A TWO MODEL DESCRIPTION OF ATTITUDINAL CHOICE PROCESSES FOR SUBJECTS WITH HIGH, MEDIUM AND LOW INVOLVEMENT IN THREE SOCIAL ISSUES

by

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ABSTRACT

The research reported here used Coombs' (1964) theory of data and evidence drawn from attitude change research to construct two models which, if correct, would describe the attitudinal choice and judgmental processes of, for the first model, an uninvolved S and, for the second model, a highly involved S. Both models were dependent on two of Coombs' (1964) eight classes of data, Petrusic's (1966) findings using single stimulus response latencies and the evidence from Sherif and Hovland (1961) and Ager and Dawes (1965) that a judge's attitude will affect his judgment of favourability of alternative positions on a social issue.

The test of the models occurred when single stimulus response latencies were collected from Ss who were required to accept or reject a position and then indicate if the position was more-pro or less-pro than his ideal position on issues of high, medium, and low involvement. The accept-reject task was, according to Coombs' (1964) formulation, QIIb data and the more-pro, less-pro task was QIIa($c_{\cdot j}$) (categorization relative to an ideal point).

The data did not follow the predictions of the models for any of the four Ss used. Thus, our major hypothesis that an individual who is not involved in a social issue will judge alternative positions according to our first model (J-scale model) and that an individual who is highly involved in a social issue will judge alternative positions according to our second model (I-scale model) was rejected.

Additional classes of data collected did, however, replicate and confirm the findings of Petrusic (1966). We were able to show that

the latency data collected, whatever the attitudinal choice process involved, was reliable and orderly for each S over each issue. (Except for one S on one issue where a speed orientation was clearly shown). The orderliness of the data was shown by the ability of QIIa($c_{\cdot i}$) and QIIb inferred orderings to predict the ordering of QIa (preference ordering) data.

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CHAPTER I

INTRODUCTION

It is apparent after considerable experimental work in the area of attitude change that several relevant variables have been isolated. Research in this area has frequently proceeded in the absence of any systematic theoretical framework. Moreover, the coordinating links between the cognitive processes involved in attitude change and the type of data utilized to study these processes have rarely been specified. In particular, much of the research in this area has utilized a particular scaling technique - usually a rating scale. Whether the empirical regularities present in this research remain invariant under alternative scaling techniques and alternative response measures is an open question.

The purposes of this study are two-fold. The first is to investigate in an exploratory manner the feasibility of utilizing alternative scaling techniques as well as alternative response measures in attitudinal choice research. The second is to utilize response latency and to process this response measure according to the scaling methods provided in Coombs' (1964) Theory of Data, in order to specify the role of involvement in attitudinal choice processes.

In order to provide some historical background for this problem we will first briefly review the studies which have demonstrated that "ego-involvement" is a relevant variable in attitude change. Since how we utilize response latency data depends on how we conceptualize the data generated by a subject in an attitudinal choice study, we will next briefly review the main features of Coombs' (1964) Theory of Data. Finally, we will present two models which define ego-

involvement in terms of basic choice processes and show how latency data can be utilized to test these models.

1. ATTITUDE CHANGE AND INVOLVEMENT: AN OVERVIEW

The concern show by several researchers (Hovland, Harvey, and Sherif, 1957; Freedman, 1964; Sherif and Nebergall, 1965; Ager and Dawes, 1965) over the issue of involvement has grown from a great deal of research basically concerned with attitude change.

Hovland and Pritzker (1957) conducted a study on the extent of opinion change as a function of the amount of change advocated. The aim of the authors was to determine how much opinion change could actually be produced by communications that were slightly, moderately, or markedly different from the audience's original position.

The authors found that their studies supported their contention that there will be greater change the greater the amount of change advocated, but it should be noted that there was smaller relative change the greater the amount of change advocated. It was also found that the number of boomerang responses, that is responses in the direction opposite to the communication, was approximately the same for each condition.

In this study, the 12 topics used were not issues which involved deep seated beliefs or attitudes and could not be considered "ego-involving". It was also found that the relative amount of change produced becomes less the more change advocated. This suggests that there will be some cut-off point beyond which no matter how much change is advocated, there will be no change in opinion.

Hovland, Harvey and Sherif (1957) felt that one of the most important variables in attitude change was ego-involvement. In order

to ensure involvement, the issue chosen was the controversy over prohibition and repeal in a "dry" state. The subjects were carefully chosen so as to fall into one of three groups; those strongly in favour of repeal, those strongly against repeal and those holding middle-of-the-road positions.

Three equal and paralled communications were prepared, one representing the extreme dry stand, one the extreme wet stand and one a moderately wet stand.

The researchers found a very close relationship between the subject's own stand and the evaluation of the communciation along the dimensions of liking and fairness. The communciations advocating extreme stands have their peak of favourable responses among subjects having extreme positions.

It was also found that subjects with more extreme positions were likely to reject positions opposed to thier own.

Freedman (1964) noted that the relationship between discrepancy and change is non-monotonic, with maximum change occuring at moderate levels of discrepancy. Freedman hypothesized that the non-monotonic relationship between discrepancy and change would hold regardless of the degree of involvement in the initial position. Involvement would, however, be an important determinant of the level of discrepancy at which maximum change occurs.

Freedman chose a concept formation task as the issue. Subjects had no initial position on the issue and were manipulated so as to have high or low involvement. Freeedman found that with low involvement attitude change was monotonic with all levels of discrepancy tested, but with high involvement attitude change was non-monotonic with

increases in discrepancy.

Sherif and Hovland (1961) pointed out that Thurstone's scaling assumption that a judge's own attitude will not affect his ratings of favourability of other positions on the same issue is incorrect. As Ager and Dawes (1965) point out, this assumption is in direct contradiction to the well accepted assertion that perception is influenced by the attitude of the perceiver.

From this it follows that,

> Rating of favourability of attitude is a subdomain of rating of attitude, which is a subdomain of perception of attitude. And if perception is influenced by the attitude of the perceiver it would be odd if a narrow subdomain of perception were not. (Ager, J.W. and Dawes, R.M., 1965, p. 533)

Sherif and Nebergall (1965) extended the Hovland studies that were centered around the assimilation-contrast and ego-involvement issue. In their book, the authors state that an individual's reactions to attitude related items are products of an underlying judgemental process in which the person's attitudes operate as a determining influence. In other words, the acceptable and objectionable positions on some issue form the individual's reference scale for judging specific statements, objects and events on the same issue. Thus, according to the authors, the individuals carry around in their heads sets of definable, acceptable and objectionable positions on any issue. Moreoever, the more involved an individual is in the issue, the more restricted the reference scale for evaluation will be; that is, the more involved the person is, the more restrictive he will be as to the positions which are acceptable. When a person is faced with some position on an issue, the position is evaluated in terms of the

reference scale the person is carrying around with him.

In most of the studies to date the various positions on some issue have been evaluated by independent judges along a semantic continuum. This continuum is constructed such that at one extreme the semantic meaning of the statement is more pro than any other statement on that issue. The next position along the continuum would be the next most pro statement and so on, down to the statement which is most strongly against the issue. Since the subject's own position affects how he perceives and judges the alternatives on this continuum there is no guarantee that he sees them as having the same spacing or as being in the same order as the judges who rated them.

Sherif and Hovland (1965) have shown that a highly involved individual views alternative positions as being much further removed from his own particular position than is actually the case. The non-involved individual does not displace alternative positions since his perception of the alternatives is not influenced by a well established attitude towards the issue.

Sherif and Hovland (1961) and Sherif and Nebergall (1965) have both shown that the number of alternatives acceptable to an individual (his latitude of acceptance) is very much the same regardless of whether the individual is involved or not-involved in the issue. They say, however, that the number of alternatives which are neither acceptable nor unacceptable to an individual (his latitude of non-commitments) is higher for non-involved than for involved individuals. Since the involved individual is non-committal on very few of the alternatives then the number of positions he rejects (his latitude of rejection) is greater than the non-involved individual's. The authors have thus

concluded that the latitude of rejection is the best single indicator of involvement.

It should be noted, however, that the latitude of non-commitment was not obtained by asking the indvidual on how many of the alternatives he preferred to remain uncommitted. Rather, the latitude was obtained by determining which alternatives were left over after the individual had indicated which positions were acceptable or unacceptable. As we have stated, the involved individual with a clearly defined position tends to view alternative positions as being further removed from his own position than is actually the case. To go one step further, we could suggest that since the alternative positions are displaced, then what the individual has done is to categorize these alternatives together. Thus, when asked which positions are acceptable and which are unacceptable, the individual has no real discrimination to make. He simply has to know in which category the alternatives belong. It is, therefore, unlikely that the individual will be uncommitted on any of the alternatives. On the other hand, the non-inolved individual can clearly distinguish between the various alternatives but is not <u>forced</u> to make a decision as to the acceptability or unacceptability of <u>each</u> of the alternatives. This results in the individual accepting certain alternatives and rejecting only those alternatives which are clearly far removed from his own psoition. Rather than being non-committal on the remaining alternatives (in the sense that he really cannot decide whether to accept or reject them) it is much more likely that the individual simply has not bothered to make a decision. Since the non-involved individual is capable of making discriminations between alternatives we would predict that, if forced to make a decision, he

would reject virtually all of the "non-committed" alternatives. This prediction is made on the assumption that acceptance of anymore than two or three positions would be nonsensical since the individual would be accepting positions (i.e. the two extremes of his latitudes of acceptance) which he can see are divergent to the point of being opposites.

Ager and Dawes (1965) have provided further support for these predictions. They found, in studying the affects of judges' attitudes on judgement, a tendency for individuals with extreme positions to see alternate positions in terms of black and white and that this judgmental process is different than may be expected. They suggest that, that for example,

> When the right-winger says that he sees no difference among the varieties of left-wingers, this implies an inability to discriminate among them over and above a preference for categorizing them together. (Ager,J.W., and Dawes, R.M., 1965, p.535)

It would seem, in light of these criticisms, that a more thorough investigation, within the bounds of a clearly defined theoretical framework, should be undertaken to determine what are the underlying processes of involvement. Coombs' (1964) theory of data provided the basis for the present interpretation of involvement and the essentials of this theory will be reviewed next.

