

1987

"Mere thought" attitude polarization :: some second thoughts.

Francis Patrick Callahan
University of Massachusetts Amherst

Follow this and additional works at: <https://scholarworks.umass.edu/theses>

Callahan, Francis Patrick, "'Mere thought' attitude polarization :: some second thoughts." (1987). *Masters Theses 1911 - February 2014*. 2109.
<https://doi.org/10.7275/7675767>

This thesis is brought to you for free and open access by ScholarWorks@UMass Amherst. It has been accepted for inclusion in Masters Theses 1911 - February 2014 by an authorized administrator of ScholarWorks@UMass Amherst. For more information, please contact scholarworks@library.umass.edu.



312066014608294

"MERE THOUGHT" ATTITUDE POLARIZATION

Some second thoughts

A Thesis Presented

By

Francis Patrick Callahan

Submitted to the Graduate School of the
University of Massachusetts in partial fulfillment
of the requirements for the degree of

MASTER OF SCIENCE

February, 1987

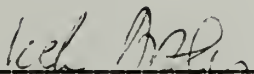
Department of Psychology

"MERE THOUGHT" ATTITUDE POLARIZATION:

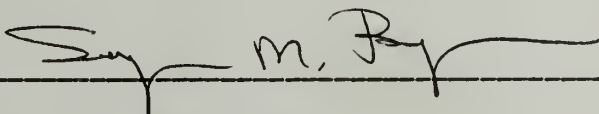
Some second thoughts

A thesis presented by
Francis Patrick Callahan

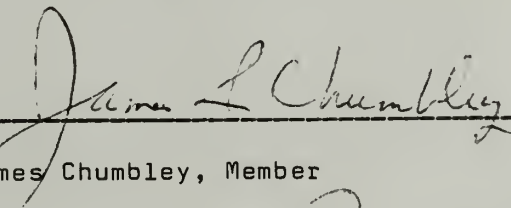
Approved as to style and content by:



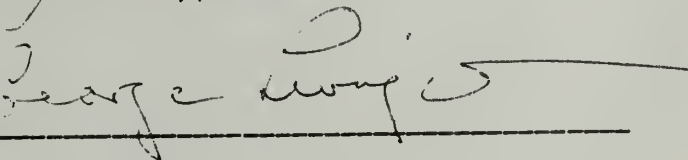
Icek Aizen, Chairperson of Committee



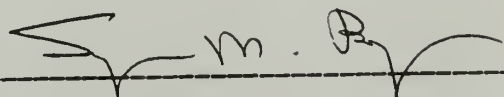
Seymour Berger, Member



James Chumbley, Member



George Levinger, Member



Seymour Berger, Chairperson

Department of Psychology

TABLE OF CONTENTS

Chapter

I. INTRODUCTION	1
Plan of the thesis	9
II. DERIVATION OF THE "MERE THOUGHT" POLARIZATION HYPOTHESIS	10
The underlying assumptions	10
Cognitive schemas	11
Evaluative consistency	14
Beliefs determine attitudes	17
Summary	22
III. THE EVIDENCE SUPPORTING THE "MERE THOUGHT" POLARIZATION HYPOTHESIS	23
The "likable" and "dislikable" other person study . .	23
The effects of time spent thinking study	25

IV. ISSUES ADDRESSED IN THE PRESENT STUDY	30
The use of novel target objects	30
Faulty operationalization of the "mere thought"	
situation	35
The use of single item attitude measures	37
Possible demand characteristics of the instructions .	38
Invalid test of thought listing depolarization	
hypothesis	40
Neglect of possible audience effects	42
Summary	43
V. A COGNITIVE MEDIATION MODEL OF ATTITUDE CHANGE	45
Application of the model in the present study	54
Summary	55
VI. HYPOTHESES AND OPERATIONAL DEFINITIONS	56
Hypotheses	56
Hypothesis 1	56
Hypothesis 2	57
Hypothesis 3	58
Hypothesis 4	58
Hypothesis 5	59

Hypothesis 6	60
Hypothesis 7	62
Operational definitions of dependent variables . . .	63
Attitudinal variables	63
Absolute attitude change	63
Attitude polarization	63
Attitude depolarization	64
No attitude change	65
Measures of evaluative meaning and evaluative consistency	65
Summary	69
 VII. METHOD	 71
Experiment 1: No audience	72
Subjects	72
Apparatus	73
Procedure	73
Instructions	75
Pretest	75
Treatments	76
Dependent measures	78
Experiment 2: Audience	79
Subjects	79
Procedure	80

Experiment 3: Posttest after thought listing	80
Subjects	80
VIII. RESULTS	81
Attitude change, polarization, and depolarization . .	81
Hypothesis 3	81
Hypotheses 1 and 2	88
Hypothesis 6	95
Hypothesis 7	100
Evaluative consistency	101
Hypotheses 4 and 5	101
Summary	109
IX. DISCUSSION	111
REFERENCES	120
APPENDIX	130

LIST OF TABLES

1. Zero-order and first-order partial correlations among
pretest, posttest, and modal beliefs attitude scores . . . 98
2. Comparisons of the mean proportions of consistent affect
expressed in the first and second halves of subjects'
thought listing protocols for "Professional football
in nine experimental conditions 103
3. Comparisons of the mean consistent affect expressed in
the the first and second halves of subjects' thought
listing protocols for "Professional football" in
nine experimental conditions 104
4. Comparisons of the mean inconsistent affect expressed
in the first and second halves of subjects' thought
listing protocols for "Professional football" in
nine experimental conditions 105
5. Comparisons of the mean total affect expressed in the
first and second halves of subjects' thought listing
protocols for "Professional football" in nine
experimental conditions 106

LIST OF FIGURES

1.	A cognitive mediation model of attitude change	49
2.	Flowchart of the experimental procedure	74
3.	Mean absolute attitude change scores as a function of thought about the target topic and presence of an audience	82
4.	Percentage of subjects' attitudes depolarized, unchanged, and polarized in the Distraction, Thought, and Thought Listing conditions of Experiments 1 and 2	83
5.	Mean degree of polarization as a function of thought about the target topic and presence of an audience	84
6.	Mean absolute polarization as a function of thought about the target topic and presence of an audience	85
7.	Mean absolute depolarization as a function of thought about the target topic and presence of an audience	86
8.	Proportion of mean absolute attitude change of mean absolute polarization and mean absolute depolarization as a function of thought about the target topic	87

INTRODUCTION

Thinking about something can exert a powerful influence on how favorably or unfavorably a person feels about it. "Thinking it over" is a familiar strategy for "sorting out your feelings," and for determining how you "really" feel. Feelings arrived at after careful reflection on available information are generally regarded as more trustworthy guides to action than feelings that have not received the benefit of thought. According to the prevailing common sense, acting on "impulse," without thinking, may negate whatever knowledge a person has gained through past experience, and may perpetuate a cycle of mistakes and failures. In contrast, it is widely believed that thinking before acting can bring acquired knowledge to bear on the person's view of the present situation, and increase the likelihood that the person's feelings will prompt actions resulting in desired consequences.

Suppose, for example, that a chess player notices that her opponent's last move of his queen suddenly has removed protection from a crucial pawn on which she has been focusing her attack. Perhaps the

opponent has withdrawn his queen to the opposite corner of the board, where it is shielded from any immediate threat. Pleased with this turn of events, the player's first thought might be that her opponent has recognized that further defense of the pawn endangers the queen, and has prudently decided to retreat rather than risking inevitable loss of the game. Without thinking further, she might proceed to capture the pawn. On the other hand, she might continue to consider the meaning of her opponent's action. A second, not so pleasing thought might dawn on her. The enemy's queen is now in position to form a devastating combination with his knight and rook that could lead to checkmate in three moves. Armed with her second thought, she decides to move her bishop to a square where it can help defend the king. This second thought may have saved her game.

Of course, losing a chess game is not the worst thing in the world and this example may seem trivial. But the treacherous first thought is no stranger in any sphere of life. Who has not had the experience of making a foolish blunder on the basis of a sudden impulse founded on a nebulous idea, when only a moment's reflection would have revealed the folly of taking that particular course? When the President of the United States recently joked into an open microphone that he would "begin bombing the Russians in five minutes," his subsequent disclaimers revealed that he never would have made such a dangerous remark if he had been using his head. The only fortunate aspect of the incident was that the President's poorly thought out action was purely verbal. There is no guarantee that he, or his Soviet

counterpart, may not some day permit a similar impulse to result in an order to unleash the nuclear holocaust. Acting only on immediate hostile thoughts and feelings, without taking time to think, the world's rulers could destroy the planet Earth, and all her people. There is much wisdom in the common sense view of the importance of careful thinking.

The consequences of acting before the thought process has had time to produce the often critical second thought can be dire, possibly fatal, both for individuals and society. So it is appropriate for social psychologists to take this insight as a starting point for theory and research. This thesis is a report of an experimental investigation guided by the idea that thinking tends to increase the realism of people's views of the world. As will be seen, that idea stands in opposition to the alternative concept that thinking is likely to increase the polarization of a person's attitude toward the object of thought (Tesser, 1978). The first few chapters explore the basis of the attitude polarization position; the later chapters develop theory and present experimental evidence in support of the attitude realism position.

In formal terms, common sense suggests the hypothesis that thinking about an object will tend to adapt the affect a person experiences toward the object to greater congruence with its real motivational significance. A theoretical basis for this prediction can be found in the following two assumptions:

1. Thinking about an object will tend to produce a more veridical

cognitive representation of the object's motivational significance, that is, a representation that more accurately specifies how the object might facilitate or impede accomplishment of the person's goals (Carlson, 1956, Lewin, 1951; Rosenberg, 1956).

2. The person's cognitive representation of an object determines his or her affect in regard to the object (Fishbein, 1963; Fishbein & Ajzen, 1975; Fishbein & Feldman, 1963; Rosenberg, 1956).

The first assumption asserts that thinking about an object normally serves to provide a person with a more realistic understanding of the likely results of interaction with the object. The second assumption links this improved understanding of the motivational significance of the object to change in the person's feelings about the object. If cognitive representation determines affect, then a more veridical representation should result in more adaptive affect. If thinking tends to result in a more veridical representation, then thinking should tend to result in more adaptive affect.

Many social psychologists have favored an alternative to the first assumption about the likely outcome of thinking that emphasizes the internal dynamics of the cognitive representation, instead of the relation between the representation and the external object it represents. These theorists assume that thinking about an object will tend to produce a more internally consistent representation of the object's relation to the person, rather than a more veridical one (e.g. Abelson & Rosenberg, 1958; Festinger, 1957; Heider, 1946; Newcomb, 1947, 1953; Osgood & Tannenbaum, 1955). They argue that the presence

of inconsistent elements within a cognitive structure arouses a motive or drive to reduce inconsistency (McGuire, 1966; Singer, 1966).

Various definitions of inconsistency have been proposed, along with alternative terms for the concept (e.g. imbalance, incongruity, dissonance, ambivalence), but all refer to an internal state of cognitive structure that is unstable and tends to change toward a more stable structure. Note that a more stable structure is not necessarily a more veridical representation; consistency theorists have stressed the essentially autistic nature of the processes that tend to construct consistent cognitive representations (Newcomb, 1947; Pepitone, 1966). Investigators employing a cognitive consistency framework have demonstrated that people readily produce consistent representations that are clearly false from a "realistic" point of view (e.g. Festinger, Riecken, & Schachter, 1956).

The assumption that thinking tends to increase consistency--rather than veridicality--of representation leads to a prediction about the impact of thinking on feeling that contrasts with the common sense hypothesis that thinking adapts feeling to reality. This alternative hypothesis also rests on the second assumption that the person's cognitive representation of an object determines feeling about the object. Rather than adapting feeling about an object to the real situation in which the person interacts with it, thinking may tend to polarize, that is, intensify, the initial affective value of the object. A recent line of research has produced evidence in support of the hypothesis that "thought intensifies feeling" (Tesser, 1978 p.

298).

Abraham Tesser and his colleagues have reported a series of investigations that appear to show that thinking about an object tends to lead to a more polarized attitude toward the object (Clary, Tesser, & Downing, 1978; Tesser, 1976, 1978; Tesser & Conlee, 1975; Tesser & Cowan, 1975; Tesser & Danheiser, 1978; Tesser & Leone, 1977; Sadler & Tesser, 1973). In Tesser's usage, and as defined here, attitude refers to a person's affective evaluation of an object, i.e., how favorably or unfavorably the person feels about the object (Fishbein & Ajzen, 1975; Fishbein & Raven, 1962; Osgood, Suci & Tannenbaum, 1957; Thurstone, 1935). The primary hypothesis tested in Tesser's "mere thought" research program has been "that thought about some particular object in the absence of any new information will tend to produce attitude polarization" (Tesser, 1978 p. 298).

