathematical variables to represent features of the system. The dynamics are represented by a rule for transforming the current state description into another description for another time.

Epistemology  The study of what constitutes knowledge and what can be known.
GLOSSARY

Essentialism
Belief in the possibility of a language based on knowledge optimism. A belief that studying the "essences" of concepts in a language provides knowledge about the world.

Fractal
A type of strange attractor. It generally consists of a pattern that repeats at all levels of magnification (like a coastline) and tightly packs into layers without crossing itself, thereby giving the appearance of a texture of higher dimension (like a filo pastry or croissant).

Goal-Based Reasoning
Doctrinal reasoning is the application of doctrinal rules to a set of facts to decide a legal problem. Goal-based reasoning analyzes rules in terms of their social purposes. Precedents and statutes are viewed as authoritative rankings of competing social goals in different situations. A judge using goal-based reasoning examines the causal links between a set of facts and social goals and uses the rankings implicit in legislation and precedent to decide the new case.

Ideology
The state where the need to preserve inegalitarian allocation of social power among social groups controls the construction of legal rules but this indirect control is disguised by rationalizations based on knowledge optimism.

Knowledge Optimism
The belief that all features of all systems, including nonlinear dynamical systems, can be deterministically accounted for by laws of cause and effect and deductive logic.
Knowledge Pessimism

The attitude that since a science has failed to and seems incapable of providing a microreductionist theory about a system, knowledge about the properties of the system is not possible and all attempts should be abandoned.

Liberalism

Faith that an egalitarian society will result by safeguarding self-evident individual rights through the rule of law. The rule of law assumes that government discretion can be controlled by laws that are either self-evident fundamental rights (constitutional individual rights) or reflect the will of the community (legislation). Egalitarianism is assumed to follow from the principle of equality before the law.

Microreductive Theory

A theory about a system that deterministically accounts for all properties of the system in terms of its constituent parts, precise laws of cause and effect, and deductive logic.

Modernism

A faith that the world can be, in principle, completely known or described by a unified, perspective-free theory based on clear and distinct ideas, self-evident truths and deductive logic.

Nonlinear Dynamical System

A dynamical system whose evolutionary equations are nonlinear. Intuitively, the value of certain variables are subject to positive feedbacks as the system evolves.
GLOSSARY

Order

*Chaos Theory*—A synonym for attractor. Hayek uses the term order to refer to social institutions in society, rather than the structure of society in general, and distinguishes between spontaneous orders and designed orders. Legal writers tend to refer to the entire structure of society as the social order.

*Complex Adaptive System Theory*—The promotion of increased stability of the attractor of a nonlinear dynamical system over time.

Positive Feedback

This happens when the result of a process becomes an input factor that promotes the continuation of that process.

Postmodernism

A belief that most systems in the world warrant neither knowledge optimism nor knowledge pessimism, but allow for complex adaptive systems of knowledge measurable by plausibility.

Relativism

The belief that there are no criteria to evaluate the relative worth of conflicting moral codes—everyone is free to construct their own version of truth as they please. Perspectivism claims that because language is impoverished and we can only experience the world through language, many incompatible perspectives are equally valid; however, perspectives can be evaluated in terms of one's own experience or shared experiences. Constructive postmodernism restates perspectivism in terms of complex adaptive systems. Many knowledge optimists incorrectly claim that if you do not believe there is a single universal truth, then you are a relativist.
Robust Agent A person with the capacity to acquire knowledge, make rational decisions based on that knowledge, and to implement those decisions into action.

Schema A model about the world that is implicit in an order.

Strange Attractor In a nonlinear dynamical system that loses energy, the attractor is a shape (topology) of non-integral dimension. A fractal is an example of a strange attractor.

Teleological Goal-oriented. The development or application of mechanisms as means to an end (a goal, a final cause). If the mechanism evolves because of multiple experiments which have been weeded out by reason of a final cause (such as survival), an *a posteriori* teleology is said to arise since the teleological influence is indirect. [The term "teleonomic" is sometimes used in philosophy of science and biology, but this thesis avoids this neologism as it is confusing and unduly preoccupied with responding to theological explanations of biology.] A teleological model of legal reasoning is one that emphasizes the social goals served by laws.

Topological Models Models that qualitatively describe the general behaviour of a chaotic system. The chaotic nature of such systems means that mathematical models cannot yield precise predictions, so that a graph depicting possible future states will result in a multi-dimensional geometric shape rather than a definite point. A topological model uses fuzzy concepts and probability to qualitatively describe how the shape varies as parameters of the system are changed.
GLOSSARY

Topology  The study of geometric shapes. In this thesis, the term topology will be used as a synonym for an attractor.
Bibliography


Cariani, Peter. "Emergence and Artificial Life." In *Artificial Life II*, edited by Christopher G. Langton, Charles Taylor, J. Doyne Farmer, and Steen Rasmussen, 775-797. Sante Fe
BIBLIOGRAPHY


BIBLIOGRAPHY


PROLEGOMENA TO A POSTMODERN THEORY OF LAW


BIBLIOGRAPHY

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PROLEGOMENA TO A POSTMODERN THEORY OF LAW


Cases


Smith v. Marrable (1843), 11 M&W 5; 152 E.R. 693.


Tarasoff v. The Regents of the University of California, 529 P.2d 553.
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