II. THEORY OF DATA: AN OVERVIEW

Coombs (1964) has suggested that there are different psychological processes used by an individual to evaluate different types of stimuli and he has gone on to categorize both the stimuli and the processes.

The Theory of Data, an abstract classification system of the variety of measurement models, is based on the axiom:

i) a relation exists on a pair of points (a dyad or on a pair of dyads);

ii) the elements of a pair of points are from two distinct sets or from one set; and

iii) the relation is either an order relation (>) or a proximity relation (0).

From the above axiom eight classes of data follow. These eight classes are indicated in Figure 1.1 below.

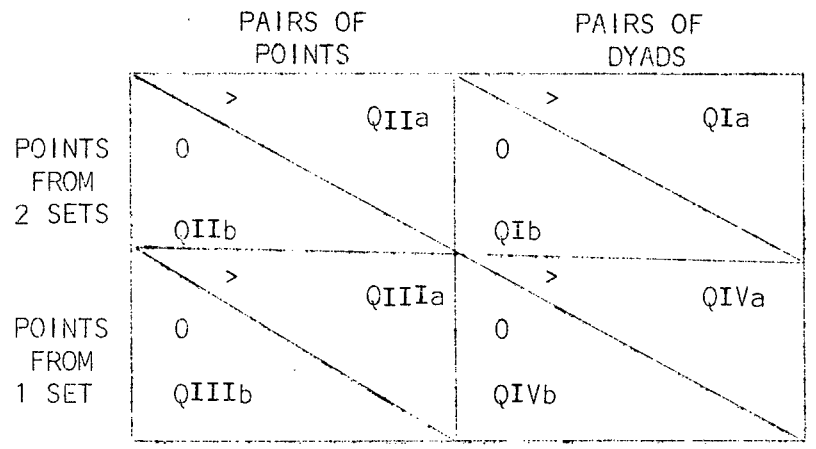


Figure 1.1. The eight classes of data in Coombs' Theory of Data.

As can be seen there are eight octants, or four quadrants - each quadrant consisting of two subquadrants - as determined by the order-proximity dichotomy.

The typical observations (behavioral referents) associated with each quadrant are given in Figure 1.2.

Single Stimulus Data or Individual - Stimulus Comparison	Preferential Choice Data or Individual - Stimulus Differences Comparison
Stimulus Comparison Data	Similarities Data or Stimulus - Differences Comparison

Figure 1.2. Behavioral referents of each quadrant.

Coombs (1964) has suggested that underlying the data of each quadrant there may exist a corresponding psychological process. He has ventured that these may be preferential choice, detection, discrimination, and similarity judgment behavior for QI, QII, QIII and QIV respectively.

In this study, the classes of data in which we are primarily interested are QIa, QIIa, QIIa($c_{\cdot i}$), QIIb, and QIIIa. We are first interested in using single stimulus response latency (SSRL) to obtain QIIa data that will give a preference ordering of stimuli. In this instance, the stimuli are complex social issues. A high correlation between QIIa data and QIIIa data (obtained by having the subject rank order the same stimuli) would be strong support for the accuracy of the QIIIa rank ordering. QIIa($c_{\cdot i}$) data (stimulus categorization relative to some ideal point) is obtained by taking the response latency of the subject when he is asked to use some internal reference point (his ideal point) against which to make judgments about alternatives on a pro-con dimension. QIIb data is obtained by taking the subject's

response latency when he is asked to either accept or reject the various stimuli. Finally, we are interested in obtaining QIa data, this time a rank ordering of stimulus scales that will act as a check on how sensitive the QIIa($c_{\cdot i}$) and QIIb data are to the subject's ideal point on a social issue.

The data of quadrant QII yield what are called joint spaces (J-scales) since two distinct sets of points are involved. Usually, these sets involve individuals and stimuli. Figure 1.3 below illustrates a typical J-scale.

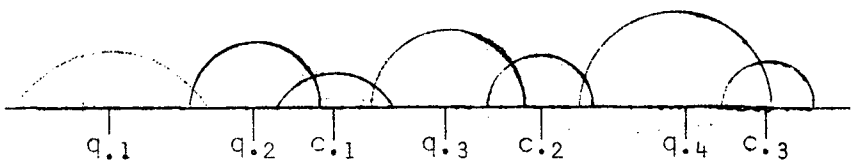


Figure 1.3. A typical J-scale.

In QIIa, for example, suppose the $q_{\cdot j}$ values represent the mean value on a pro-con continuum of the j^{th} statement of opinion about some particular issue. Each stimulus may be perceived differently at different moments in time for each individual. This is captured by assuming each stimulus has a probability distribution about its mean value. Each individual can be characterized by a $c_{\cdot i}$ on the continuum which indicated his "ideal point", or position. This point also has a distribution about its mean value reflecting momentary fluctuation in the individual's position on different occasions.

The typical observation in QIIb with which we are concerned is

the SSRL of an individual's decision to accept or reject a stimulus, for example, whether he agrees or disagrees with a statement of opinion; whether he would buy a particular car or not. We assume that those stimuli he accepts are preferred over those he rejects, so the problem that remains is to use the latency of choice to order his preferences within each of these two classes.

Coombs' (1964) model for choice on a unidimensional continuum is given essentially by the following:

i) let $c_i \in Q$ denote an ideal point and $q_j \in Q$ a stimulus point which are points on a common dimension called a J-scale.

ii) Assume a symmetric ε-region on the J-scale or a single region on the I-scale (folded J-scale) and a choice rule of the form

whenever $|c_{hi} - q_{hij}| \leq \varepsilon_{hi}$ accept stimulus j

whenever $|c_{hi} - q_{hij}| > \varepsilon_{hi}$ recect stimulus j

This model is illustrated in Figure 1.4.

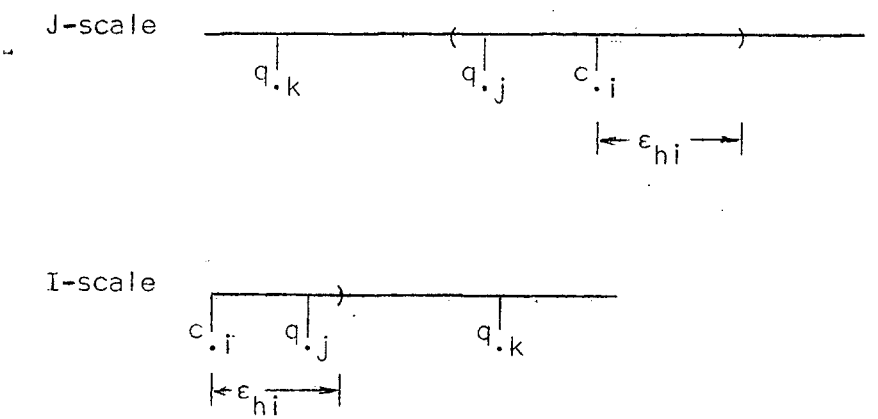


Figure 1.4. Illustrating J and I-scales accept-reject regions.

Stimuli such as j, within a distance ε_{hi} are accepted and those beyond, such as k are rejected. So ε_{hi} defines a category boundary on

the I-scale between an "accept" region and a "reject" region.

In our model for latency of accept-reject data we shall assume that the critical reference point is the ε-boundary between accept and reject regions on the I-scale, and that latency will be a montone decreasing function with absolute distance from that point (Petrusic, 1966).

In QIIa data we are dealing with order relations on a pair of points in which each point is an element of a distinct set. Tasks requiring a subject to indicate if a given line is a "long" line or not, whether a particular statement of opinion expresses a "pro" or "con" attitude, or whether the subject is "involved" or "not involved" in a particular issue are illustrative of such data. In these cases there is no explicit stimulus difference to consider, but an implicit directional judgement is involved.

In QIIa, according to the formulation of the Theory of Data, the individual's ideal point, c_{hij}, serves as a category boundary. Such data have been denoted QIIa($c_{.j}$). A task such as "is this statement more or less pro than your own position?", is illustrative of QIIa($c_{.j}$) data.

Neither Coombs' QIIb choice model nor Sherif and Nebergall's latitude of acceptance models (they are formally identical) specify the sub-processes involved in making accept-reject choices. It is the principle hypothesis of this paper that the key to understanding the nature of ego-involvement lies in the articulation of sub-processes involved in accept-reject choice behavior. We now present two exploratory models which specify these sub-processes in some detail. These models were initially present by Petrusic (1966) and are single stimulus

analogues of Greenberg's (1961) two stage laterality model for QIa paired comparison choices.

J-Scale Model

In this model the first stage involves a QIIa($c_{\cdot i}$) judgement and the final stage is based on a QIIb proximity relation. These stages and their implications for latency of choices are given below.

Stage 1: Laterality Judgement.

In this stage the individual determines implicitly (or even perhaps explicitly) whether a given stimulus j has more or less of the attribute underlying his preferences than his ideal point has. That is, a laterality judgement is made: is the stimulus right or left of the ideal point. Let $L_{QIIb}(j,c_i)$ denote the latency of this judgement.

Stage 2: Accept-Reject Categorization.

This stage involves comparing the difference obtained from the first stage with the relevant category boundary. If, for example, the stimulus is judged as "more pro than me", then the final stage involves the judgement "is it too pro?". Let $L_{QIIb}(j,c_i,\varepsilon_i)$ denote the latency of this judgement.

The total latency to stimulus j is given by (assuming a sequential process):

$$L_{QIIb}(j) = L(j,c_i) + L(j,c_i;\varepsilon_i) + RT$$

(where RT denotes the reaction time and motor execution components of the total latency). Thus, in the two stage model, time is taken, so to speak, to fold the J-scale, and form the I-scale. This time to fold is a partial component of the total time taken to accept or reject a

single alternative. We now consider an alternative model.

I-Scale Model

In this model we are dealing with a process where the J-scale is no longer behaviorally relevant and all choices are made on the I-scale. Thus, relative to the J-scale model, the I-scale model involves only Stage 2 of the two stage J-scale model in that only the final proximity relation is involved. We denote the latency of this response by $L_{QIIb}(j,c_i,\varepsilon_i)$.

In summary, the J-scale model involves a judgement based on an order relation which precedes the final categorization based on a proximity relation.