Tesser derives his hypothesis from cognitive consistency theory. His central explanatory principle is that thinking about an object without an outside source of information will tend to produce a progressively more consistent set of thoughts in working memory and, hence, a more extreme attitude (Tesser, 1978). The requirement that no new information be available to the person is necessary to isolate the effects of thinking per se from the effects of any directive influence contained in information communicated to the person.

Tesser's "mere thought" attitude polarization research has been widely cited (e.g. Brehm, 1983; Burnstein & Schul, 1982; Caccioppo & Petty, 1981; Petty & Caccioppo, 1979; Fazio et al., 1982; Judd & Lusk,

1984; Taylor & Thompson, 1982) and the "mere thought" polarization of attitudes generally has been regarded as a replicable phenomenon. Yet, as indicated above, there are common sense reasons to remain skeptical about the polarization hypothesis. Thinking ought to serve an adaptive function, but there is no reason to believe that attitude polarization is usually adaptive. Although a more extreme attitude toward an object may be adaptive in many cases, in many other cases a less extreme attitude, a reversal in attitude, or no attitude change at all would be a more adaptive outcome of thinking.

If thinking does have some predictable effect on attitude, it can be argued that depolarization is a more likely outcome than polarization. As evidence to be reported here demonstrates, a person's initial thoughts about an object are likely to be consistent with the his or her overall attitude toward the object but, after a while, inconsistent "second thoughts" are likely to arise. Such second thoughts can be viewed as corrections to the person's overly one-sided first thoughts. Objects invariably have both good and bad aspects, as has been recognized at least since the time of Plato (Russell, 1942), and a veridical representation of an object will include both favorable and unfavorable attributes. Granting that the current cognitive representation of an object determines current feelings about it, the occurrence of second thoughts ought to moderate the intensity of feeling, rather than increase it. Despite these grounds for doubting the "mere thought" polarization hypothesis, it has so far provoked little controversy, and has been more or less uncritically accepted.

The present investigation is intended to subject the polarization hypothesis to needed critical attention.

There are two basic components of the work presented here. The first is an attempt to assess the validity of the "mere thought" polarization research. The initial chapters of this thesis review Tesser's theory, experimental procedures, and evidence. The most serious problem that they examine is Tesser's faulty operationalization of the "mere thought" situation itself. Despite his requirement that external sources of biasing information be excluded from the experimental situation, his actual methods depend on providing subjects with new information about novel objects. The chapters also point out a set of less central methodological issues that obscure the interpretation of Tesser's findings.

The second component of the present investigation is a series of three experiments performed to address the issues that Tesser's work raises. The experiments were undertaken primarily as an attempt at an independent replication of the attitude polarization effect. The second major objective was to test the opposing hypothesis that thought may tend to depolarize attitudes. The procedures were designed, in large part, to circumvent the problems in Tesser's procedures that are discussed below.

Plan of the Thesis

This paper is organized according to the following plan. Chapters 2 - 4 review Tesser's "mere thought" attitude change research. Chapter 2 explores his theoretical basis for deriving the polarization hypothesis. Chapter 3 examines the experimental evidence that Tesser has put forward in support of the hypothesis, and the experimental procedures used to obtain the evidence. Chapter 4 presents a critique of the "mere thought" research; besides pointing out a number of difficulties in previous work, it describes features of the present study aimed at avoiding these problems.

The remaining chapters describe the current experimental investigation and its findings. Chapter 5 explicates the present theoretical model of the persuasion and attitude change process. Chapter 6 states the objectives of the study, and provides operational definitions of the relevant variables. Chapter 7 details the methods used in carrying out the experiments. Chapter 8 reports the findings. The results are discussed in Chapter 9.

Appendix A contains printouts of the CRT screen displays seen by subjects in the study's experimental conditions.

CHAPTER II

DERIVATION OF THE "MERE THOUGHT" POLARIZATION HYPOTHESIS

The prediction that thinking about something, given no new information, will tend to polarize a person's attitude toward the object, was derived from theory rather than induced from empirical evidence. This chapter focuses on Tesser's derivation of the polarization hypothesis, and considers his argument's roots in the literature.

The Underlying Assumptions

Tesser has specified three core assumptions that, taken together, form a theoretical basis for the polarization hypothesis. They state that:

1. "For various stimulus domains persons have naive theories or schemas which make some attributes of the stimuli salient and provide rules for inferences regarding other attributes;
2. Thought, under the direction of a schema, produces changes in beliefs, and these changes are often in the direction of greater schematic and evaluative consistency;
3. Attitudes are a function of one's beliefs."

(Tesser, 1978, p. 290)

The second and third of Tesser's assumptions have been mentioned already. The assumption that thinking will tend to increase cognitive consistency, or consistency of beliefs, combined with the assumption that beliefs determine attitudes, provides the fundamental rationale for the polarization prediction. The first of Tesser's assumptions, that cognitive schemas are active in controlling thought processes, provides a substitute for the drive-reduction model that traditional consistency theories offered as an explanation for the putative tendency to greater consistency (Shaw & Constanzo, 1970). In the following three sections, each of the three assumptions will be considered in some depth.

Cognitive Schemas

In explaining what is meant by "schema", Tesser cites Frederick Bartlett's classic definition. According to Bartlett (1932), a schema is "an active organization of past reactions, or of past experiences, which always must be supposed to be operating in any well-adapted organic response" (p. 201). Put differently, information is not simply accumulated in inert storage structures in memory, but is incorporated into active systems that control behavior directed towards the objects that they model, and, as Bartlett emphasizes, are capable of "turning back upon themselves" to alter their own structure. Bartlett's notion of schema has been taken up by many contemporary cognitive psychologists, and restated and elaborated in modern terms.

Tesser identifies David Rumelhart's influential treatment of the

schema concept (Rumelhart, 1975; Rumelhart & Ortony, 1976) with his own views on the matter (Tesser, 1978 p. 290). Rumelhart defines a schema "as a data structure for representing the generic concepts stored in memory" (Rumelhart, 1980 p. 34). He describes two functions that schemata perform in the process of remembering past experience. First, while an event is occurring, a person's schemata act as mechanisms that construct an interpretation of the event. The interpretation is developed by means of a reciprocal process in which sense data is initially matched with one or more of the schemata stored in memory, that then assume control of the process by conducting a search for additional sense data and relevant data in memory that can define the values of variables not contained in the initial set of data. When the interpretation is more or less completed, it is stored as a trace in long term memory. Sense data themselves are not stored, according to Rumelhart, but only the the interpretation that the person has given these data.

The second function comes into play during recollection. The information stored in the interpretation formed at the time of the event must be reinterpreted in order for the event to be remembered. Recollection requires a process of construction very similar to that involved in the original perception of an event, Rumelhart argues. Whatever fragments of information about the event that are preserved in memory are matched with appropriate schemata in much the same way in which the initial sense data was matched. These schemata then search for additional fragments of information about the event in order to

specify values of variables not found in the trace that initially activated the recollection (pp. 49-50).

In Tesser's adaptation of Rumelhart's conceptual framework, "generic concept" corresponds to the category of events subsumed under the label a person assigns to an object or an attitude. In the "mere thought" situation, the only piece of information derived directly from sense data is the name of the object. Presumably, the first step in thinking about the object is to retrieve the schema that is associated with the topic name and to instate this schema in working memory. At that point the schema begins to direct the process of constructing a representation of the topic, using the information that it already incorporates and searching for additional information in long term memory to fill in gaps. The information immediately available in working memory upon instatement of the schema constitutes the salient attributes Tesser refers to in his first assumption, and the information retrieved to fill in lacunae in the representation constitutes the inferred attributes.

As mentioned above, traditional consistency theory (e.g., Heider, 1956; Festinger, 1957; Rosenberg & Abelson, 1960) relied on a drive reduction model to account for the occurrence of inconsistency reducing cognitive and motor behavior in response to cognitive inconsistency. Pepitone (1966) has noted that reliance on this model is unwarranted, considering that numerous experiments in learning and motivation long ago refuted the simple drive-reduction concept (Sheffield & Roby, 1950; Olds & Milner, 1954). A major advantage of Tesser's use of the schema

notion to explain the tendency to reduce inconsistency is that it dispenses with the drive-reduction model. Instead of arousing unpleasant sensations that prompt ameliorating responses, inconsistent cognitive elements fail to match schematic criteria for inclusion in the representation of an object.

Because the validity of the schema notion remains an open question among cognitive psychologists, and the issue is tangential to the present inquiry, no attempt to weigh the relevant evidence will be made here. The discussion so far has aimed only at stating and explaining Tesser's assumption about the existence of schemas. The next two sections take a more critical stance towards the assumptions that are of central interest in the present investigation.

Evaluative Consistency

Where his first assumption posits the existence of cognitive schemas that control thinking, Tesser's second assumption specifies the impact that schema-directed thought will have on the schema's constituent beliefs (i.e., cognitive elements). He asserts that schematic processing will often result in a set of beliefs in working memory that has "greater schematic and evaluative consistency." The general tendency to greater schematic consistency does not, in itself, provide a basis for the attitude polarization prediction. The putative tendency toward greater evaluative consistency, on the other hand, when joined with the third assumption that beliefs determine attitudes, leads directly to the polarization hypothesis.

Defining "cognitive consistency" so that clear rules of correspondence with observable phenomena are specified has always been a thorny problem for consistency theory (Pepitone, 1966). When, as in Tesser's theory, consistency refers to a match between schema and cognitive element, the problem of definition is no less severe. The myriad ways in which a piece of information might fit, or not fit, the requirements of a particular schema are all but impossible to codify neatly into a set of rules of correspondence. For practical purposes, the judgement of whether a certain element is consistent or inconsistent with a given schema must be made on an intuitive basis.

Although "schematic consistency" in the broad sense is not easily operationalized, Tesser's derivation of the polarization hypothesis depends on an assumption of a tendency to a more narrowly conceived sort of consistency--evaluative consistency. A cognitive representation of an object displays absolute evaluative consistency when all of the elements that compose it have either favorable or unfavorable connotation. A representation displays evaluative inconsistency when at least one element has the opposite evaluative connotation of the preponderance of elements. Where overall schematic consistency in a representation is hard to assess, evaluative consistency can be measured in a number of ways (Sadler & Tesser, 1973; Kaplan, 1972). The method used to measure evaluative consistency in the present study is described in Chapter 6.

Limiting the discussion to evaluative consistency, is there any empirical evidence that thinking actually tends to reduce evaluative

inconsistency? In impression formation research (Asch, 1946) it has been found that subjects given a list of traits describing a fictional person are likely to add new traits in their own descriptions of the person. These new traits tend to be evaluatively consistent with the prevailing evaluation in the list of traits. The finding suggests that, at least in the context of impression formation, thinking does tend to increase cognitive consistency. In addition, experiments designed to test the cognitive balance theory of Abelson and Rosenberg (1960) have demonstrated that, as a function of thought, "positively evaluated entities become positively associated with other positively evaluated entities and negatively associated (dissociated) with negative entities; negatively evaluated entities become associated with other negative entities" (Tesser, 1978 p. 295).

Tesser and his colleagues have provided their own evidence on the issue of evaluative consistency as a function of thinking. Sadler and Tesser's (1973) impression formation study of the polarization hypothesis found that their subjects tended to list more evaluatively consistent thoughts when given an opportunity to think, rather than a distractor task, before thought listing. They found no difference in the number of inconsistent cognitions, however. On the basis of these results, Tesser argues that generation of consistent cognitions is the primary mechanism by which thought reduces evaluative inconsistency, and removal of inconsistent cognitions may play only a minor role (Tesser, 1978 p. 313).

The present study failed to support the assumption that thinking

about an object tends to produce a more evaluatively consistent set of cognitions in working memory. Instead, the data appear to support precisely the opposite proposition, that thinking about an object will tend to increase the number of inconsistent cognitions in working memory. A full discussion of this result can be found in Chapters 8 and 9. It can be noted here, however, that the discrepancy in findings may be related to differences in the respective experimental paradigms. Specifically, thinking about a novel person in an impression formation procedure may have substantially different results than thinking about a familiar object in a strictly defined "mere thought" situation. This point is elaborated in Chapter 4.

In summary, the available empirical evidence does not provide unambiguous support for Tesser's assumption that thinking generally reduces evaluative inconsistency. The assumption may be valid under certain unspecified conditions, but appears invalid under the conditions of the present study. Comparison of the studies that Tesser cites in support of the assumption with the present study suggests that its validity may be limited to cases where the object of thought is novel.

Beliefs Determine Attitudes

Tesser's third assumption that "attitudes are a function of one's beliefs" (1978, p. 290) provides the crucial conceptual link between thinking and feeling that implies the "mere thought" attitude polarization hypothesis. If Tesser's first and second assumptions are

granted, disregarding any limitations they may have, then it is clear that schema-directed thought frequently ought to produce a more evaluatively consistent set of beliefs about an object. If, as the third assumption states, beliefs determine attitudes, then the more evaluatively consistent set of beliefs produced by thought should produce attitude polarization. As Tesser argues, "Since thought tends to make beliefs more evaluatively consistent and attitudes are a function of beliefs, thought will tend to polarize attitudes (1978, p. 290)."

As noted earlier, the term attitude is defined here and by Tesser as a person's affective evaluation (i.e. like or dislike) of a particular object. The term belief refers to an element of a person's cognitive representation of a given object that associates the object with an attribute, or characteristic. An attribute's association to an object can be either positive if the object is represented as possessing the attribute, or negative if the object is represented as not possessing the attribute. Each attribute carries an evaluative connotation, that is, it implies something favorable or unfavorable about an object to which it is associated. Thus, beliefs are said to determine attitudes in the sense that they associate (or disassociate) to objects desirable or undesirable attributes that determine the person's like or dislike for the objects (Fishbein & Ajzen, 1975). A more detailed discussion of these concepts can be found below in Chapter 5.

An abundance of empirical evidence is consistent with the

contention that beliefs determine attitudes. The evidence can be divided into at least three categories: 1. the nature of attitude measurement techniques; 2. the results of correlational studies; and, 3. the results of attitude change studies.

Based on their comparative analysis of the various techniques that investigators have used to develop attitude measurement scales, Fishbein and Ajzen (1975) have put forward the following generalization: "All attitude scales derive a person's attitude from his beliefs about the attitude object and the evaluations of the associated attributes" (p. 83). For example, an attitude scale developed by Thurstone's equal-appearing interval method (1931) consists of a series of potential belief statements about some object whose probable evaluative implications are known. A respondent completing such a scale is asked to check all the statements with which he or she agrees. The average evaluative implication of the statements that the respondent believes (i.e. agrees with) serves as a measure of the person's attitude toward the object. Other methods, such as Likert's (1932) and Guttman's (1944), make similar use of potential belief statements. The demonstrated utility of assessing a person's belief or disbelief in statements linking an object to evaluated attributes in order to infer the person's attitude toward the object is consistent with the claim that beliefs determine attitudes.

Somewhat stronger support for the assumption can be found in studies in which subjects' own belief statements are elicited, and attitude scores based on these statements are correlated with scores

obtained by a standard method. In an early test of his expectancy value model of attitude causation, Fishbein (1963) asked college students to write down the attributes that they associated with black people. Then, the students rated the ten most frequently listed attributes on scales measuring the strength of their belief that blacks possess a given attribute, and on scales measuring the favorability or unfavorability of the attribute. Scores calculated from these ratings were correlated with the students' attitudes as measured directly by semantic differential evaluative scales ($r = .80$). The high positive correlation between the own beliefs based measure and the direct attitude measure, in Fishbein's original study and the many that have followed it (see Fishbein & Ajzen, 1975; Ajzen & Fishbein, 1981), supports the supposition that beliefs determine attitudes. Of course, the correlational nature of these studies still leaves open the possibilities that attitudes cause beliefs, or a third factor causes both.

Attitude change studies employing thought-listing measures (Brock, 1967; Greenwald, 1968; Petty & Caccioppo, 1980) provide a third source of relevant evidence. Using a wide range of treatments aimed at changing subjects' attitudes, many investigators have demonstrated a strong relation between post-treatment attitudes and the contents of thought listing protocols obtained either during or immediately after an influence attempt. For example, Harkins & Petty (1981) examined the impact of varying the number of arguments and the number of different sources presenting the arguments on college students' attitudes toward

requiring seniors to take a comprehensive exam. In a control condition, the subjects were exposed to no arguments on the issue and were simply asked to list their thoughts about it and to complete a measure of their attitude toward comprehensive exams. The control subjects reported negative attitudes and their protocols contained an average of less than one favorable thought about the proposed requirement. In the most effective persuasion condition, in which three different speakers each presented a different argument in favor of the proposal, subjects' reports of positive attitudes towards the exams were accompanied by an average of almost four favorable thoughts in their protocols. Overall, the mean attitude measured in each condition in the study was highly correlated with the mean number of favorable thoughts included in the thought listing protocols obtained in the condition. (See Petty & Caccioppo, 1981 for a discussion of other studies demonstrating the relation of self reported thoughts to self reported attitudes.)

Taken together, a mass of empirical evidence is consistent with the claim that a person's beliefs about some object determine the person's attitude toward the object. However, even the experimental demonstrations such as the one discussed above still leave some room for other interpretations. In Fishbein & Ajzen's model of how beliefs determine attitudes, it is the salient, or conscious beliefs that are the proximal cause of a person's present conscious attitude toward an object. Another possible explanation of the high evaluative consistency of conscious beliefs and attitudes is that both are

generated by the same unconscious representational processes. In other words, the same unobservable processes that select one small subset of all the information a person has about an object and make this information salient may at the same time generate the person's conscious attitude toward the object. This alternative view will not be pursued further here, but is mentioned merely to point out a difficulty in arguing that salient beliefs cause conscious attitudes on the basis of self reports of the contents of consciousness. In what follows, the claim that "Attitudes are a function of one's beliefs" (Tesser, 1978, p. 190) is accepted as a useful working assumption.

Summary

The theoretical roots of Tesser's "mere thought" attitude polarization hypothesis have been explored in this chapter. Briefly, Tesser argues that thought is controlled by cognitive schemas, that schematic processing tends to make beliefs more evaluatively consistent, and that attitudes are a function of beliefs. Given a more evaluatively consistent set of conscious thoughts as a consequence of thinking, it follows that thinking will often polarize attitudes. The present discussion remained neutral on the issue of cognitive schemas, rejected Tesser's claim that thinking tends to increase the evaluative consistency of a person's thoughts, and tentatively accepted the proposition that beliefs determine attitudes. The next chapter will examine some of the empirical evidence that Tesser and his colleagues have produced in support of the "mere thought" polarization hypothesis.

CHAPTER III

THE EVIDENCE SUPPORTING THE "MERE THOUGHT" POLARIZATION HYPOTHESIS

The previous chapter examined the theoretical origins of Tesser's "mere thought" attitude polarization hypothesis. In this chapter, the empirical evidence that has been advanced in support of the hypothesis is reviewed. Besides reporting the relevant findings, close attention is paid to the details of the methods Tesser has employed. The information presented here lays the groundwork for the conceptual and methodological critique of the "mere thought" research that follows in Chapter 4.

The "Likable" and "Dislikable" Other Person Study

The first study in which Tesser demonstrated an apparent polarization effect examined the impact of thinking on subjects' attitudes toward a stimulus person who presented himself in either a positive or a negative manner (Sadler & Tesser, 1973). Subjects were told that they were participating in a study of "how peers evaluate each other without visual cues" (p. 103). Each subject spoke into a microphone for two minutes, giving his or her opinion on one of "several topics of current interest at the University of Georgia." Then the subject listened to the comments of a supposed fellow subject in another room, actually a tape recording. The comments either complimented the subject's presentation in a pleasant way, or

criticized the subject in an unpleasant way. Then the subject was instructed either to read an irrelevant magazine article aloud for a "standard voice pattern sample" (distraction condition), or, to think about the other subject (thought condition). The thought or distraction period went on for either 10 seconds, 1 minute, or 4 minutes, timed by the experimenter. At the conclusion of the timed interval, the subject was asked to complete three measures of attitude toward the "other subject": Byrne's Attraction Measure (Byrne & Nelson, 1965); three evaluative semantic differential scales (Osgood, Suci, & Tannenbaum, 1957); and a paper and pencil thought listing and rating measure (Brock, 1967; Greenwald, 1968). The attitude measures were administered in random order.

As expected, subjects formed positive impressions of the pleasant other subject and negative impressions of the unpleasant subject. In accord with the polarization hypothesis, the attitudes of subjects given an opportunity to think before their attitudes were measured were significantly more polarized than those of subjects who were distracted. Subjects in the thought condition also listed more cognitions consistent with their attitudes than those in the distraction condition. There was no difference in the number of inconsistent cognitions listed. Thus, the experiment seemed to support Tesser's polarization hypothesis, and to supply some basis for the assumption that thinking reduces evaluative inconsistency. The hypothesis that polarization would increase with the length of time spent thinking was not supported in this study, but, as is discussed in

Chapter 4, the negative finding may be a result of a flaw in the experiment's design.

The Effects of Time Spent Thinking Study

The second study that found a polarization effect (Tesser & Conlee, 1975) initiated the use of the pre-posttest design that Tesser later employed in the majority of his "mere thought" studies. Because variation of time spent thinking did not have any systematic effect in the first study, contrary to expectation, the purpose of the second study was "to examine more closely the effects of time spent thinking" (Tesser, 1978 p. 299).

In the first of the three experiments by Tesser and Conlee (1975), each subject was exposed to seven opinion statements randomly selected from a pool of 62 items. Taking each statement one at a time, the subject first rated his or her agreement with the item, thought about it for a timed interval, and then rerated the item on a scale identical to the pretest scale. After completing this cycle for one statement, the subject repeated it for each successive item until all seven items were done. The length of time spent thinking was controlled by the experimenter, who randomly assigned each subject to either a 30, 60, 90, or 180 second condition, and then timed the interval spent thinking about each item. Subjects were given scratch paper on which they could list their thoughts if they wished. Ratings were made in all cases by marking the point on a 12 cm line drawn between "Strongly Agree" and "Strongly Disagree", which most closely indicated the subject's own

subjective probability that the statement was correct. Subjects participated in groups of as many as four people.

The second experiment was similar to the first, except for three aspects. First, the pretest was given in a group session held a few weeks before the experiment. Subjects rated all 62 statements in the item pool on the 12 cm agreement scale. Second, the eight items each subject rated and thought about were selected on the basis of the subject's pretest ratings. In order to avoid items toward which the subject had an extreme or neutral attitude, the eight items were ones that the subject had given moderate or low positive or negative ratings. The third difference was the inclusion of a no thought condition in which subjects made their posttest ratings immediately. While the first two changes were essentially methodological refinements aimed at eliminating cases where polarization cannot be measured (i.e. extreme scores cannot get more extreme), the third change was intended "to provide a test of the hypothesis that thought (regardless of duration) produces greater polarization than no thought" (Tesser & Conlee, 1975 p. 265).

As predicted, the percentage of the subjects' attitudes that polarized increased as a function of time spent thinking, in both experiments. However, the prediction that the lowest level of polarization would be found in the no thought group was not borne out. Instead, almost half of the no thought group's attitudes polarized; a higher level of polarization than in all but the longest duration (180 second) thought groups.

In response to what they call this "distressing" (p. 266) and "anomalous result" (Tesser, 1978 p. 301), the authors conjectured that perhaps listing one's thoughts exerts a depolarizing influence on attitudes. They reasoned that subjects who wrote down their thoughts on the scratch paper provided may have inferred that they might have to defend their position later in the experiment. If so, the subjects may have adopted a "strategy of moderation" (Cialdini, Levy, Herman & Evenbeck, 1973), adjusting their posttest ratings toward the center of the scale in order to present a more defensible posture to anyone who might challenge their position. From this perspective, the low levels of polarization in the thought groups can be viewed as the results of the summations of a constant depolarizing force exerted by the thought listing task with a series of polarizing forces increasing with time spent thinking. In the no thought condition, on the other hand, subjects did not list their thoughts, and so, the level of polarization is a simple result of whatever polarizing forces were operating in the no thought situation.