From the foregoing discussion it would seem possible that we may be able to utilize both the J-scale model and the I-scale model in differentiating between involved and non-involved individuals on certain social issues. Petrusic (1966) has shown that when a social issue (college fraternities) provided the stimuli, three of ten subjects best fitted an I-scale model and seven best fitted a J-scale model. However, when subjects were asked to make judgements about isosceles triangles, all of the subjects were better fitted by the J-scale model. As Petrusic (1966) points out,

> It may be the case that, initially, during the acquisition and consolidation of preferential choice orderings in a given domain, the two stage model is appropriate. Since in this stage the greater flexibility on the J-scale (relative to I-scale) may be essential in evaluating and assimilating communications from a variety of sources, say in social context. Once, however, a stable preference ordering is consolidated, then the J-scale and its 'superfluos' information are no longer relevant. Contiguous with the consolidttion process, an

> information reduction process ocurrs and this is manifested in the I-scale process. (Petrusic, W.M., 1966, p.33)

Thus, on any social issue there are two possible ways in which the individual may view the issue. The first is that all of the possible alternatives on the issue are seen by the individual as having some position on a continuum. The continuum would range from pro to con with alternative positions and the individual's own position between the extremes. This is the J-scale model.

The second possibility is that the individual views all other positions in relation to his own position on the issue. The individual operates on the I-scale model. It is obvious that on this scale the individual is easily able to differentiate between what he accepts or rejects. There is, however, no reference on this scale to whether the alternative positions are more-pro or less-pro than the individual's own position. In other words, most of the alternatives, whether pro or con, are lumped together into a single rejection category.

It was noted earlier that Ager and Dawes (1965) were able to show that ratings of favourability of alternative positions are affected by the judge's attitude. They also said that individuals with extreme positions tend to see alternatives in terms of black and white, i.e. he fails to see differences between alternative positions and simply categorizes them together. If we were to go one step farther we could state that this process is a function of the amount of involvement rather than extremity of position.

From this argument it would seem clear that those who are highly involved would use an I-scale as their frame of reference. In other words, they accept certain positions and reject all others without

regard for the pro-ness or con-ness of the alternatives. The non-involved person, however would use a J-scale. As mentioned previously, the J-scale model is a two stage process. When asked to evaluate any statement the "J-scaler" must first see where this statement falls on the continuum (its pro-ness or con-ness) before he can perform the second step of accepting or rejecting the statement. The "I-scaler", on the other hand, can tell us very quickly whether he accepts or rejects a statement but finds it much more difficult to tell us whether it is more-pro or less-pro than his own position. Before he can do this he has to unfold his I-scale so that he can view the entire continuum.

We should point out that the essential distinction between I and J-scale models is whether or not an order judgement (QIIa) precedes the proximity categorization (QIIb). It may well be the case that the specific form of the I and J-scale models proposed by Petrusic (1966) for single stimulus choice data is incorrect. If this is the case then our hypotheses concerning involvement are incorrect. However, as was pointed out earlier, we wish to determine whether response latency for complex social issues would yield orderly data, and the correctness or incorrectness of the specific form of the model is perhaps of secondary importance.

However, assuming that these models reflect the actual processes which are occ ring, then we would expect findings similar, for the J-scaler, to those shown in Figure I.5.

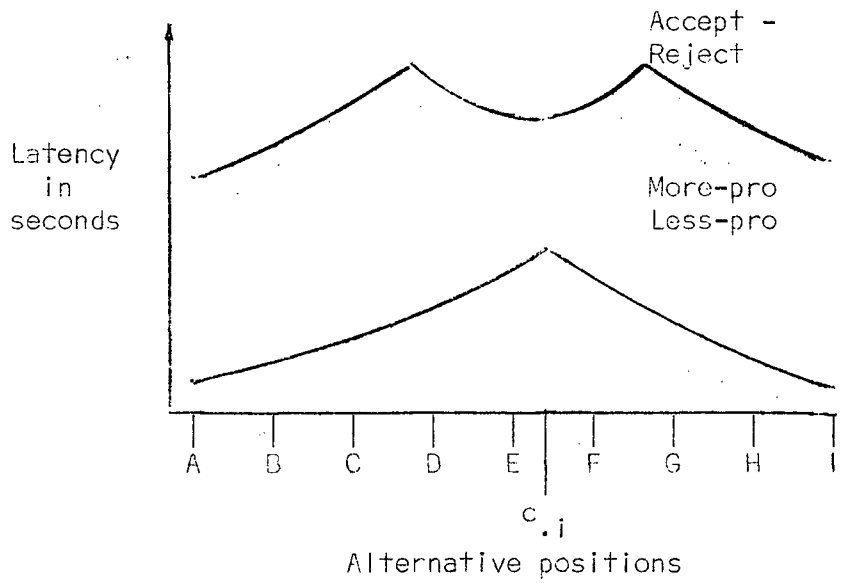


Figure 1.5. Latencies for a J-scaler when asked (1) if any statement is more-pro or less-pro than his own most preferred position ($c_{.i}$) and (2) if he accepts or rejects the various statements.

The I-scaler, according to the hypothesis would show markedly different results, as shown in Figure 1.6.

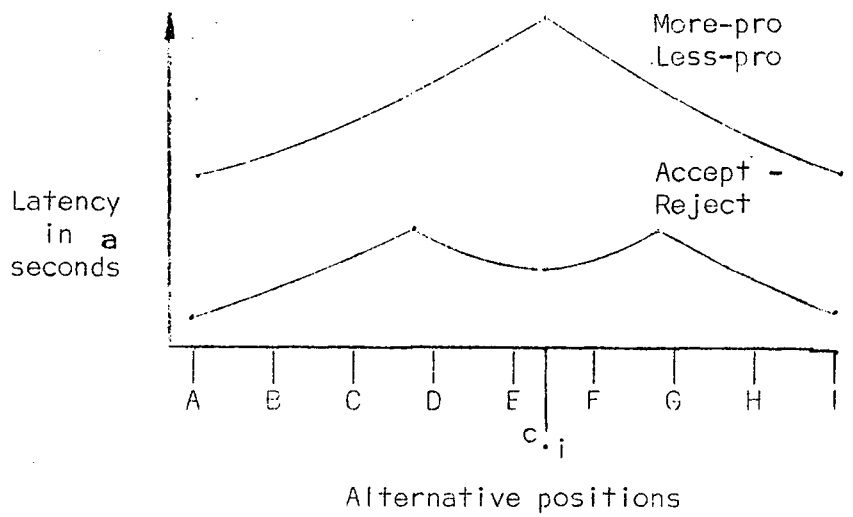


Figure 1.6. Latencies for an I-scaler when asked (1) if

any statement is more-pro or less-pro than his own most preferred position ($c_{.i}$) and (2) if he accepts or rejects the various statements.

The curves of Figures 1.5 and 1.6 provide us with what appears to be a possible means of easily distinguishing between J-scalers and I-scalers, and thus between low and high involvement.

It also follows, however, that individuals will vary in the degree of involvement they have for various issues. In other words, involvement is viewed as ranging along a continuum with the non-involved J-scaler at one extreme and the highly involved I-scaler at the other. Intermediate points along the continuum would be represented by the partial folding of a J-scale as shown in Figure 1.7.

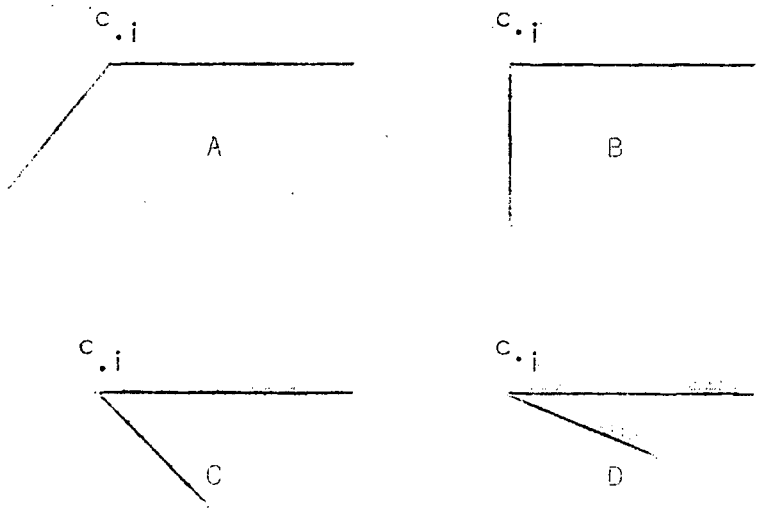


Figure 1.7. Partial folding of J-scales around the ideal point ($c_{.i}$), representing increasing involvement from A to D.

Specifically, the hypotheses tested in this study were:

1. The individual who is highly involved in any social issue will judge alternative positions on that issue differently than the individual who is not involved. That is, the involved person will operate on an I-scale and the uninvolved person will operate on a J-scale.

2. It is possible to differentiate between individuals as to the amount of involvement each individual has for any given social issue in terms of Coombs' unfolding theory and single stimulus response latency.

3. Given an individual who is highly involved in one issue, has medium involvement for a second, and no involvement in a third, there will be no significant difference in:

   i) the size of his latitudes of acceptance between each issue, and

   ii) the size of his latitudes of rejection between each issue, provided that the subject is forced to make a choice between acceptance or rejection of all the alternative positions on these issues.

CHAPTER II

EXPERIMENTAL METHOD

SUBJECTS

Two male and two female subjects (Ss) were used in this experiment. Each S was an undergraduate student enrolled in an introductory psychology course.

STIMULI

1. Social Issues

In order to test the hypotheses previously proposed it was necessary to ensure that we obtained social issues in which the Ss had high and low involvement. This was done by choosing twenty issues. It was hoped that these spanned a sufficiently wide range, such that they varied from high social importance to inconsequential and trivial matters. The twenty issues chosen were:

1. Construct more high-rise apartments
2. The war in Viet Nam
3. Automation
4. Free education
5. American investment in Canada
6. Birth control
7. Admit Red China to the U.N.
8. Nuclear disarmament
9. Withdrawal of Canada from NATO
10. Medicare
11. Free public transit system
12. More control of organized labour
13. Fluoridation of water
14. Liberal liquor laws
15. City redevelopment
16. Increased trade with Britain
17. College fraternities
18. Increasing the driving age to 18 years
19. Artificial insemination of women
20. Longer quarantine for animals imported into Canada

In the first part of the experiment the above twenty issues were used. Each issue was printed on a slide that could be projected onto

a white screen. The printing on each slide was in white letters on a black background. The printing on each slide was of the same size.