To test this logic, Tesser and Conlee (1975) conducted a third experiment in which subjects did not list their thoughts during thought intervals. Surprisingly, this experiment used an entirely new set of stimuli and a different rating scale. Rather than reading opinion statements, subjects viewed slides of news photos. Instead of rating their agreement with the statements on a 12 cm scale, subjects rated how pleasant or unpleasant the slides made them feel by touching a stylus to one of eight labeled screwheads arranged in a line (p.267).

In the pretest phase, the subject rated the pleasantness of 20 different photos. Then, each subject was shown a single photo for 10 seconds; half saw a photo that he or she had given a moderate positive rating, and half saw a photo with a moderate negative rating. At this point, the subject was asked to fill out a four page questionnaire, but to stop work and to think about the target photo whenever a THINK light came on. The total time spent thinking was varied from 0 to 28 to 90 seconds. The frequency of thinking was also manipulated by either dividing the thought time into four equal lengths, or by not dividing it. Subjects did not write down their thoughts, as they did in the first two experiments, and in the initial "mere thought" study (Sadler & Tesser, 1973).

The results appear to support the hypothesis that polarization increases as the amount of time spent thinking increases; in this experiment the no thought group displayed the lowest level of polarization. The expectation that the absence of thought listing would increase the thought groups' overall level of polarization was not fulfilled, however. Both the 28 second and 90 second thought conditions resulted in less than half the subjects' attitudes polarizing. The frequency of thinking manipulation had no significant effect.

Tesser and his colleagues have reported several other studies (Sadler & Tesser, 1973; Tesser & Conlee, 1975; Tesser & Cowan, 1975; Tesser & Leone, 1977; Tesser, 1976, 1978; Tesser & Danheiser, 1978; Clary, Tesser, & Downing, 1978) that demonstrate a polarization effect

of thinking, but as noted previously, the major objective of these follow-up studies has been to test hypotheses concerning factors that may inhibit or facilitate the effect. The current investigation is not concerned with testing the subsidiary hypotheses, so discussion of the first two studies in the "mere thought" series is sufficient for present purposes. The next chapter explores some of the conceptual and methodological issues that the two studies raise, and that the present investigation has attempted to address.

C H A P T E R I V

ISSUES ADDRESSED IN THE PRESENT STUDY

The two studies that were summarized in Chapter 2 appear to support the polarization hypothesis. This chapter presents a critique of the methods used in these studies, and describes the features of the present experimental investigation that are intended to overcome the problems identified here. Six major issues stand out, each of which will be discussed in turn. They are: (1) The use of target objects that are novel to the subjects; (2) Faulty operationalization of the "mere thought" situation; (3) The use of single item scales to measure pre and post treatment attitudes; (4) Possible demand characteristics of the instructions; (5) An inadequate procedure to test the hypothesis that thought listing is depolarizing; and, (6) The absence of controls for audience effects. The first and second problems involve conceptual issues, and the other four involve less central methodological issues. Taken together, the objections raised here constitute an argument that Tesser's "mere thought" attitude polarization research has not produced valid empirical support for its central hypothesis.

The Use of Novel Target Objects

Although Tesser has presented the "mere thought" hypothesis as a

conjecture about attitude change, his actual studies involve attitude formation. Rather than examining the effects of thinking on subjects' already established attitudes toward familiar objects, the "mere thought" studies have typically observed the effects of thinking on newly formed attitudes toward novel stimuli. The use of previously unknown target objects prevents clear interpretation of the results of these studies.

Because attitude formation does not occur instantaneously but requires that time be spent constructing a cognitive representation of the new object (i.e. thinking) (Burnstein & Schul, 1982), the polarization effects seen in the "mere thought" studies may be artifactual. It is reasonable to assume that subjects' attitudes toward objects that they have not yet encountered are neutral. Once a novel object is presented, however, the subjects presumably begin to construct a representation of it, and this representation may generate a positive or negative attitude toward the object. The more time subjects spend thinking about the object, the more beliefs about it may be included in their representations.

If beliefs determine attitudes, then in many cases, the increasing elaboration of the new representation as a function of time spent thinking should result in increasingly polarized attitudes. Thus, Tesser's demonstrations of attitude polarization as a function of duration of thought can be explained as results of measuring attitudes at successive phases during initial attitude formation. To avoid this confound, a valid test of the "mere thought" attitude polarization

hypothesis requires the use of familiar target objects towards which subjects already have formed their attitudes.

Before discussing how the present investigation attempted to resolve this issue, it needs to be shown that the alternative explanation offered here is applicable to Tesser's findings. The results of the two studies summarized in the preceding chapter (Sadler & Tesser, 1973; Tesser & Conlee, 1975) provide clearcut illustrations of attitude polarization effects that can as readily be ascribed to measurement at successive phases of early attitude formation as to the influence of thinking per se.

The study by Sadler and Tesser (1973) is essentially an impression formation study, not an attitude change study. Subjects encountered a person they had not met previously, who presented himself in either a pleasant or unpleasant manner. Control subjects in the timed distraction groups were given little opportunity to form a cognitive representation of the person, and subjects in the timed thought groups were given the opportunity. That thought group subjects' attitudes toward the stimulus person were more extreme than those of the distraction group subjects, is entirely consistent with the alternative explanation advanced here. In Tesser's explanation, the cognitive representations of the distracted subjects are assumed to be less consistent than those of the thought subjects. In the alternative explanation, the representations of the distracted subjects are assumed to be less elaborated. Thus, in the present interpretation, the polarization effect that Sadler and Tesser observed is attributed to

the more developed representations formed by the thought subjects rather than to their more evaluatively consistent representations.

The thought-listing protocols that all the subjects produced supply some empirical support for the proposed alternative explanation. Distracted subjects listed significantly fewer thoughts about the stimulus person than thought subjects (Sadler & Tesser, 1973 p. 106). This result is clearly in line with the proposition that the representations of the subjects who thought about the stimulus person were more elaborated, as a consequence of thinking, than the representations of the subjects who did not think about the person.

The study's finding that the length of time spent thinking about the stimulus person was not related to the degree of attitude polarization is apparently inconsistent with both Tesser's and the present explanations. As Sadler and Tesser note, however, the method of administering the dependent measures may have obscured the effects of duration of thought (pp. 110-111). All subjects completed the thought listing task, which permitted them "to take as much time as they wanted" to think about the person and write down their thoughts. Because the measures were administered in random order, many subjects in all conditions were given an unmeasured amount of time to think about the stimulus person before completing the attitude measures. Due to this circumstance, no valid record of the duration of thought was taken in many cases. Therefore, the negative finding about the duration of thought is uninterpretable.

The results of the three experiments in Tesser and Conlee's (1975)

study each can be accounted for by either Tesser's or the present explanation. The first two experiments, in which subjects thought about statements that expressed particular opinions about various social issues, do not refute the alternative explanation, despite the apparent use of familiar attitude objects. Although the social issues that the statements referred to were probably familiar to the subjects, the statements themselves were probably not familiar. The investigators instructed the subjects to think about the statements, not about the issues themselves. The single item used to measure pre and post treatment attitude required subjects to judge their agreement or disagreement with the particular statement. That these judgements tended to become more polarized the more time subjects spent thinking about the statements is consistent with both the present view and Tesser's. Tesser explains the finding as a consequence of the more evaluatively consistent representations of the subjects who thought longer, and the alternative explanation accounts for it as the result of their more developed representations.

Tesser and Conlee's third experiment provides a clearer example of the use of novel attitude objects. The subjects rated how pleasant or unpleasant each of a series of newsphotos made them feel. Even if some of the subjects had previously seen some of the photos in their local newspapers, it is likely that most of the photos were novel stimuli. The increase in polarization of pleasantness ratings with increased time spent thinking about a photo is susceptible to either Tesser's or the alternative explanation.

The three experiments reported below avoid the ambiguity inherent in the use of novel attitude objects simply by using a familiar social object instead: Professional football. Although subjects varied considerably in their level of interest in this topic, it is reasonably certain that all had been exposed to it frequently prior to their arrival at the lab, and had already had an opportunity to form an attitude. Besides its familiarity to the subjects, the topic conformed to the criteria Tesser has set for target topics used in his studies. A pilot study identified "Professional football" as a topic that divided the subject pool roughly in half between subjects with positive and negative attitudes. In addition, attitudes toward the topic tended to be moderate or relatively neutral rather than extreme, in contrast to topics like "The MX missile" that tended to elicit extreme attitude ratings.

Faulty Operationalization of "Mere Thought"

Tesser's use of novel attitude objects in his "mere thought" studies raises a second issue that presents another serious conceptual difficulty. The studies failed to operationalize the "mere thought" situation that they were designed to investigate. The essence of the "mere thought" paradigm is that subjects be isolated from external sources of information about the target object while they think about it. The use of novel objects precludes the possibility that this situation can actually be achieved. A "mere thought" experiment using novel objects necessarily includes an external source of information

about the objects; otherwise there can be no attitude to measure. Presenting such information to a subject, and then removing it while the subject thinks, clearly does not eliminate the information's directive influence on the subject's formation of a representation of the topic. (The author wishes to thank Icek Aizen for noticing this problem in the "mere thought" research.)

For example, the stimulus person in Sadler and Tesser's (1973) experiment is heard to speak about himself and about the subject in a pleasant or unpleasant manner. Then, the subject thinks about what he or she has just heard. To describe this situation as "mere thought" is equivalent to claiming that reading a newspaper editorial about a social issue and then closing your eyes to think about the issue is "mere thought". Obviously, the contents of the editorial, and of the stimulus person's communication, exert directive influence on the supposedly isolated cognitive processes. The information present in working memory, in both cases, is drawn directly from external and internal sources. The external source suggests an appropriate direction and intensity of the target attitude, and the internal information may support or contradict the external source. That the external source is inaccessible during the thought period does not remove its influence on the representation the person forms. In the true "mere thought" situation, all the information that enters working memory and links evaluated attributes to the target object must be retrieved from long term memory.

The target object used in the present study was professional

football; the only piece of information concerning this object that was supplied to the subjects was the verbal symbol, "Professional football". By merely naming the topic, and saying nothing more about it, the experimental procedure was a fairly close approximation of the ideal "mere thought" situation. Rudimentary source and message characteristics could not be entirely removed from the situation, of course, since the subjects did meet the experimenters, and the medium of the computerized questionnaire may have influenced the subjects. Overall, however, the present operationalization of "mere thought" seems more adequate than has been used in previous research. (A detailed discussion of the requirements of the "mere thought" situation can be found in Chapter 5.)

The Use of Single Item Attitude Measures

The two issues discussed above involve major conceptual problems in the "mere thought" research. The remaining four issues are less serious methodological shortcomings that obscure the interpretation of Tesser's findings, but they are probably less important. Nonetheless, the steps taken in the present research to circumvent these problems represent methodological improvements in investigating "mere thought" attitude change phenomena.

Tesser's studies typically use a single item to measure the subject's attitude before and after the treatment period. The main difficulty with using a single item for the pre and posttest is that subjects are likely to recall their initial response when making the

second one. To the extent that such recall takes place, the subject's posttest rating may be as influenced by his or her initial rating as by the current state of the target attitude. Although Sadler and Tesser (1973) used a multiple-measurement approach, the single-item method introduced in Tesser and Conlee (1975) presents problems for interpreting their findings. Tesser's later studies share this shortcoming.

The pre and posttest attitude measures used in the three experiments reported here consisted of ten evaluative semantic differential scales (Osgood, Suci, and Tannenbaum, 1957). Three aspects of the procedure were designed to interfere with the subject's recall of pretest responses at the time of the posttest. The pretest ratings were not made in isolation, but in the context of a series of ratings, on the same ten scales, of twelve distractor topics. The target topic was the seventh topic presented, in order to exploit the primacy-recency effect (i.e. the beginning and end of a series of memory items are more likely to be recalled than the middle items). Finally, the scales themselves were presented in random order, so that posttest ratings were made in a different order than the pretest ratings. (See Baddeley, 1976 for a discussion of factors that disrupt recall.)

Possible Demand Characteristics of the Instructions

A more problematic issue is raised by the instructions Tesser has used to explain the thought task and the posttest ratings. These

instructions appear too informative; they openly communicate the expectation that attitudes may change during the experiment. Consider the following excerpt from the initial instructions that subjects read in Tesser and Conlee's (1975) first experiment:

"The important thing is that you think about the item until the experimenter tells you to stop. At the experimenter's signal, reread the item and then...indicate on the scale provided...the extent to which you agree or disagree with the item at that particular moment. Your attitude may or may not completely agree with your past feelings, but we are interested only in your attitude at that particular moment." (Emphasis added.) (Tesser & Conlee, 1975, p. 263)

These instructions have the likely effect of making attitude change salient to the subject. Another example of overly informative instructions is the following passage from Tesser and Conlee's (1975) posttest instructions in their third experiment:

"I would now like you to once again indicate how you feel about the photograph that I showed you before, since sometimes people's feelings shift even over as short a period of time as this. Of course, you may or may not feel the same way about the photographs. (Emphasis added.) Just indicate how the photographs make you feel now" (Tesser & Conlee, 1975 p. 268). In a footnote, the investigators described additional sentences that they dropped, "since this instruction did not have the desired effect and seemed to create too great a 'demand'" (p. 268). The "desired effect" was described as "to increase the overall rate of polarization." The instructions that the authors did

include, however, were already laden with apparent demand characteristics. Such communicative explanations to the subjects of the experimental procedures make clear interpretation of the findings difficult.

The present study attempted to avoid the pitfall of demand characteristics in the experimental procedure by two means. First, the experiment was represented to the subject as a "Computerized Opinion Study" that was "part of a study of people's opinions about a number of topics of current interest and importance." The distractor topics included items such as "Abortion" and "The MX missile" that were consistent with this pretext. Second, subjects were offered no explanation for the thought task beyond referring to it as "part of this experiment." The instructions for the posttest simply noted that the subject had rated the topic previously and was asked to rate it again. No reason for repeating the rating was given to the subject.

Invalid Test of Thought Listing Depolarization Hypothesis

As noted in the earlier discussion of their study, Tesser and Conlee (1975) were distressed by the anomalous result that the subjects in the no thought condition in their second experiment displayed a higher rate of attitude polarization than all but the longest duration thought group. Their response was to develop a post hoc explanation of the finding revolving around the hypothesis that the thought listing task may have a depolarizing effect. In their third experiment in which subjects rated newsphotos, they eliminated the thought listing

task. Because the no thought group in this experiment had the expected lowest rate of polarization, they concluded that their post hoc explanation had been supported.

Had they simply repeated their initial procedure in which subjects were exposed to statements about social issues and made ratings on a single item agreement scale--without providing scratch paper during the thought period--they would have had some basis for this conclusion. The experimental situation in the third experiment was radically different from that in the first two, however. The attitude objects were newsphotos rather than opinion statements. Ratings of how pleasant or unpleasant the photos made the subjects feel were made by touching a labeled screwhead with a stylus, rather than by marking a point on a line to indicate the subjective probability of a statement. In short, too many independent variables were simultaneously changed in the third experiment to draw any firm conclusion about the putative depolarizing effect of thought listing. The third experiment is not directly comparable with the first two.

Tesser and Conlee were not primarily interested in their depolarization hypothesis, so it is not surprising that they did not subject it to a more valid test. The hypothesis that thought listing has such an effect is important in its own right, however, and needs to be tested empirically. Taking thought listing protocols from subjects is a vital feature of the influential cognitive response approach to studying attitude change (Brock, 1967; Greenwald, 1968; Petty and Caccioppo, 1981). If this technique does in fact introduce a

systematic depolarizing bias into posttest attitude measurement, investigators employing it need to be aware of its impact. Such an effect would also have implications for the theoretical understanding of attitude change in general, beyond purely methodological considerations.

In order to provide a more satisfactory test of Tesser and Conlee's (1975) depolarization by thought listing hypothesis, thought listing was manipulated as an independent variable in the present study. In each of the three experiments, a condition was included in which subjects listed their thoughts during the thought period, along with two other conditions in which subjects did not list their thoughts. As will be seen in Chapter 7, the experiments produced strong evidence in support of the depolarization hypothesis.

Neglect of Possible Audience Effects

The presence of other people has been shown to influence individual behavior in many domains. Being observed by an audience apparently may either inhibit or facilitate the performance of a task, depending on how well learned the task is (Zajonc, 1965). Although thinking is not directly observable, it is reasonable to conceive of thought as cognitive performance (Bartlett, 1958). The possibility that audience effects may occur in the domain of thinking cannot be summarily dismissed. It might be expected that thinking about a familiar object that the subject has thought about often in the past would be facilitated by the presence of others, and that thinking about

an unfamiliar object would be impeded.

Because Tesser views attitude polarization as a function of the amount of thinking accomplished, it is apparent that possible audience effects need to be controlled in the "mere thought" experimental situation. Tesser's research program has neglected the possible occurrence of audience effects on attitude polarization. In the two "mere thought" studies that have been described here (Sadler & Tesser, 1973; Tesser & Conlee, 1975), the presence of others was varied somewhat haphazardly. The later studies in the "mere thought" series that were not discussed in detail here also disregarded potential audience effects.

The present investigation directly manipulated the audience variable in an attempt to detect facilitating or inhibiting effects on attitude polarization. In the first of the three experiments reported here, subjects in all three conditions participated alone in a soundproofed room during the entire course of the procedure. The second experiment was identical in all respects to the first, except that the experimenter sat in the room with the subject and observed quietly as the computer carried out the procedure. The largely negative results of the manipulation of the audience variable are reported in Chapter 7.

Summary

This chapter has completed the present review and critique of Abraham Tesser's "mere thought" research program. The first two

chapters reviewed Tesser's derivation of the polarization hypothesis and the empirical evidence he has put forward in its support. The current chapter has argued that flaws in Tesser's methodology are serious enough to invalidate the "mere thought" research program's apparent empirical support for the polarization hypothesis. Six issues clouding interpretation of Tesser's "mere thought" studies were discussed, and the features of the present study designed to address these issues were described. The first two issues, the use of novel target objects and faulty operationalization of "mere thought", are themselves sufficient grounds to reject the studies' results as evidence of a polarization effect of thinking. The other four issues could be regarded as more picayune, but are important enough to cast some additional doubt on the validity of the "mere thought" research findings.

In the remaining chapters, the discussion turns to the present experimental investigation. The next chapter explicates the theoretical orientation that guided the design of the experimental procedures. The rest of the thesis specifies the experimental hypotheses and operational definitions of independent and dependent variables, details the procedures followed, reports the results, and concludes with a discussion of the findings and their implications.

CHAPTER V

A COGNITIVE MEDIATION MODEL OF ATTITUDE CHANGE

People play an active role in bringing about changes in their attitudes. Workers in attitude change research have provided extensive evidence not only for the validity of this proposition, but for its central importance. Effective persuasion producing enduring attitude change appears to depend on how successfully it influences the internal processes of self-persuasion (Kelman, 1958, 1961; McGuire, 1960, 1986; Petty & Cacioppo, 1981). Presenting a persuasive message to a person can have little lasting impact unless it instigates active cognitive processes that result in changes in the person's own cognitive structure related to the topic of the message (Fishbein & Ajzen, 1975).

The cognitive mediation framework that has guided this investigation of the attitude change phenomena that occur within Tesser's "mere thought" experimental paradigm is an amalgam of concepts derived from two complementary models of attitude change. One, the cognitive response approach, (Brock, 1967; Greenwald, 1968; Petty & Cacioppo, 1981) has stressed the critical role of the person's thoughts during a persuasive communication in determining the impact of the message. The other, Fishbein and Ajzen's model of persuasive communication (1975, 1981), has emphasized analysis of change in the person's belief system regarding the topic of the message. Taken

together, the two models convey the basic premises of the cognitive mediation paradigm.

The cognitive response approach will be considered first. Researchers with this orientation assume "that when a person anticipates or receives a persuasive communication, an attempt is made to relate the information in the message (or the expected message) to the preexisting knowledge that the person has about the topic" (Petty & Cacioppo, 1981, p. 225). The resulting "self-generated cognitive responses (thoughts) may agree with the proposals being made in the message, disagree, or be entirely irrelevant to the communication". The thoughts that the message elicits act as pro and counter arguments that "determine the amount and direction of attitude change that is produced."

There are five essential components of the cognitive response model of persuasion: (1) an external source of information about a topic; (2) an internal source of information about the topic in long term memory; (3); cognitive processes that use available information (a) to construct, in working memory, symbolic representations concerning the topic and (b) to store new and revised representations in long term memory; (4) the balance of pro and counterarguments in working memory; and (5) the person's enduring attitude, or the general evaluation of the topic stored in long term memory.

The persuasive communication process model of Fishbein and Ajzen (1975, 1981) complements the cognitive response approach by supplying an analysis of the relation to the information contained in a message

of the cognitive structure that holds the person's preexisting knowledge about a topic. These authors identify beliefs as the fundamental units of cognitive structure, and distinguish different types of component beliefs by their functional relation to some specific attitude, and by their correspondence to the informational items of the message.

A belief is defined as "the subjective probability of a relation between the object of the belief and some other object, value, concept, or attribute" (1975, p. 131). Not all beliefs a person may have about an object directly determine the person's attitude toward the object; those that do are termed the primary beliefs. Each proposition contained in a message that asserts the probability that the object of the attitude is related in some way to some attribute constitutes an informational item. Each belief that asserts the person's own subjective probability that an attribute specified in an informational item is linked to an object is termed a proximal belief. Each belief that asserts an object-attribute link that does not correspond to an informational item in the message is termed an external belief.

A message will succeed in changing a person's attitude toward its topic to the extent that it changes the person's primary beliefs. When a primary belief is also a proximal belief, it can change directly if the person accepts the corresponding discrepant informational item. When a primary belief is an external belief, it can change indirectly if the person infers a new subjective probability for the relevant object-attribute link by considering the implications of the non-

corresponding informational items.

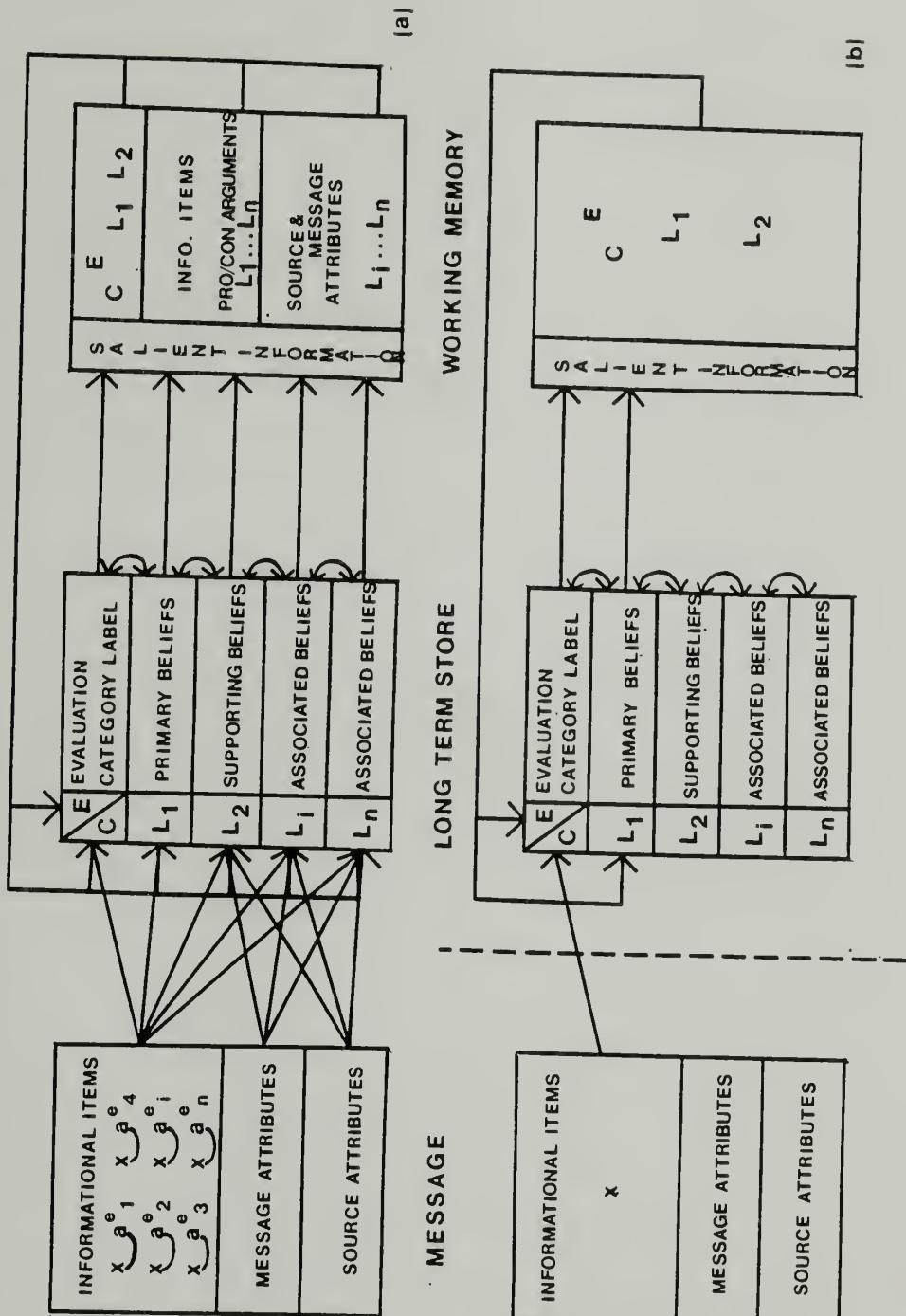
The core of the Fishbein-Ajzen model of the persuasion process is their specification of the functional relation of the set of primary beliefs to the attitude toward the object. First, it must be noted that each attribute linked to an object by a primary belief is itself linked to an evaluative judgement. Thus, each primary belief can be characterized by its position on two quantitative dimensions: (1) the subjective probability of the object's link to an attribute, or the belief strength (b), and (2) the person's evaluation (e) of the attribute linked to the object. According to Fishbein and Ajzen, the following formula defines the functional relation between the set of n primary beliefs and the attitude toward the object (A):

$$A = \sum_{i=1}^n b_i e_i$$

Within the constraints of this formula there are three ways in which the set of primary beliefs can change and thereby change the attitude: (1) the subjective probability that an object is associated with an attribute can change; (2) the evaluation of the attribute can change; and (3) a new belief can be added or subtracted from the set of primary beliefs.