2. Single Stimulus Scales

In the second part of the experiment it was necessary to provide stimuli which described different positions that could be attributed to any particular issue. The type of stimulus scale indicating a particular position (in this case slightly in favour of the issue) is shown in Figure 2.1. Nine such scales were

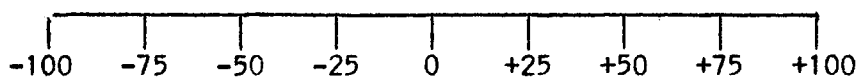


Figure 2.1. Single stimulus scale

constructed, each scale indicating a different position on the issue. The positions ranged from +100 (maximally in favour of the issue) to -100 (maximally against the issue). Each of the nine scales were prepared on slides with white printing on a black background.

MATERIALS AND APPARATUS

Three sets of the twenty social issues were prepared on slides, as were three sets of the nine stimulus scales. All xhe slides were projected on a Pradovit n22 projector. Each S was provided with a response box consisting of two buttons so spaced as to require minimal movement to operate. In the first part of the experiment (using the social issues) the right hand button was labelled "involved" and the

left hand button "not-involved". In the second part of the experiment (using the stimulus scales) the right and left buttons were labelled "accept" and "reject" or "more-pro" and "less-pro" depending on the task.

The experimenter (E) controlled the rate of presentation of the stimuli by means of a control box consisting of one button and two lights. The button was used to present the stimuli to the S and the lights indicated which of the two response buttons the S used when he responded.

The response latency was measured by a Beckman 5230 EPUT timer which recorded latencies to the nearest one hundredth of a second. An electric-eye started the timer as soon as the slide was flashed on the screen and the timer was stopped as soon as the S pressed either of the buttons. E recorded S's response and its latency.

EXPERIMENTAL DESIGN

The Experiment was conducted over a series of seven hourly sessions for all four Ss. Two additional sessions were held for two of the Ss. Each session was separated from the next by at least 48 hours.

The experiment was divided into two main parts. Part one was composed of session one, two and the beginning of session three and was devoted to obtaining the three social issues used in the second part of the experiment. The decision as to which issues were to be used was not made until the beginning of the third session when the second replication of the QIa data was obtained. Part two of the experiment was composed of the latter part of session three plus all remaining sessions.

The tasks undertaken, the type of data collect, and, where important, the order in which the data was collected in each session are listed below. Unless otherwise stated, one replication of the QIIa($c_{\cdot i}$) and QIIb tasks refers to one replication of each of the social issues.

Part I

Session 1: Recognition task (reduction of reading time differential for the twenty social issues).

Session 2: Recognition task repeated (three replications), QIIa data and QIIIa data.

Session 3: QIIIa data.

Part II

Session 3: QIIa($c_{\cdot i}$) data and QIIb data.

Session 4. QIIIa data, QIIa($c_{\cdot i}$) data and QIIb data.

Session 5. QIIa($c_{\cdot i}$) data and QIIb data.

Session 6. QIIa($c_{\cdot i}$) data and QIIb data.

Session 7. QIIa($c_{\cdot i}$) data and QIIb data.

The remaining sessions involved only two Ss.

Session 8. QIIa($c_{\cdot i}$) data (three replications), QIIb data (three replications) and QIa data (rank order preferences for the stimulus scales).

Session 9: QIa data, QIIa($c_{\cdot i}$) data (three replications), QIIb data (three replications) and a repeat of QIa data

PROCEDURE

Part 1

Preliminary Instructions

Upon entering the experimental room the S was seated and the following instructions were read to him:

> Let me read you the instructions so that we can be sure that everyone will have the same instructions.
>
> We are interested in how individuals react to a variety of objects. Let me say at the outset that in this study we are not interested in any way in trying to evaluate you or your performance. One of the main purposes of this study is to learn something about the nature and the inter-relations of various methods of studying choices. The actual choices themselves that you make are only of secondary importance to us: we are much more concerned with trying to discover the processes that underly choice behavior. So relax as much as possible: we are not trying to "psych you out".....

The S was then introduced to the twenty social issues which were used in this experiment. The instructions were:

> During the course of this experiment we will be asking you to complete various tasks. I will explain each of the tasks as we come to it. Before we begin, however, we want you to be very familiar with all of the alternatives we will be asking you to make choices about. Thus, I am going to show you all of the alternatives on slides one at a time.

The twenty issues were then presented to the S and he was required to read each issue aloud to E. Since the issues were statements of different length it was deemed necessary to train each S so that he would recognize each issue the moment it was flashed on the screen. In order to do this, the S was first familiarized with the apparatus. He was instructed as to how the apparatus worked and was shown how to operate the response box. The Ss were told to use the right hand to

operate the right hand button and the left hand for the left hand button.

In order to reduce the reading time differential and to give the S practice in the use of the equipment, he was told:

> OK, to acquaint you with this (the apparatus and the procedure) we will do a simple recognition task. I will show you each of the slides, one at a time. As soon as you recognize the statement on the first slide I want you to press the button as quickly as possible. For the first set of slides use your right hand to press the button on the right. On the next set use your left hand to operate the button on the left. I will tell you when to change hands. The slide will remain on the screen until you press one of the buttons.
>
> I will say "ready", as a signal to you when the next slide is to appear. After a few trials you should be able to recognize each statement as soon as it is flashed on the screen. Any questions? Ready.

Three sets of twenty issues were used, each set representing one replication. The issues were randomly ordered in each set, and the three sets were randomly ordered over six replications.

Task Instructions

Exhaustive instructions were given for each task. The S was fully instructed as to the nature of the task and its purpose. Instructions were provided coordinating the response box bu tons with the task and stimuli. The instructions were intended to establish accuracy in the decision component of the total response latency and a speed orientation in the response execution portion of the response latency.

Single Stimulus: QIIa (Involvement Categorization)

The second session was begun by having the S repeat the recognition task for three replications. This was done to ensure that the

S reached the same level of responding as evidenced in the first session.

The recognition task was followed by the QIIa single stimulus task. The general instructions were as follows;

> As you can see I have labelled both buttons. The button on the right is labelled "involved" and the button on the left "not-involved". OK, now let me explain what we mean by involvement.
>
> There are some social issues about which some people feel very strongly. For example, an artist may have very strong feelings and opinions about abstract art. He may feel that abstract art is the only true form of art and that everything else is a waste of time. Another artist may be very much opposed to abstract art and class it as trash. Both of these people are highly involved, one having positive involvement and the other negative. A brick-layer, however, may be completely indifferent to abstract art, not caring about it one way or the other. And there are, of course, positions which vary all the way from complete indifference to very high involvement.

The S was next told what his task was to be and how he was to operate the response box.

> I am again going to show you the issues we used the last day and if you are involved in a particular issue I want you to push the button on the right. If you are not involved in the issue then push the button on the left. Do not feel that you must indicate involvement for issues which are currently popular if you, yourself, are not involved in that issue. We simply want you to indicate which issues you are involved in or not involved in at the present time.

Once this task was completed (three replications) the S was asked to rank order the issues (QIIIa data). The ordering was to be from involved to not involved.

> Here are twenty cards. On each card is written one of the issues with which you have become familiar. I want you to arrange these cards so that on the extreme left you have the issues in which you are least interested. On the extreme right place the issue in which you are the most involved. Range the rest of the cards between these two extremes so that they increase from least interest to most

involvement. Indicate at which point you would divide the cards into the involved and non-involved sides. Any questions?

Thus, two independent rank orderings of the issues, along an involvment dimension, were obtained. SSRL was used to obtain the QIIa data that provided us with a preference ordering of the twenty social issues. This preference ordering was independent of the rank ordering obtained from the QIIIa task. Three replications of both QIIa and QIIIa tasks were collected. To ensure independence between orderings, the QIIIa data was collected only after all of the replications of the QIIa task had been completed. Thus, QIIIa data was collected at the end of the second session and at the beginning of the third and fourth sessions. It was necessary to use two independent and unrelated methods of obtaining the same data in order to assess whether or not the QIIIa rank ordering actually did reflect varying degrees of involvement in the issues. A high correlation between the QIIa preference ordering and the QIIIa rank ordering would be strong support for the accuracy of the QIIIa data.

After the second replication of the QIIIa task, three issues were chosen from the QIIIa data of each S. The issues were ones for which the S had high, medium, and low involvement. The high involvement issue was that issue ranked below all others. Since the issues were divided into two categories the division point being the category boundary, the involving issue next to the category boundary was chosen to represent the medium involvement issue. Thus, the issues could, and in fact did, differ for each of the Ss.

Part 2

In this part of the experiment, each S was thoroughly trained using a dummy issue and the single stimulus scales to ensure that they were fully acquainted with their tasks.

Single Stimulus: QIIa($c_{\cdot i}$) (Categorization relative to ideal point)

For this task the S was first familiarized with the single stimulus scales, what his task was to be, and how he was to operate the response box. To ensure that the S was fully acquainted with the task and that he would have sufficient warm up he was asked to first complete the task using a dummy issue. The instructions were as follows:

> Now we are ready for the next task. For this task you will have noticed that I have labelled the two buttons again. The right hand button is labelled "more-pro" and the left hand button is labelled "less-pro". Now, referring back to the issue of abstract art - you probably have some stand on this particular issue. Any position indicated by an arrow on the slide can be more in favour of the issue than you are, in other words more-pro, or it can be less in favour or less-pro than you are. In relation to the issue of abstract art I want you to look at each slide that I show you and decide whether the position indicated on the slide is more-pro or less-pro than your own position. If the position is more-pro then press the right hand buttonand if it is less-pro then press the left hand button.
>
> You should also note that in each case you must make a decision. Take as much time as you wish and try to be as accurate as possible. Once you decide then press the button immediately.

Once the S had completed the task he was introduced to the actual issues that were to be used. The instructions were:

> Now we are going to do the same task, only this time we will be using different issues. In relation to the issue of (the actual issue was inserted here) I want you to look at each slide that I show you and decide whether the position indicated on the slide is more-pro or less-pro than

> your own most preferred position. If the position is more-pro then press the right hand button and if it is less-pro then press the left hand button. Take as much time as you wish and try to be as accurate as possible. Once you decide then press the button immediately.

The S was then asked to complete the single stimulus QIIb task using the same issue. The issue was changed on completion of bpth tasks such that there was one replication for both tasks on each issue.

Single Stimulus: QIIb (Accept Reject)

The instructions for this task were the same as for the $QIIa(c_{\cdot i})$ task except that the S was required to indicate whether he accepted or rejected each of the positions on the single stimulus scales.

In the second part of the experiment, except for sessions 8 and 9, one replication was obtained from each of the issues on the $QIIa(c_{\cdot i})$ and QIIb tasks during each session. The issues were randomly ordered for each task. To ensure that there were no order effects, the $QIIa(c_{\cdot i})$ and QIIb tasks were interchanged both within and between Ss over all sessions. Independence between replications was controlled to some extent by spacing the sessions two days apart.

Sessions Eight and Nine: Additional Data

Two Ss received an extra two sessions which followed a slightly different procedure than the earlier sessions. In the eighth and ninth session, instead of using one issue at a time, the three issues were combined. Any single issue had nine stimulus scales associated with it. However, combining the three issues results in a block of 27 stimulus scales. If we ask the S to evaluate the first scale of

the block on one issue, the next scale on the second issue, and the next scale on the third issue, we can obtain a replication from all three issues at once. By using this method, we were able to obtain three replications for each of the tasks during one session and still have a measure of independence between replications. The independence arises from the fact that there is intervening activity between any two evaluations on the same issue and from alternating the tasks and changing the ordering of the issues and the stimulus scales within a block. The instructions for the final two sessions were:

> Let me first explain how we will proceed from this point on. Before any slide is presented I will tell you which of the three issues we are considering. Your task is to indicate whether the position on the slide is more-pro or less-pro than your own most preferred position in regard to the particular issue we are considering at the time. The order in which the issues are presented will be kept constant. In order to eliminate any possible confusion I will also tell you before each slide which issue we are considering. The order of the issues is "..............".
>
> Remember press the button on the right for more-pro and the button on the left for less-pro. Take as long as you wish try to be as accurate as possible. Once you decide then press the button immediately. I will say "ready" immediately before I present the slide. Any questions? Ready.

The same instructions were given for the QIIb task except that the Ss were required to indicate whether the position was acceptable or unacceptable to them.

Rank Order Preferences: QIa

The indication of the ideal point (i.e. rank orderings of preferences of the single stimulus scales for each issue) was obtained only with the two Ss receiving the extra two sessions. The other

two Ss were not available for further study.

The rank order preferences were collected in order to determine how sensitive the response latency data from the QIIa($c_{.i}$) and QIIb was in indicating the S's ideal point on each issue.

To obtain the rank order preferences the Ss were told:

> Here are nine cards. Each card has the scale you are familiar with printed on it. I want you to range these cards starting with the card the position on which best indicates your own most preferred position. The next card in the ranking should be the one which next best indicates your position and so on down to the last card. Indicate at what position you would divide the cards into acceptable and unacceptable positions. Do this first for the issue of ".....".

Three replications of the QIa data were obtained from each S replications were made at the end of the first extra session and at the beginning and end of the last extra session.

CHAPTER III

RESULTS

In keeping with the experimental procedure, the results have been divided into two parts. Part one is a test of how closely the Q111a rank ordering matches the Q11a ordering. In part two, our major hypotheses were tested. In this section, many of the most interesting results were found to be contained within the data for individual Ss. For this reason, as well as for clarity and continuity, there will be some discussion of the results included in this section (rather than in the discussion itself) leaving the more general findings to be evaluated in the next chapter.

Part 1

Our task in this section is to determine how closely the Q111a orderings of involvement match those inferred from the Q11a SSRL's. This can be done in the following manner:

i) if j is judged as "involving" and 1 is judged as "non-involving", then obviously j will be judged as "more involving".

ii) If both j and k are judged as "involving" then the stimulus with the shorter SSRL will be judged as "more involving".

iii) If both 1 and m are judged as "non-involving" then the stimulus with the shorter latency will be judged as the "most non-involving".

It should be noted that here we are applying Petrusic's (1966) model for processing SSRL to obtain paired comparison (PC) orderings, but in this case we are probably working in a much more complex domain.

Three replications of both Q11a and Q111a data were collected. The orderings were compared to determine how closely the Q11a ordering correlated with the Q111a ordering. The following definition is necessary to clarify the method used to compare orderings.

Stochastic Dominance (SD)

Let $Pr(j,k) \equiv$ probability with which j is chosen over k. Then j is stochastically dominant over k (j(SD)k) if and only if $Pr(j,k) \geq Pr(k,j)$. Stimulus j is the stochastically dominant choice and k is the stochastically non-dominant (SND) choice.

Thus, SD can be defined on the Q11a inferred orderings and the Q111a rank orderings. The empirical problem is to determine the degree to which the two SD orderings match.

For the twenty stimuli used there are a possible 190 pairs. The scores for each subject were obtained by counting the number of times j was stochastically dominant over k in both sets of data. That is, j had to be dominant over k in both sets of data before it was counted as being correctly predicted. The data are given in Table 3.1.

Subject	Possible number of pairs	Number of pairs correctly predicted	Predictive accuracy
1	190	161	.847
2	190	157	.826
3	190	161	.847
4	190	154	.810

Table 3.1. The number of Q111a SD pairs correctly predicted by the Q11a SD pairs.

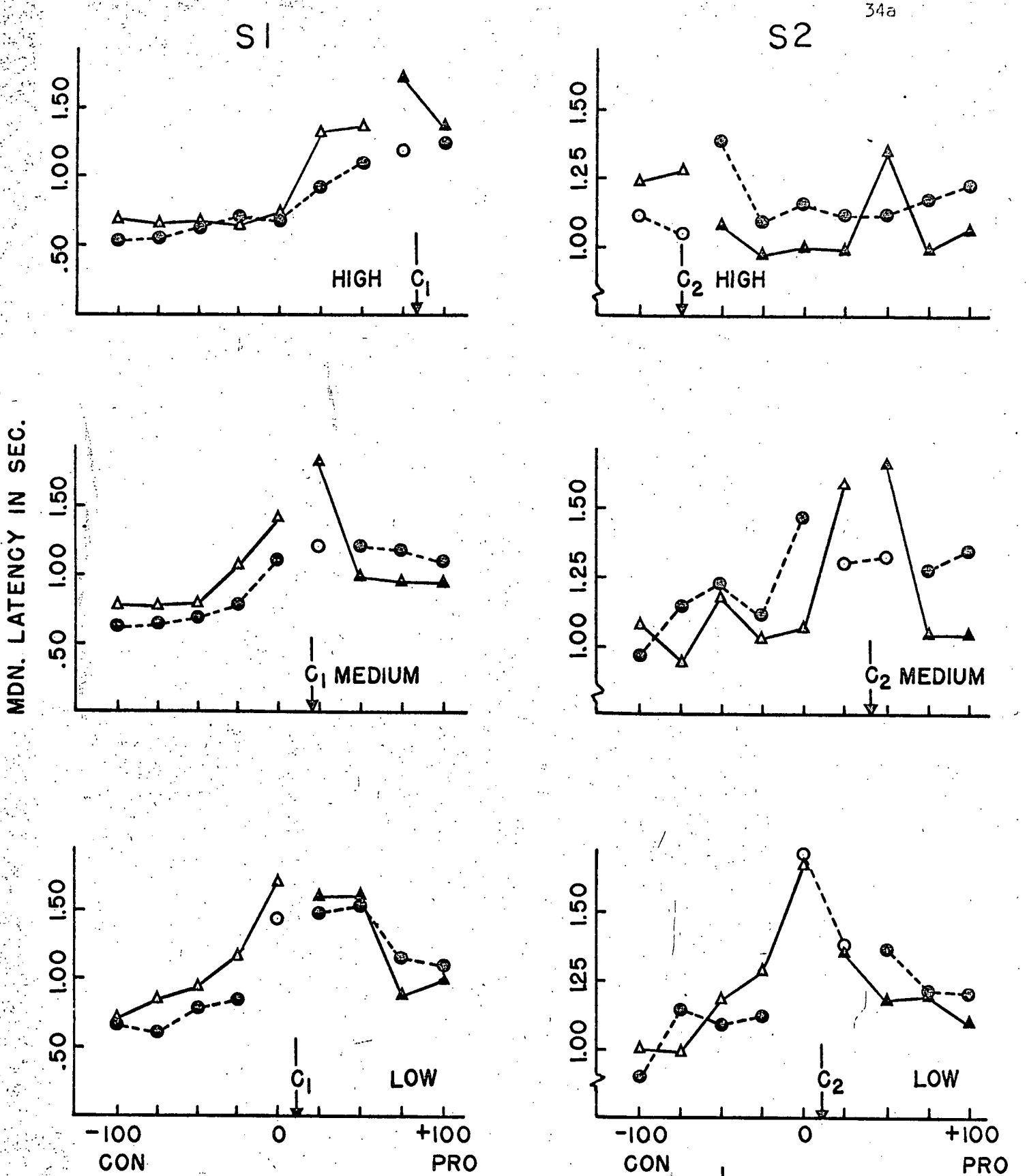
The hypothesis that the probability that the orderings for a given pair match is 0.5 was clearly rejected (one-tailed binomial tests).

From Table 3.1 it is clear that the predictive accuracy is rather high: it is not perfect, however, since the paired comparison consistency estimate from the decompressed rank orderings were not equal to one for many pairs.

Part 2

Figures 3.1 and 3.2 are graphic representations of the Q11b and Q11a($c._i$) tasks at each position on all the issues. The issues are labelled high, medium and low and correspond to the degree the Ss felt involved in the issue. The data points are plotted such that it is obvious which positions were accepted or rejected and which were more-pro or less-pro.