Figure 1a illustrates how the concepts of the cognitive response approach and the Fishbein-Ajzen model can be combined to represent a general cognitive mediation paradigm for the persuasion process. Figure 1b shows how the "mere thought" attitude change process can be

FIGURE 1



The first box in Figure 1a corresponds to the external source of information, usually a message, that both models require. Two types of external factors are identified in the figure: (1) source and message characteristics (i.e. credibility, order of presentation, etc.); and (2) the informational items contained in the message (shown as the object (x) linked to a particular attribute (a) and the evaluative connotation of the attribute (e) communicated in the item). In Figure 1b, which represents the "mere thought" experimental situation, the first box is isolated from the rest of the process model by a dotted line.

The theoretical significance of the "mere thought" situation is analogous to the import of procedures that physiological psychologists have used to demonstrate the internal neural source of wakefulness. Early views (Bremer, 1937) postulated that wakefulness is driven by the level of ambient stimulation confronting the organism. Later researchers (Batini, et al., 1958, 1959) refuted the traditional position by transecting a cat's brain at the midpons. Although the sensory nerves were severed from the cerebral cortex, eliminating sensory input, the cat exhibited total insomnia (Carlson, 1981). Metaphorically then, Tesser's procedure can be viewed as a "transection" of the persuasion process that "severs" the external information source from the internal source and the constructive cognitive processes. The demonstration of genuine attitude change in this situation would provide strong evidence of an active internal process of attitude change, independent of external influences.

By comparing Figures 1a and 1b, it is possible to see what sort of consequences the cognitive mediation paradigm indicates would occur in the "mere thought" situation. The first result concerns the nature of the process of retrieving information from long term memory, depicted in the second box in both figures. In the "intact" persuasion process, multiple external probes instigate multiple searches in long term memory. The source characteristics instigate searches for relevant data; the topic of the message instigates a search for the primary beliefs; and the informational items instigate searches for the corresponding proximal beliefs, and for beliefs that support the proximal beliefs. In the "transected" persuasion process, only a single external probe -- the name of the topic -- instigates a search for the appropriate category label and primary beliefs.

The division of the long term memory box in both figures into levels is meant to convey the concept that, if the name of the topic is taken as the entry point into long term memory, all the information stored there is located relatively "close" or "distant" from the position of the initially activated information in the associative network (cf. Collins & Quillian, 1967). As the figures show, the intact persuasion process is likely to activate information that is quite remote from the primary beliefs, but the transected process is unlikely to activate remote information. The two situations prime two very different sets of information in long term memory for entry into working memory.

The cognitive response approach and the Fishbein-Ajzen model both

identify working memory as the active site of attitude change. As is well known, working memory has a limited capacity; only about seven items can be salient at one time (Miller, 1956). In the intact persuasion process, many pieces of information of both external and internal origin compete with each other for the few open slots. Many of these are irrelevant to the determination of the person's attitude toward the topic, and others can affect the target attitude only if they trigger an inference process that ultimately results in changes in the primary beliefs.

The items that combine to represent the source and message can directly determine the person's attitude toward the source and message, but their influence on the target attitude, if any, is peripheral and unlikely to produce lasting attitude change (Petty & Caccioppo, 1981, 1985). The salient informational items extracted from the message contents can elicit retrieval of pro and counterarguments from any level of long term memory; they will influence the target attitude only if they correspond to beliefs whose change initiates an inference process leading to the primary beliefs. Finally, the primary and supporting beliefs may become salient in working memory if the message's references to the target topic itself instigate their retrieval from long term memory. In summary, the intact persuasion process represented in Figure 1a is immensely complex, and does not allow clear differentiation of the impact of internal and external influences on the target attitude.

In contrast to the inevitable confounding of external and internal

influences on attitudes in the intact persuasion process, the "mere thought" situation depicted in Figure 1b all but eliminates external factors. The only external information about the object that can enter working memory is the topic name presented in the instructions to think. The internal information most closely associated with the category label in long term memory has a clear field for entry into working memory. As the figure shows, this information includes the overall evaluation of the object (E) (i.e. the attitude), the primary beliefs (L1) that have previously determined the attitude, and possibly, some of the supporting beliefs (L2) on which the primary beliefs are based.

By entering working memory, the primary beliefs are made open to the three sorts of changes specified in the Fishbein-Ajzen model. The cognitive response approach suggests the following mechanism of change. The primary and supporting beliefs may act as pro or counterarguments for each other, or their presence in working memory may instigate searches for more remote pro and counterarguments, or for information that can be used in constructing new arguments. If the global evaluation of the object represented in working memory diverges from the initially retrieved attitude as a result of this pro and counterargumentation, the person's current perception of the attitude will also shift. If the revised evaluation is then stored in long term memory, this attitude change will endure.

Application of the Model in the Present Study

The design of the three experiments reported here was guided by the conceptualization of the "mere thought" situation depicted in Figure 1b. Every effort was made to bring about as complete an isolation from external influences on the attitude change process as possible. As has been mentioned above in Chapter 3, subjects were exposed only to the name of a familiar topic, "Professional football", and no attributes of the topic were stated at any point in the procedure. In addition, the use of a microcomputer to carry out the experimental procedure virtually eliminated the external influence on the attitude change process of an experimenter's facial expression, tone of voice, posture, etc. In the audience conditions potential experimenter effects were minimized by keeping the experimenter blind to the treatment condition. All in all, the experimental situation used in the present investigation is as close an approximation of the situation shown in Figure 1b as could be devised.

Besides guiding the development of an experimental procedure, the model of the "mere thought" situation advanced here implies that it is reasonable to predict attitude change in the absence of external influence. The model does not make a directional prediction (e.g. attitude polarization or depolarization), but does provide a theoretical basis for expecting some sort of attitude change as a result of thinking. In contrast to the complex impact of an external message on the contents of working memory, the "mere thought" situation appears to have the simple effect of instigating the retrieval of the

attitude and primary beliefs. Because, according to the Fishbein-Ajzen model, the primary beliefs determine attitudes, and are determined themselves by constructive processes in working memory, the "mere thought" situation seems able to produce conditions in which attitude change is likely. The cognitive response approach concept of pro and counterargumentation provides the potential mechanism of change. The experiments reported here are tests of the overall validity of the cognitive mediation model of attitude change.

Summary

This chapter has presented the theoretical underpinnings of the present investigation. A cognitive mediation model of the general attitude change process was developed by combining elements of the cognitive response approach (Brock, 1967; Greenwald, 1968; Petty & Caccioppo, 1981) with elements of the Fishbein-Ajzen model of the persuasion process. A specific model of the "mere thought" attitude change process was derived from the general model. Finally, the influence of the model on the present study was discussed. Essentially, it was stated that the experimental procedures followed here were an attempt to operationalize the conceptual model of "mere thought", and that the model's prediction of attitude change as a result of "mere thought" requires the test that the present investigation provides. The next chapter contains the experimental hypotheses tested here, and operational definitions of the relevant dependent variables.

CHAPTER VI

HYPOTHESES AND OPERATIONAL DEFINITIONS

The series of three experiments reported here provided tests of seven hypotheses. In this chapter, each of the hypotheses is stated along with its rationale, and operational definitions of the relevant dependent variables are given. The manner in which the independent variables were operationalized is detailed in the next chapter's description of the experimental procedures.

Hypotheses

Hypothesis 1: "...Thought about some object in the absence of any new information will tend to produce attitude polarization."

(Tesser, 1978 p. 298)

Rationale: Chapter 2 discussed Tesser's derivation of the polarization hypothesis in some detail, so little need be added here. Tesser has summed up his argument as follows:

"People have organized knowledge structures called schemas. During thought schemas make some beliefs salient and provide rules for making inferences. Schema-directed thought tends to result in a set of cognitions more consistent with the schema and also more evaluatively consistent. Since affect is dependent on salient cognitions, this greater evaluative consistency leads to attitude

polarization." (Tesser, 1978 p. 297)

Hypothesis 2: Thinking about an object in the absence of new information will tend to produce attitude depolarization.

Rationale: An argument leading to this prediction, the opposite of Tesser's polarization hypothesis, was outlined in the Introduction. Like the polarization hypothesis, the depolarization hypothesis rests on three assumptions. First, rather than assuming that thinking is controlled by cognitive schemas, it is assumed that, whatever mechanism controls the process, thinking generally serves the function of adapting a person's internal representation of his or her situation in the environment to greater congruence with the real external situation. In the case of a person thinking about a single external object, thinking is assumed to result in a representation that is more veridical in the sense that it provides the person with a more accurate view of the object's motivational significance.

Second, it is assumed that the cognitive representation of an object that is formed immediately upon encountering the object, either symbolically or actually, will be more evaluatively consistent than the representation resulting from continued thinking about the object. In other words, a person's initial thoughts about something are likely to be contradicted by "second thoughts" if the person continues thinking. The process of counterposing evaluatively inconsistent thoughts can potentially improve the veridicality of representation, the task that the first assumption posits as the function of thinking.

The third assumption is the same as Tesser's: The person's current cognitive representation of an object determines the person's attitude towards the object. Granting these three assumptions, it follows that the initial attitude toward an object upon encountering it is likely to be more polarized than the attitude after time spent thinking.

Hypothesis 3: Thinking about an object in the absence of new information will tend to result in attitude change.

Rationale: The discussion of the cognitive mediation model of attitude change in the preceding chapter gave the basis for this non-directional prediction. If attitude change occurs as a consequence of cognitive processes in working memory that affect the set of primary beliefs that determine a particular attitude, the "mere thought" situation should have the potential to produce attitude change. In the absence of new externally supplied information about the attributes of the attitude object, the primary beliefs face little competition for entry into working memory. When these beliefs do enter working memory, they themselves can act as probes into long term memory that may elicit the retrieval or construction of pro or counterarguments. As the process of argumentation in working memory proceeds, the initial set of primary beliefs may change, leading to change in the person's attitude.

Hypothesis 4: Thinking about an object in the absence of new information will tend to increase evaluative consistency in its representation in working memory.

Rationale: This hypothesis is assumed in Tesser's derivation of his polarization hypothesis. As shown in Chapter 1, the source of this proposition is in consistency theory, which posits that inconsistent cognitions produce an unpleasant drive state that motivates a person to reduce the inconsistency by either overt or covert behavior. Tesser appears to have rejected the drive-reduction notion of traditional consistency theory, but his appeal to the concept of cognitive schemas has permitted him to retain the assumption of a tendency towards evaluative consistency. In his view, schema-directed thought is a process of assessing the match between the contents of working memory and the schema, and of retaining the cognitive elements that most closely conform to the schema.