A close inspection of the high involvement issue SSRL's for S1 suggests that perhaps our main hypotheses may have been correct. The Q11a($c._i$) (more-pro, less-pro) latencies, except for an inversion at the neutral position, are consistantly longer than the Q11b (accept-reject) latencies. For the medium involvement issue there is still orderly data but in this case there is an inversion which violates our predictions. On the less-pro side of the category boundary the Q11a($c._i$) latencies are again longer than the Q11b latencies but on the more-pro side the opposite is true. For the low involvement issue, S1 has maintained the behavior displayed on all three issues. That is, the Q11b task appears to be an easier task (and therefore, exhibits shorter latencies) than the Q11a($c._i$) task regardless of the degree of involvement in the



Key

Q11a($c._i$) MEDIAN SSRL's--LESS PRO

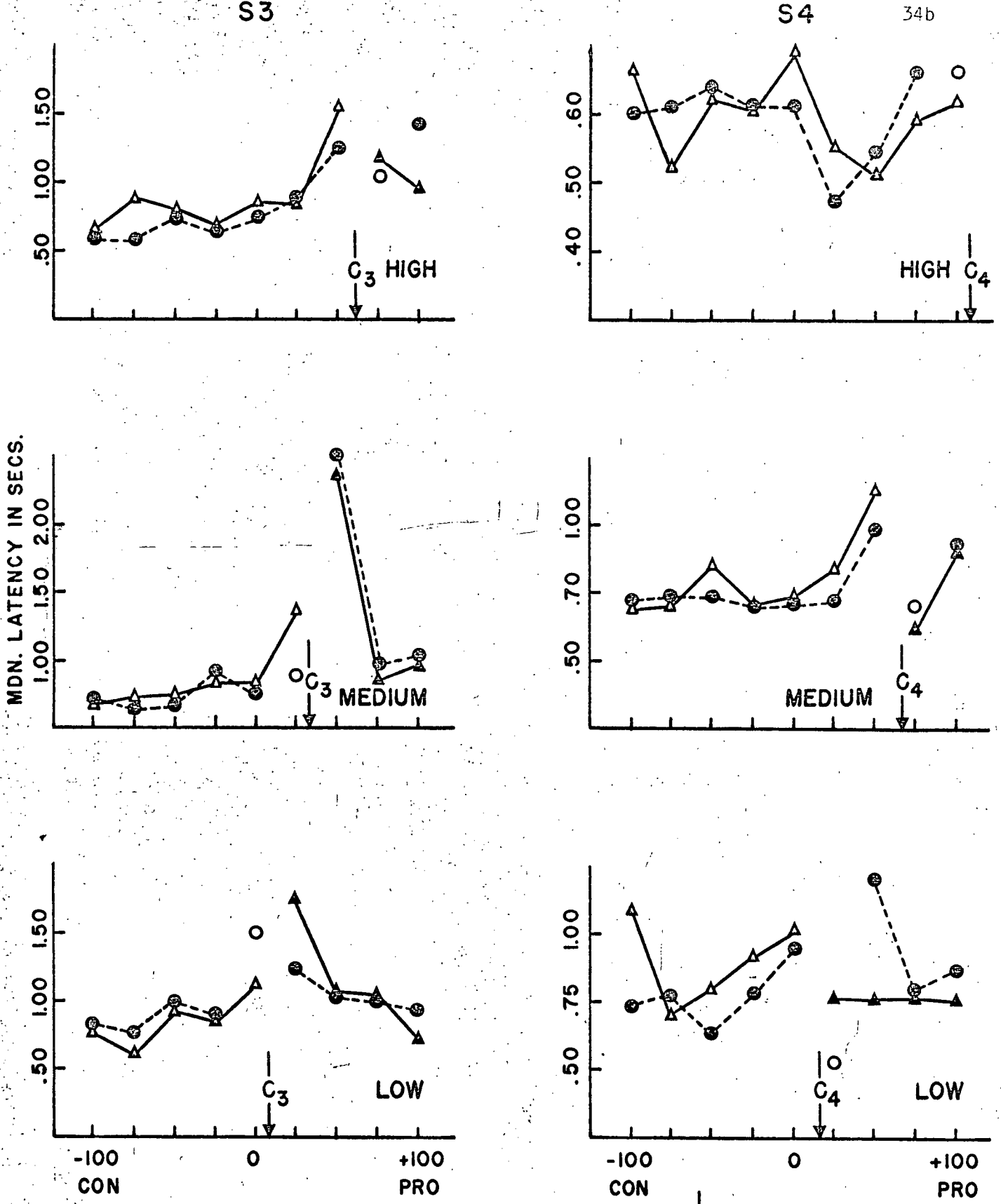
Q11a ($c._i$) MEDIAN SSRL's--MORE PRO

Q11b MEDIAN SSRL's--ACCEPT CATEGORY

Q11b MEDIAN SSRL's--REJECT CATEGORY

C_i CATEGORY BOUNDARY INFERRED FROM Q11a($c._i$) MEDIAN SSRL's

FIGURE 3.1. Q11b and Q11a($c._i$) MEDIAN SD SSRL'S FOR HIGH, MEDIUM, AND LOW INVOLVEMENT FOR SUBJECTS 1 AND 2.



Key
- Q11a($c_{.i}$) MEDIAN SSRL's--LESS PRO
- Q11a($c_{.i}$) MEDIAN SSRL's--MORE PRO
- Q11b MEDIAN SSRL's--ACCEPT CATEGORY
- Q11b MEDIAN SSRL's--REJECT CATEGORY

$C_{.i}$ CATEGORY BOUNDARY INFERRED FROM Q11a($c_{.i}$) MEDIAN SSRL's

FIGURE 3.2. Q11b and Q11a($c_{.i}$) MEDIAN SD SSRL'S FOR HIGH, MEDIUM, AND LOW INVOLVEMENT FOR SUBJECTS 3 AND 4.

issue. This, of course, directly contradicts hypotheses 1 and 2.

With S2, on the high involvement issue we have data which is directly opposite to our predictions. S2 apparently finds the accept-reject task the more difficult (as evidenced by the long latencies) than the Q11a($c._i$) task. The extremely long latency (comparatively speaking) at the +50 position is a phenomenon for which we have no explanation. For the medium involvement issue the Q11b task still appears to be more difficult than the Q11a($c._i$) task. In the low involvement issue a reversal begins to appear and the task we would predict to be the easiest for the uninvolved S seems to be the more difficult.

For S3 on the high involvement issue there is very little difference between the Q11b and Q11a($c._i$) latencies. Both discriminations were made with approximately the same speed. This holds true for the medium involvement issue also. On this issue, however, at the +50 position there are very long latencies associated with both tasks. These latencies suggest that the decision for both the accept-reject and the more-pro, less-pro tasks is an extremely difficult one, and that the position is almost exactly on the S's category boundary. The low involvement issue for S3 exhibits much the same pattern as described for the high and medium involvement issues.

S4, in all of the issues, appears to have adopted a speed orientation. His latencies for the high involvement issue reflect almost pure reaction time. It is apparant that on the Q11a($c._i$) task the S made no discriminations at all. He simply indicated that every position on the issue was less-pro than his ideal point. The main component of the latencies of both the medium and low involvement issues is also reaction

time. In the region of the S's category boundary, however, the latencies do reflect that some discrimination is occuring.

It is obvious from the results in Figure 3.1 and Figure 3.2 that both the first and second major hypotheses must be rejected. The data does not discriminate between issues along the dimension of involvement. The data does, however, provide support for the third hypothesis.

If the S is forced to make a choice on all of the positions presented to him he will characteristically accept only a limited number, regardless of his involvement in the issue, and reject all remaining alternatives. The number of positions accepted or rejected by any S was consistant over all of the issues. It can be observed in the data that S1, S3, and S4 accepted only one position on each issue and S2 accepted two positions on each issue. Such narrow ranges for the latitudes of acceptance, however, are unusual and these findings will be more fully discussed in chapter four.

While the major hypotheses typically find no support, there is still a considerable amount of orderliness within the data. For example, the nature of the data is such that an ideal point for each S, on each of his issues, can be inferred from both the Q11b and Q11a($c._i$) data (by using category boundaries and latitudes of acceptance). If the Q11b and Q11a($c._i$) data are accurately describing each S's evaluation of the alternatives then the ideal point, as inferred from both tasks, should be the same. This has actually occurred over all issues for each of the Ss. Figures 3.1 and 3.2 show the actual ideal points inferred from both classes of data. Moreover, as each S moved from high to low involvement the inferred ideal points moved from extreme positions to more neutral positions.

S1 and S2 provided additional data which were used in a more microscopic analysis of the findings. It was felt that even if we found no support for our hypotheses we should still be able to demonstrate orderliness within the data. If such orderliness exists then we can conclude that any lack of support for our hypotheses did not arise as a result of random effects. In other words, it would be the models that we used to describe involvement which were incorrect rather than the theoretical basis of SSRL and unfolding theory.

To determine whether we have orderliness within the data, Petrusic's (1966) model for the processing of SSRL data to obtain PC orderings will be used. This method would allow us to predict an inferred ordering from both the Q11b and Q11a(c_i) SSRL's to the Q1a preference orderings obtained from S1 and S2. Furthermore, such a procedure would be a replication, but again in a more complex domain, of Petrusic's (1966) findings. If the predictions of Q1a rank orderings are high then we will have demonstrated the predictive ability of SSRL data and the sensitivity of such data in the evaluation of the attitudes held by the Ss. To clarify how the Q11b data can be used to predict the Q1a ordering the following definitions are necessary:

i) if the individual accepts j and rejects 1 then clearly he will prefer j over 1.

ii) If the individual accepts both j and 1 then he will prefer the stimulus he accepts with the shorter latency.

iii) If the individual rejects both 1 and m then he will prefer the stimulus he rejects with the longer latency.

In a similar manner, the prediction of Q1a from Q11a(c_i) SSRL

data is based on the following:

i) if the individual judges j as "less-pro than him" and 1 as "more-pro than him" then clearly 1 is "more-pro' than j.

ii) If the individual judges both 1 and m as "more-pro than him" then the stimulus with the shorter SSRL is the "more-pro" stimulus.

iii) If the individual judges both j and k as "more-pro than him" then the "more-pro" stimulus is the stimulus with the longer SSRL.

From the three replications of the Q1a data a SD ordering was obtained. The Q11b data was then analyzed and a PC ordering was obtained. The same method was used in predicting the Q1a preference ordering from the Q11a($c._i$) PC ordering. The results are given in Table 3.2.

From the results it is obvious that the Q11b and Q11a($c._i$) data clearly reflect the Ss preferences for the various positions on each of the issues. The only gross departure from this pattern is again with S2 on the highly involving issue. This will be discussed more fully in chapter four. Suffice it to say, however, the results of this test do indicate that our data were orderly and highly predictive.

TYPE OF INTERRELATION	ISSUE	S1 TOTAL NUMBER CORRECT PAIRWISE PREDICTIONS BASED ON LATENCY ONLY	TOTAL POSSIBLE NUMBER OF CORRECT PAIRWISE PREDICTS	S2	
	hi	27	28	10	22
Q11b→Q1a	med	21	28	16	22
	low	21	28	15	22
	hi	31	36	20	36
Q11a($c._i$)	med	28	36	27	36
→Q1a	low	30	36	29	36

Table 3.2 Q11b→Q1a and Q11a($c._i$) → Q1a. The total number of correct pairwise predictions for each issue of Q1a paired comparison choices for S1 and S2 from the Q11b and Q11a($c._i$) single stimulus data.

CHAPTER IV

DISCUSSION

The ability of an inferred ordering from QIIa SSRL's to predict the orderings of QIIIa data was clearly demonstrated. Moreover, these results have replicated and confirmed Petrusic's (1966) findings, even though in this case we have been dealing with what, in all probability, is a much more complex area. Thus, the interquadrant relations (at least between QIIa and QIIIa) appear to hold over a wide range of stimuli.

The use of these interquadrant relationships was intended to confirm our choice of issues for each S whether or not we actually did obtain issues which differed in the required degrees of involvement is an open question. The assumption was made that if we used a wide enough range of issues we would, by chance alone, include one issue which had high involvement, one with medium involvement and one low involvement for each of our Ss. Perhaps a more convincing method of determining involvement over a wide range of stimuli could have been used. One possible way would be to make much more use of Coombs' (1964) concept of psychological distance, in the sense that we could superimpose on the rank orderings of stimuli the added requirement of spacing. That is, we implicitly made the assumption that the ordering we obtained would be graded as to the degree of involvement the S had in each issue. If the Ss had not only rank ordered the issues but also spaced them, we may very well have found large groupings of stimuli as well as large spaces along the continuum. It is pointless to speculate further; suffice

it to say that in orderings of any description, some consideration must be made for the subjective spacing of the stimuli.

In the second part of the study it is only too clear that the first and second hypotheses concerning the processes of involvement were completely unsupported by the data. Even though we must reject our hypothesis, much of the intra-individual data is worth looking at.

First, however, one aspect of the issues used in this study should be considered. There was a failure on the part of E to control for the number of dimensions along which an issue could be evaluated. Some of the issues were so stated that they could only be evaluated along a very few dimensions. For example, an issue such as "increase the driving age to 18" could be evaluated only along a very few dimensions, whereas there are many more dimensions to an issue such as "the war in Viet Nam". The important point here, however, is that during the experiment the S could evaluate the issue along one of the dimensions (perhaps one which has saliency for that particular S) or along many dimensions. If the latter should be the case then the latencies will be accordingly increased. Thus, the S may be performing several tasks at once and our model for the evaluation of various stimuli does not allow for other sequential cognitive processes as part of a single judgment.

In the data of S2 for the high involvement issue there is a marked violation of transitivity where there is a sudden increase in the latency QIIa($c_{\cdot i}$) data. It is possible that at this particular position the subject is viewing the issue along another dimension.

It would be interesting and worthwhile to investigate the multidimensionality of various issues within a single S. If we knew how a person evaluated various positions on some highly involving issue we would be much better equipped to then investigate the involvement variable.

We have already inspected the data for each S and, typically, we have found that each individual has a characteristic way of responding to the stimuli regardless of his involvement in the issue. In other words, there seems to be no similarity between Ss in the way they respond to the stimuli. The data suggests at least two possible reasons, the first being that the S has some specific response orientation which is super-imposed upon the requirements of the task (for example, the speed orientation of S_4). The second possibility is that each S has his own unique method of processing stimuli which demand decision or choice making. For example, it may well be that a S is processing the information in the manner our models suggest but added to this process is the S's evaluation of the consequences of his decisions or choices.

The hypothesis that the size of each S's latitude of acceptance and latitude of rejection would not vary significantly over all issues was supported. However, there does appear to be a need to qualify these findings. In using stimulus scales to indicate the various positions on any issue we have overcome, in part, the problem of spacing of positions along a pro-con continuum. The only problem with such stimulus scales is that we may have removed some of the stimulus characteristics which are an integral part of the

attitudinal statements usually used in attitude change research.

In the QIIb task (accept-reject) three of the Ss accepted only one and one S accepted only two of the positions over each issue. The usual finding (Hovland and Sherif, 1961; Sherif and Nebergall, 1965) is that a S will characteristically accept the same number of positions over all issues, generally at least three. The contradictory findings in this study suggest two possibilities. Either the Ss in the Hovland or Sherif studies are displacing alternatives, similar to their own position, closer together and thus accepting more or, in the case of this study, the particular positions, since their location is invariant, are too widely spaced for the Ss to accept rationally more than a maximum of two. A further qualification on our findings is that in making the statement that all non-committed positions will be rejected by a S forced to make a choice on an accept-reject basis will only hold true with the type of stimuli used in both this and other studies. That is, we characteristically represent a continuum from pro to con (or as in the case of this study from +100 to -100) by a very limited number of items (usually nine). If an individual accepted two positions, rejected four and was uncommitted on three, then we would expect these three positions to be rejected (according to the rational presented earlier) when an accept-reject decision was forced upon the S. As we have repeatedly pointed out throughout this experiment a S category boundary (i.e. between what he accepts and rejects) can be clearly defined. Thus, a much more rigerous test of our hypothesis would be to present a very large number of positions and then compare the

latitudes of acceptance and rejection between involving and non-involving issues.

Associated with any continuum evaluated by a S is the S's ideal point on that continuum. One of the findings of this study which closely agrees with the Hovland and Sherif studies is that as involvement increases the ideal point tends to localize towards the extremes of the continuum. While this has been the case in virtually every instance, there is no reason to suppose that this is invariant. In fact, intuitively one would expect that on any unidemsional continuum we could find individuals who are highly involved occupying only slightly positive, negative or even neutral positions. Furthermore, it has usually been the case in studies concerned with "ego-involvement" that in order to ensure involvement the experimenters have used extreme groups as Ss (for example, the Women's Christian Temperance Union where the issue was "repeal or prohibition"; Hovland, Harvey and Sherif, 1957). Thus, involvement has come to be defined in terms of extremity of position. The fact that an extreme person is perhaps also highly involved does not preclude high involvement for persons with more middle-of-the-road positions.

The data collected in this study, while not supporting our hypotheses has certainly displayed a considerable amount of orderliness. We have clearly been able to show that the SSRL's are valid data reflecting attitudinal choice processes. They have not, however, helped us to determine the psychological basis for these processes. We do know from the data, however, that we now have a method that reliably predicts a preference ordering (QIa data) from both QIIb and QIIa($c_{.j}$) SSRL's. This replication of Petrusic's (1966) work

confirms his findings. In only one instance was our ability to predict a QIa preference ordering seriously reduced. This was with the high involvement issue of $\underline{S}_4$, and in this case we were aware of this reduction because of the $\underline{S}$'s speed orientation.

CHAPTER V

SUMMARY AND CONCLUSIONS

In the past, research investigating attitude change has inevitably had to concern itself with "ego-involvement". The findings of studies evaluating the discrepance between an audience's opinion and the opinion recommended in a communication have typically been confounded by the degree to which the audience was involved in the issue (Hovland and Pritzker, 1957; Hovland, Harvey and Sherif, 1957; Sherif and Hovland, 1961; Freedman, 1964; Sherif and Nebergall, 1965).

It was realized that Thurstone's scaling assumptions which formed the basis for the construction of attitude scales were incorrect. It became evident that an individual's own position on an issue will affect his judgment about the favourability of alternative positions on that issue (Sherif and Hovland, 1961). Furthermore, the higher the individual's involvement in the issue the more his evaluation of alternative positions will be affected (Ager and Dawes, 1965).

The majority of research on involvement has been conducted without the aid of a clearly defined theoretical framework. The theorectical framework presented in this study draws heavily upon the fact that Thurstone's scaling assumptions were inccorect and, what is even more important, upon the theory of data provided by Coombs (1964). The classes of data described by Coombs and later work by Petrusic (1966) has provided us with two models which were adapted to fit into a research design for the investigation of the

involvement variable. The first model was thought to describe an individual who was not involved in some social issue and the second model an individual who was highly involved in that issue. These models depended on two of the eight classes of data described by Coombs (1964) and the single stimulus response latency associated with these classes.

Specifically, the major hypotheses tested in this study were:

1. The individual who is highly involved in any social issue will judge alternative positions on that issue differently than the individual who is not involved. That is the non-involved person will operate on a J-scale and the involved person will operate on an I-scale.

2. It is possible to differentiate between individuals as to the amount of involvement each individual has for any given social issue in terms of Coombs' unfolding theory and single stimulus response latency.

The experiment was conducted, using four Ss, in the following manner. Four classes of data, from Coombs' (1964) Theory of Data were obtained. These classes were Q1a (a preference ordering), Q11a (stimulus categorization), Q11a($c_{.i}$) (categorization relative to an ideal point), Q11b (accept-reject) and finally Q111a (rank ordering). The Q111a data was collected for each S. This data was a rank ordering of twenty social issues along an "involved - not involved" continuum. The highest "involved", lowest "involved" and a medium "involved" issue was chosen from each S's ordering.

The accuracy of the rank ordering was confirmed by using QIIa data obtained from single stimulus response latency (SSRL).

The Ss were next required to complete the QIIa($c_{\cdot i}$) and QIIb tasks. This involved having the S categorize nine stimuli, one at a time, as being (a) more-pro or less-pro than his own position on each issue and (b) whether he would accept or reject each position on each issue. The Ss response latency was measured during each trial. Five replications of both the QIIa($c_{\cdot i}$) and QIIb tasks were collected from two Ss and eleven replications were collected from the remaining two. The extra replications were to provide additional data that could be used in analyzing inter-quadrant relations in terms of the work of Petrusic (1966) and to determine clearly whether or not our data was orderly. To make such an analysis it was necessary to collect QIa data (a preference ordering) from the nine single stimuli used to collect QIIa($c_{\cdot i}$) and QIIb SSRL data.