Hypothesis 5: Thinking about an object in the absence of new information will tend to reduce evaluative consistency in its representation in working memory.

Rationale: This hypothesis, which contradicts Tesser's evaluative consistency assumption, is assumed in the present derivation of a depolarization hypothesis about the effects of thinking on attitude. It is no more self-evident than Tesser's opposing hypothesis, however, and needs to be supported by evidence.

If it is accepted that thinking serves the biological function of adapting human beings to their environment, and that it does so by providing people with more or less veridical representations of their situations, then it is reasonable to posit that the evaluative consistency of a representation is likely to decrease as thinking

proceeds. The initial representation of an object that first comes to mind when a person encounters the object can be viewed as a first approximation model of the object's motivational significance that can permit the person to take immediate action, if the situation requires it. As a first approximation, the initial representation may include only the most outstanding aspects of the person's knowledge about the object, and these aspects are likely to be consistently negative or positive in their evaluation.

Given enough time to think about the object, on the other hand, the person is likely to form a more finely detailed representation that includes knowledge about the object that has the opposite evaluative connotation to the knowledge embodied in the initial representation. Should action be required after the person has had the opportunity to construct a more veridical representation of the object, the person may be able to fine tune the course of his or her behavior towards the accomplishment of more adaptive consequences than the first approximation may have permitted.

In the context of the "mere thought" paradigm, the object's presence is only symbolic, and the person clearly has the opportunity to think without taking immediate action. Therefore, the present reasoning leads to the prediction that the final representations of objects that subjects form in this experimental situation are likely to be less evaluatively consistent than their initial representations.

Hypothesis 6: Writing down thoughts about an object in the absence of

any new information will tend to produce attitude depolarization.

Rationale: The prediction that listing thoughts about an object in writing will tend to depolarize a person's attitude can be derived from at least two lines of reasoning. First, Tesser has argued (Tesser & Conlee, 1975; Tesser, 1978) that thought listing is likely to alert subjects to the possibility that they might have to defend their own views against opposing views. If so, then subjects might be expected to adopt a "strategy of moderation" (Cialdini, et al., 1973) in completing a post thought listing attitude measure. By presenting their attitudes as "middle of the road", subjects assume a posture that can more easily be defended against an opponent than a more extreme position.

A second argument can be derived from the present cognitive mediation model of attitude change. When a subject has constructed and externalized a verbal representation of a belief about an object, the written statement acts as an external probe that elicits the retrieval or generation of counterarguments. In other words, once a statement has been written, the subject is likely to engage in a process of checking the statement's validity by scanning long term memory for contradictory data. (Implicit in this view is the assumption that the process of checking the validity of a statement will entail a preferential search for disconfirming rather than confirming evidence.) As counterarguments are retrieved or are constructed in working memory, they will often result in changes in the set of primary beliefs

associated with the attitude object. The counterarguments may themselves be incorporated into the set of primary beliefs, or they may weaken the initial primary beliefs, or change the attribute evaluations of the beliefs. If the primary beliefs determine attitude, then the result of such changes in the primary beliefs will be attitude depolarization.

Hypothesis 7: The presence of an audience during thought about an object will tend to either facilitate or impede attitude polarization.

Rationale: This prediction is based on the findings of social facilitation research (e.g. Zajonc, 1965). The presence of an audience appears to have either a facilitating or impeding effect on the performance of a behavior. When the behavior is a familiar, well learned one, an audience is likely to facilitate performance, but when the behavior is new or poorly learned, an audience is likely to impede performance. Thinking, although a covert form of behavior, ought to be subject to the same kind of audience effects that have been shown to influence overt behaviors. Following Tesser's argument that thinking is likely to produce attitude polarization, the presence of others can be expected to increase polarization when subjects think about a familiar object, and to decrease polarization when they think about an unfamiliar object. That is, thinking about a familiar object is a well learned task that ought to be facilitated by an audience, and thinking about an unfamiliar object is a relatively novel task that ought to be

inhibited.

Operational Definitions of Dependent Variables

Attitudinal variables. The operational definitions of absolute attitude change, attitude polarization, and attitude depolarization that are used in this study are based on comparison of pre and post treatment evaluative semantic differential scores (Osgood, Suci, & Tannenbaum, 1957; Fishbein, 1963). The pre and posttest scores are calculated by summing the ratings on ten seven-place evaluative scales ranging in value from -3 to +3. The scores can range from -30 to +30.

1. Absolute attitude change: The absolute value of the difference between the pretreatment (SD1) and posttreatment (SD2) semantic differential scores.

$$\text{Absolute attitude change} = |SD1 - SD2|$$

2. Attitude polarization: When SD2 has the same sign (+ or -) as SD1, and the absolute value of SD2 is greater than that of SD1, the attitude is said to have polarized. If SD1 is equal to zero, and SD2 is not equal to zero, the attitude is also said to have polarized. Attitude polarization can be scored in a number of ways, three of which are used here (See Tesser, 1978 for discussion of scoring methods.):

a) Percentage of subjects polarized: The number of subjects in each treatment group whose attitudes have polarized according to the above criteria is determined, and the percentage of subjects polarized in each group is computed.

b) Absolute polarization score: If a subject's attitude has polarized then the absolute polarization score equals the absolute value of the difference between SD1 and SD2. If the subject's attitude has not changed, or has depolarized (see below), the absolute polarization score equals zero.

c) Degree of polarization score: If a subject's attitude has polarized then the degree of polarization score equals the absolute polarization score. If the subject's attitude has depolarized, the degree of polarization score equals the absolute depolarization score multiplied by -1.

3. Attitude depolarization: When the sign of SD2 is opposite that of SD1, or if the absolute value of SD2 is less than the absolute value of SD1, the attitude is said to have depolarized. Attitude depolarization is scored here by the same three methods used to score polarization.

a) Percentage of subjects depolarized: Instead of computing the percentage of subjects polarized in each group, the percentage depolarized is computed.

b) Absolute depolarization score: If a subject's attitude has depolarized, the absolute depolarization score equals the absolute value of the difference between SD1 and SD2. If the subject's attitude has not changed, or has polarized, then the absolute depolarization score equals zero.

c) Degree of polarization score: Same method used to score both polarization and depolarization.

4. No attitude change: When SD1 is equal to SD2, the attitude is said to have shown no change.

Measures of evaluative meaning and evaluative consistency. Subjects in all conditions of the experiments described in the next chapter completed thought listing procedures in which they first typed each thought about the target topic "Professional football" that arose during a three minute interval. They then went on to rate their statements on subjective probability and evaluative implication scales (Fishbein & Raven, 1963). The attempts to quantify temporal trends in evaluative meaning that are described next are all calculated on the basis of the subjects' own ratings of their statements. A detailed description of the thought listing and rating task itself can be found in the next chapter and in Appendix A.

Temporal trend scores: When subjects listed their thoughts about the target topic, the temporal order of the statements was recorded in the thought listing protocols. By comparing the subjects' initial thoughts with their later thoughts, it is possible to test the opposing hypotheses that thoughts will become either more evaluatively consistent or less evaluatively consistent as thinking proceeds. To obtain the scores described below, each subject's thought listing protocol was first divided into a first and second half. If, for example, a subject made ten statements about the topic, the first half of the protocol consisted of the initial five sentences and the second half consisted of the final five sentences. If a subject produced an odd number of statements, the ratings of the middle statement were divided evenly between the two halves of the protocol. Four types of scores were computed for each half of a protocol: total affect, consistent affect, inconsistent affect, and proportion of consistent affect.

Total affect scores: As noted previously, the subjects rated each of their statements on subjective probability and on evaluative implication scales. The product of the two ratings for a sentence is taken as an index of the positive or negative affect expressed in the sentence, and the absolute value of the product represents the intensity, disregarding the direction, of the expressed affect. The total affect expressed in each half of a protocol consists of the sum of the absolute values of the products of the ratings of the sentences

in that half.

2) Consistent and inconsistent affect scores: In general, two approaches can be taken to determining whether to define the positive or negative affect a subject expresses as the attitude consistent affect. The first would be to use a separate index of the evaluative direction of a person's attitude, such as the semantic differential pretest score in the present study, to identify the consistent direction. Thus, if the pretest indicated that a subject had a positive attitude, the positive statements in the protocol would be taken as the consistent statements. However, in attempting to apply this approach in the present investigation, a major difficulty arose. The predominant affect expressed in the protocols of a large minority of subjects, especially those with very low positive or negative pretest scores, was the opposite of the direction indicated by their pretest scores. For example, a subject with a pretest score of -5 might express predominantly positive beliefs about the target topic in his or her thought listing protocol. In such cases, the evaluative direction indicated in the pretest score apparently is in error--the subject actually seems to have a slightly positive attitude toward "Professional football". Consistent affect scores based on this external approach therefore appear highly prone to error, and a different approach is adopted here.

This second approach relies on a composite index of the consistent evaluative direction. Three attitude scores were transformed and

combined to produce this index: the pretest score, the "own beliefs" score based on the first half of the protocol, and the own beliefs score based on the whole protocol. The own beliefs scores were calculated by summing the crossproducts of the subject's evaluative and belief strength ratings of his or her sentences; the first half score based on the sentences in the first half, and the other based on both halves taken together. The three scores for each subject were transformed either to +1 or -1, depending on their signs, and the transformed scores were summed to form the composite index. If the index was negative, the subject's initial attitude was assumed to be negative, and if positive, the attitude was assumed to be positive.

For the first half of a protocol, the absolute value of the sum of the products of the ratings of the statements in the attitude consistent direction is taken as the consistent affect score. The inconsistent affect score is defined as the absolute value of the sum of the products of the ratings of the statements in the inconsistent direction. The same method is used to calculate the second half scores.

Total affect expressed in each half of a protocol is related to consistent and inconsistent affect as follows: $\text{Total affect} = \text{consistent affect} + \text{inconsistent affect}$. If the methods used to calculate these scores remain unclear, it may be helpful to examine the sample thought listing protocol included in Appendix A.

3) Proportion of consistent affect scores: The proportion of

consistent affect expressed in the first or second half of a protocol is defined as the ratio of the consistent affect score to the total affect score for that half. As will be seen below, comparison of these scores in the first and second half of subjects' protocols provides evidence that is directly relevant to Hypotheses 4 and 5.

Summary

This chapter has presented the hypotheses tested in the present investigation, and has provided operational definitions of the dependent variables of interest here. Hypotheses 1, 2, 3, 6, and 7 are predictions about attitude change in the "mere thought" situation, and Hypotheses 4 and 5 are predictions about change in the evaluative consistency of the contents of working memory as a function of time spent in "mere thought".

Hypothesis 1, Tesser's "mere thought" attitude polarization hypothesis, stands in opposition to Hypothesis 2, the present "mere thought" attitude depolarization hypothesis. Similarly, Hypothesis 4 is Tesser's prediction that the representation of an object in working memory should become more evaluatively consistent the longer a person thinks about it, and Hypothesis 5 is the opposite prediction that evaluative consistency will decrease the longer a person thinks about a topic.

The dependent measures described above fall into two categories parallel to the two categories of hypotheses. Measures used to test the attitude change and polarization hypotheses include absolute

attitude change scores, percentage polarization and depolarization scores, degree of polarization scores, and absolute polarization and depolarization scores. These scores are all based on the difference between subjects' pretest evaluative semantic differential scores towards the target topic "Professional football" and their posttest scores. A set of temporal trend scores consisting of total affect scores, consistent affect scores, inconsistent affect scores, and proportion of consistent affect scores is used to test the evaluative consistency hypotheses. These measures are all calculated on the basis of subjects' own ratings of their own statements produced during the thought listing task.

CHAPTER VII

METHOD

Three experiments were performed in order to test the hypotheses put forward in the preceding chapter. Their design is modeled on Tesser's pre-posttest experimental paradigm. Experiments 1 and 2 followed identical procedures, except that subjects participated alone in the former, and in the presence of the experimenter in the latter. First, all subjects rated their attitudes toward a series of distractor and target topics on ten evaluative semantic differential scales. Then, the subjects were randomly assigned to one of three groups: a Distraction group; a Thought group; and a Thought Listing group. Immediately after the treatment condition, they repeated the ten semantic differential ratings of the target topic. Following the posttest, subjects completed listing and rating their thoughts about the target topic, and completed a modal salient beliefs measure of their attitudes, which is described below. The three groups in each of the two experiments combine to form a 3 X 2 ANOVA design.