The data collected failed to comply with our models of involvement. The possible reasons were discussed at some length. The data did, however, replicate and confirm Petrusic's (1966) findings. From the QIIa($c_{\cdot i}$) and QIIb data we were able to use Petrusic's (1966) model for processing SSRL data to obtain PC orderings. Both types of data were found to be highly predictive of the QIa ordering. This suggested that our latency data was valid but our models were incorrect, resulting in our rejecting the hypotheses.

The wide range of applicability of SSRL for research was demonstrated and suggests that this type of research holds much promise for the future.

Several suggestions for lines of further research were made such that some of the variables of involvement may be investigated.

APPENDIX

A COMPILATION OF ALL INSTRUCTIONS USED IN THIS STUDY

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The following are the the instructions that were used in this experiment.

Preliminary Instructions

Let me read you the instructions so that we can be sure that everyone will have the same instructions.

We are interested in how individuals react to a variety of objects. Let me say at the outset that in this study we are not interested, in anyway, in trying to evaluate you or your performance. One of the main purposes of this study is to learn something about the nature and the interrelations of various methods for studying choices. The actual choices themselves that you make are only of secondary importance to us: we are much more concerned with trying to discover the processes that underly choice behaviour. So relax as much as possible: we are not trying to "psych you out".....

Introduction to Social Issues

During the course of this experiment we will be asking you to complete various tasks. I will explain each of the tasks as we come to it. Before we begin, however, we want you to be very familiar with all of the alternatives we will be asking you to make choices about. Thus, I am going to show you all of the alternatives on slides one at a time. Now as I present these

slides to you I would like you to read them aloud to me. O. K.?

At this point the slides were presented to the subject:

Now that you are familiar with the slides we would like you to become familiar with the apparatus. The apparatus is fully automated and for it to run properly a few details must be followed rather closely. First is the manner in which you operate the response box. Hold your hand in the following manner. (Show subject and instruct him to use whichever finger is the most comfortable). When you make a response it is important that you push the botton down with a quick firm snap.

Recognition Task: Reduction of Reading Time Differential

O. K., to acquaint you with this we will do a simple recognition task. I will show you each of the slides, one at a time. As soon as you recognize the statement on the first slide I want you to press the button as quickly as possible. For the first set of slides use your right hand to press the button on the right. On the next set use your left hand to operate the button on the left. I will tell you when to change hands. The slide will remain on the screen until you press one of the buttons.

I will say "ready" as a signal to you when the next slide is to appear. After a few trials you should be able to recognize each statement as soon as it is flashed on the screen. Any questions? Ready.

Recognition Task Repeated

Today we will begin by repeating the recognition task. We will follow the same procedure as in our last session. I will show you each of the slides one at a time. As soon as you recognize the statement on the slide I want you to press the button as quickly as possible. Again, for the first set of slides use your right hand and press the button on the right. On the next set use your left hand to operate the button on the left. I will tell you when to change hands. I will say "ready" as a signal to you when the next slide is to appear. Any questions? Ready.

Involvement Categorization (Q11a)

As you can see I have labelled both buttons. The button on the right is labelled "involved" and the one on the left "not involved". O. K., now let me explain what we mean by involvement. There are some social issues about which some people feel very strongly. For example, an artist may have very strong feelings and opinions about abstract art. He may feel that abstract art is the only true form of art and that everything else is a waste of time. Another artist may be very much opposed to abstract art and class it as trash. Both of these people are highly involved, one having positive involvement and the other negative. A brick-layer, however, may be completely indifferent to abstract art, not caring about it one way or the other. And there are, of course, positions which vary all the way from complete indifference to very high involvement.

I am again going to show you the issues we used the last day

and if you are involved in a particular issue I want you to push the button on the right (or left). If you are not involved in the issue then push the button on the left (or right). Do not feel that you must indicate involvement for issues which are currently popular if you, yourself, are not involved in that issue. We simply want you to indicate which issues you are involved in or not involved in at the present time.

Again, press the button on the right (left) for involvement and the one on the left (right) for no involvement. Take as long as you wish and try to be as accurate as possible. Once you decide then press the button immediately. To prepare you for each slide I will say "ready" immediately before I present the slide. Any questions? Ready.

Rank Ordering of Issues

Here are twenty cards. On each card is written one of the issues with which you have become familiar. I want you to arrange these cards so that on the extreme left you have the issue in which you are least interested. On the extreme right place the issue in which you are most involved. Range the rest of the cards between these two extremes so that they increase from least interest to most involvement. Indicate at which point you would divide the cards into the non-involved side and the involved side. Any questions?

Rank Ordering of Issues for Remaining Replications

Here are the twenty cards again, I want you to arrange these cards

according to the same criterion as we did in our last session. On the extreme left put the card with the issue which is least interesting and on the extreme right the issue which is most involving. Range the rest of the cards between these two extremes so that they increase from last interest to most involvement. Indicate at the point you would divide the cards into the non-involved side and the involved side. Any questions?

Instructions--Meaning of Scales

Before we go on to the next task, we want you to become familiar with some alternatives that we will ask you to make choices on. Thus, I am going to show you these alternatives on slides one at a time. First let me explain these slides to you.

The first stimulus scale slide was shown here.

As you can see, this slide has a scale on it and the scale ranges from -100 to zero to +100. There is an arrow on the scale indicating +75. Now, if we were considering the issue of abstract art, the position of +100 on the scale would mean a position which is maximally in favor of abstract art. In the same way, an arrow indicating zero on the scale would refer to a position that is neither for nor against abstract art.

I am now going to show you a series of slides and I want you to describe to me what position, in relation to abstract art, the arrow indicates on each of the slides.

The remaining stimulus scale slides were shown here.

Introduction to Q11a (categorization relative to ideal point) Task

Now we are ready for the next task. For this task you will have noticed that I have labelled the two buttons again. The right hand button is labelled "more-pro" and the left hand button is labelled "less-pro". Now, referring back to the issue of abstract art--you probably have some stand on this particular issue. Any position indicated by an arrow on the slide can be more in favor of the issue than you are, in other words more-pro, or it can be less in favour or less-pro than you are. In relation to the issue of abstract art I want you to look at each slide that I show you and decide whether the position indicated on the slide in more-pro or less-pro than your own most preferred position. If the position is more-pro then press the right hand button and if it is less-pro then press the left hand button.

You should also note that in each case you must made a decision. Take as much time as you wish and try to be as accurate as possible. Once you decide then press the button immediately. Any questions? Ready.

Introduction to Q11b (accept-reject) Task

Now we are ready for the next task. Often people are faced with a choice involving a single alternative, and they must decide whether they react positively or negatively to it. For example, is this local proposition to be endorsed or not, do I accept this speaker's political assertions or do I reject them, would I go to this national park for my vacation or not, am I willing to buy this commodity or not, is this an attractive car, painting, woman or perhaps, should

I play this horse or not, should I buy insurance or not.

In the present study we are going to present you with the alternatives, with which you are now familiar, on slides one at a time, and you must decide basically whether you can accept that alternative or whether you must reject that alternative.

Now, as you can see I have labelled the buttons. The right hand button is labelled accept and the left hand button is labelled reject. Considering the issue of abstract art I want you to indicate whether the positions indicated on the slides are acceptable to you or not acceptable to you. If you can accept a particular position then push the accept button or it the position is unacceptable to you then push the reject button. Remember, you are accepting or rejecting this position in relation to how you personally feel about abstract art.

Take as much time as you wish and make your decisions as carefully as possible, but once you decide then press the button as quickly as possible. Any questions? Ready.

Instructions for Remaining Replications of Q11a Task

Now we are going to do the same task, only this time we will be using different issues. In relation to the issue of (actual issue was inserted here) I want you to look at each slide that I show you and decide whether the position indicated on the slide is more-pro or less-pro than your own most preferred position. If the position is more-pro then press the right hand button, if it is less-pro then press the left hand button. Take as much time as you wish and try to be as accurate as possible. Once you decide then press the button immediately.

Instructions for the Remaining Replications of the Q11b Task

Now we are going to do the same task, only this time we will be using different issues. In relation to the issue of (the actual issue was inserted here) I want you to look at each slide that I show you and decide whether the position indicated on the slide is acceptable or unacceptable to you. If the position is acceptable then press the accept button on the right or if it is unacceptable to you then press the reject button on the left. Take as much time as you wish and try to be as accurate as possible. Once you decide then press the button immediately.

Instructions for the Two Ss Receiving Additional Sessions

1. Q11a data

Let me first explain how we will procede from this point on. Before any slide is presented I will tell you which of the three issues we are considering. Your task is to indicate whether the position on the slide is more-pro or less-pro than your most preferred position in regard to the particular issue we are considering at the time. The order in which the issues are presented will be kept constant. In order to eliminate any possible confusion I will also tell you before each slide which issue we are considering. The order of issues is ".....".

Remember, press the button on the right for more-pro and the button on the left for less-pro. Take as long as you wish and try to be as accurate as possible. Once you decide then press the button immediately. I will say "ready" immediately before I present the slide. Any questions? Ready.

2. Q11b data

Now, for this task, before any slide is presented, I will tell you which of the three issues we are considering. Your task is to indicate whether the position shown on the slide is acceptable to you or unacceptable to you. In other words, you must indicate whether you accept or reject that particular position in regard to the particular issue we are considering at the time.

The order in which the issues are presented will be kept constant. In order to eliminate any possible confusion I will also tell you before each slide which issue we are considering. The order of issues is ".....".

Remember, press the button on the right for accept and the button on the left for reject. Take as long as you wish and try to be as accurate as possible. Once you decide then press the button immediately. I will say "ready" immediately before I present the slide. Any questions? Ready.

Instructions for Q1a data

Here are nine cards. Each card has the scale you are familiar with printed on it. I want you to range these cards starting with the card the position on which best indicates your own most preferred position. The next card in the ranking should be the one which next best indicates your position and so on down to the last card. Indicate at what position you would divide the cards into acceptable and unacceptable positions. Do this first for the issue of ".....".

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