In the course of carrying out the initial two experiments, the need for a third experiment to clarify certain ambiguities became evident. The measures of evaluative consistency used here require subjects to list their thoughts and rate them on subjective probability and evaluative scales. In the case of the Thought Listing treatment group, subjects listed their thoughts prior to the posttest. But

subjects in the Distraction and Thought groups listed their thoughts after the posttest. Thus, the levels of evaluative consistency observed in the Thought and Distraction groups could be as affected by the posttest as by the treatments. To remove this potential confound, the third experiment administered the posttest after thought listing in all three groups. In all other respects, Experiment 3 was identical to Experiment 1; the experimenter was not present while the procedure was in progress. The Thought Listing group in Experiment 3 went through precisely the same procedure as Experiment 1's Thought Listing group.

Because all three experiments followed highly similar procedures, only the procedure used in Experiment 1 is fully elaborated here. The description of the methods used in Experiments 2 and 3 is limited to the features that distinguish them from the method of Experiment 1.

Experiment 1: No Audience

Subjects

Ninety undergraduates enrolled in psychology courses at the University of Massachusetts participated in the first experiment; 26 males and 64 females. All participants were recruited through the psychology department's subject pool, an arrangement in which students receive partial credit in department courses in return for their voluntary cooperation. Each subject was randomly assigned to one of three conditions; 30 subjects were included in each group.

Apparatus

A Kaypro 4 portable microcomputer was used to conduct the entire experimental procedure. The machine is a self contained unit with 64K RAM, two 360K disk drives, and a nine inch monochrome display screen. The program that executed the procedure was written in Microsoft Basic.

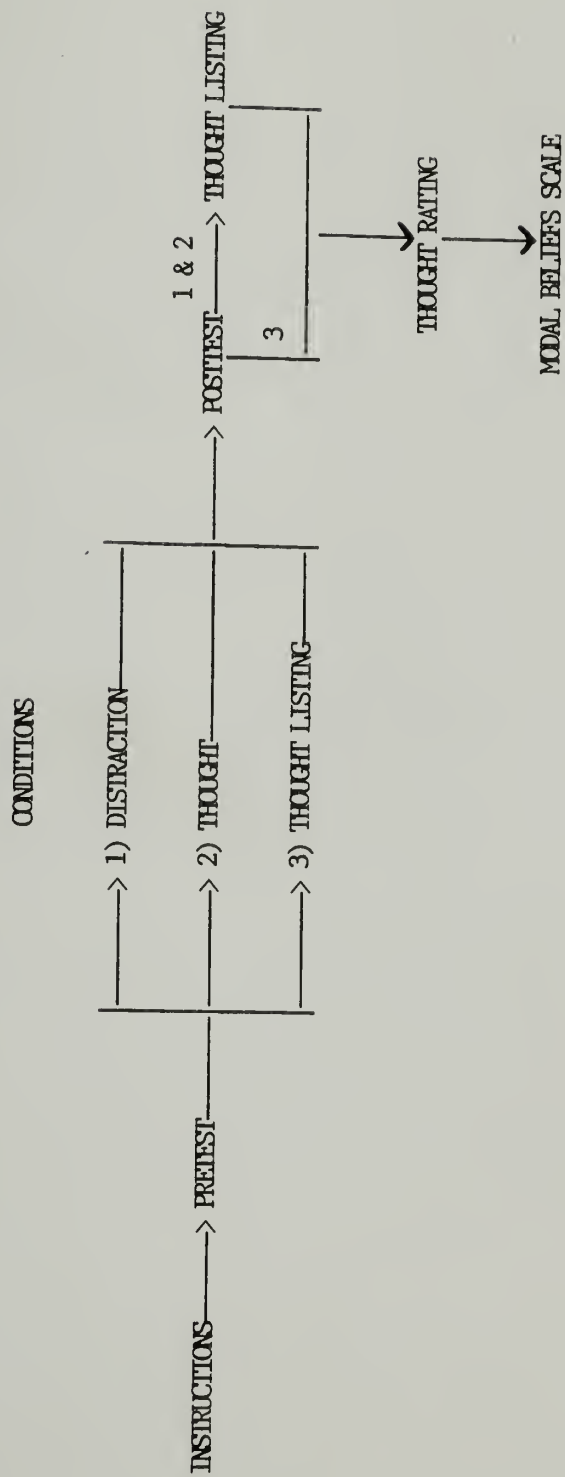
Procedure

Figure 2 is a diagram of the procedures employed in the three conditions of the experiment. As can be seen, subjects in all three conditions went through the same two initial stages. First, they read general instructions and then, they completed a pretest in which they rated their attitudes towards thirteen topics, including "Professional football", the target topic.

In the third stage, after random assignment to condition, subjects received one of three treatments: Distraction, Thought, or Thought Listing. After the three minute treatment period, all subjects completed a post test of their attitudes toward the target topic. Subjects in the Thought Listing group rated their statements of their thoughts on subjective probability and evaluative scales immediately after the posttest, and subjects in the other two groups made their ratings when they completed listing their thoughts. In all three conditions, the subjects completed a final measurement of their attitudes toward the target topic by rating 20 modal belief statements that were obtained in a pilot study.

A more detailed description of each stage in the procedure

FIGURE 2: FLOWCHART OF THE EXPERIMENTAL PROCEDURE



follows. Appendix A contains a printout of the sequence of screen displays seen by the subjects in all three conditions.

Instructions. The experimenter showed each subject into a soundproofed room where the microcomputer was set up on a table. Then, the experimenter showed the subject how to start the machine. When it was clear that the subject understood what he or she was to do, the experimenter left the room and shut the soundproofed door. The first instructions displayed on the screen were as follows:

"This experiment is part of a study of people's opinions about a number of issues of current interest and importance. Thank you for agreeing to participate. The purpose of the experiment is to find out what YOU THINK about the topics. There are no right or wrong answers to the questions you will be asked to respond to here. Always select a response to a question which best states YOUR OWN OPINION on the topic."

Before proceeding any further, each subject typed in answers to four demographic questions: age, gender, academic major, and expected year of graduation. Then the subject went on to read the instructions for the pretest. (See Appendix A.)

Pretest. The pretest phase required the subject to rate each of thirteen topics on ten evaluative semantic differential scales (Osgood, Suci, & Tannenbaum, 1957; Fishbein & Raven, 1963; Fishbein & Ajzen, 1975). The topics were presented in the same order for each subject,

with the target topic "Professional football" presented seventh. The target topic was presented in the middle of the list of distractor topics in order to minimize the likelihood that the subject would recall his or her previous responses while taking the posttest. The semantic differential scales were presented in random order for each topic, also to minimize recall. In addition to recording the subject's scale rating, the computer also recorded the response latency from the presentation of a scale and topic until the rating.

The thirteen topics, in the order in which they were presented, were: TV commercials; Daycare; Abstract art; Capital punishment; National health insurance; The MX missile; Professional football; Space exploration; Labor unions; Ronald Reagan; Walter Mondale; A nuclear freeze; and Abortion.

Treatments. After completing the pretest, each subject was randomly assigned to one of three conditions. Then, the subject read the appropriate instructions for his or her group.

1. **Distraction condition.** Subjects in this group were instructed to think about the distractor topic "Abstract art" for a three minute period. No explanation was given of the purpose of the thought period. The topic was displayed on the screen for three minutes, and the subject then proceeded to the posttest.

The instructions were as follows:

"This part of the experiment will focus on a single one of the

topics which you encountered in the first part. You are asked to take three minutes to give serious thought and reflection to the topic. During this three minute period of thought, it is important that you do THINK about the topic and that you do not permit your mind to wander.

THE THOUGHT PERIOD WILL BEGIN WHEN YOU PRESS RETURN TO CONTINUE, AND THE TOPIC IS DISPLAYED ON THE SCREEN. A buzzer will sound when the three minutes are up."

2. Thought condition. These subjects received exactly the same instructions as the distraction group, but the target topic--"Professional football"--was displayed on the screen for three minutes. The subjects then went on to the posttest.

3. Thought Listing condition. Instead of simply thinking about the target topic, subjects in this group were asked to type into the computer each thought about the topic that occurred to them. The target topic was displayed on the screen followed by an ellipsis (i.e. Professional football...), and the subject recorded a thought by typing a complete sentence beginning with "Professional football". As the subject typed, his or her words were displayed on the screen. When the subject ended a sentence with a period, the screen cleared and the target topic was again displayed to elicit the next sentence completion. The computer recorded the completed sentences, and the response latency in milliseconds between each initial display of the topic and the first letter of the first word of the sentence

completion. The time to type the sentence was recorded in 1/100s of a second.

The complete instructions for the thought listing task are included in Appendix A.

Dependent Measures. At the conclusion of the treatment phase of the procedure, all subjects completed a series of dependent measures intended to detect the impact of the treatments on the subjects' attitudes toward the target topic.

1. **Posttest.** Immediately after completing their treatment tasks, all subjects proceeded to the posttest phase of the experiment. They rated the target topic on the same ten evaluative semantic differential scales used in the pretest, but in a different random order.
2. **Thought listing.** Subjects in the Distraction and Thought groups then went on to complete the same thought listing task that the Thought Listing group did as an experimental treatment.
3. **Thought rating.** All subjects rated each of the statements that they had made during their thought listing periods on two scales: 1. a seven-place subjective probability scale ranging from EXTREMELY LIKELY to EXTREMELY UNLIKELY and; 2. a seven-place evaluative semantic differential scale ranging from EXTREMELY GOOD to EXTREMELY BAD. The subjects were instructed to indicate with the first rating how strongly

they believed the statement, and with the second rating, how "good" or "bad" was the statement's implied evaluation of the target topic. The computer recorded the ratings and the rating response latencies. The instructions for these ratings can be found in Appendix A.

4. **Modal salient belief scales.** The final phase of the experiment required subjects in all three groups to complete an attitude scale consisting of twenty belief statements about the target topic. The items were selected on the basis of the results of a pilot study of the computerized thought listing procedure in which respondents listed their thoughts on nine topics, including the target topic. The ten most frequently stated negative beliefs, and the ten most frequent positive beliefs that were elicited in the pilot study were included in the modal salient belief scale (Fishbein, 1963; Fishbein & Ajzen, 1975). The computer recorded the ratings and the rating response latencies. Appendix A contains the complete instructions for this task, and the modal salient belief items themselves.

Experiment 2: Audience

Subjects

Subjects were recruited in the same manner as in the first experiment. In the second experiment, 38 males and 52 females participated.

Procedure

The procedure followed in the second experiment was the same as that in the first in all respects, except for the presence of the experimenter. After showing the subject how to start the experiment, the experimenter sat in a chair and read until the onset of the treatment period, which the computer signaled by emitting a long beep. At that point, the experimenter observed the subject thinking or listing thoughts until the end of the three minute period, again signaled by a beep. The screen itself was never visible to the experimenter. Two experimenters, one male and one female, conducted the experiment.

Experiment 3: Posttest after Thought Listing

Subjects

Subjects were recruited the same way as in the first and second experiments. In the third experiment, 34 males and 56 females participated.

Procedure

The only difference in procedure between Experiment 3 and Experiment 1 was that the posttest in the Distraction and Thought groups was administered after the thought listing period rather than before it. The procedure in the Thought Listing condition was identical to that followed in the first experiment. All subjects participated alone.

CHAPTER VIII

RESULTS

Five of the hypotheses tested in this investigation are predictions about attitude change, polarization, and depolarization in the "mere thought" situation (Hypotheses 1, 2, 3, 6, and 7). The remaining two hypotheses (4 and 5) are predictions about the effects of "mere thought" on the evaluative consistency of cognitive representations. The first section of this chapter will present the findings related to the former set of hypotheses, and the second section will present the evidence related to the latter.

Attitude Change, Polarization, and Depolarization

Hypothesis 3 Although the primary focus of the investigation centered on Hypotheses 1 and 2, that "mere thought" will tend either to polarize or conversely, to depolarize subjects' attitudes toward the target object, both hypotheses imply a more fundamental prediction, stated here as Hypothesis 3. Regardless of the direction of change, "mere thought" is predicted to result in changed attitudes.

Absolute change scores were calculated for the subjects in Experiments 1 and 2, and analyzed in a 2-way ANOVA. (Data obtained in Experiment 3 were not used to test attitude change hypotheses because subjects in all conditions completed the thought listing procedure prior to completing the posttest, confounding the effects of the

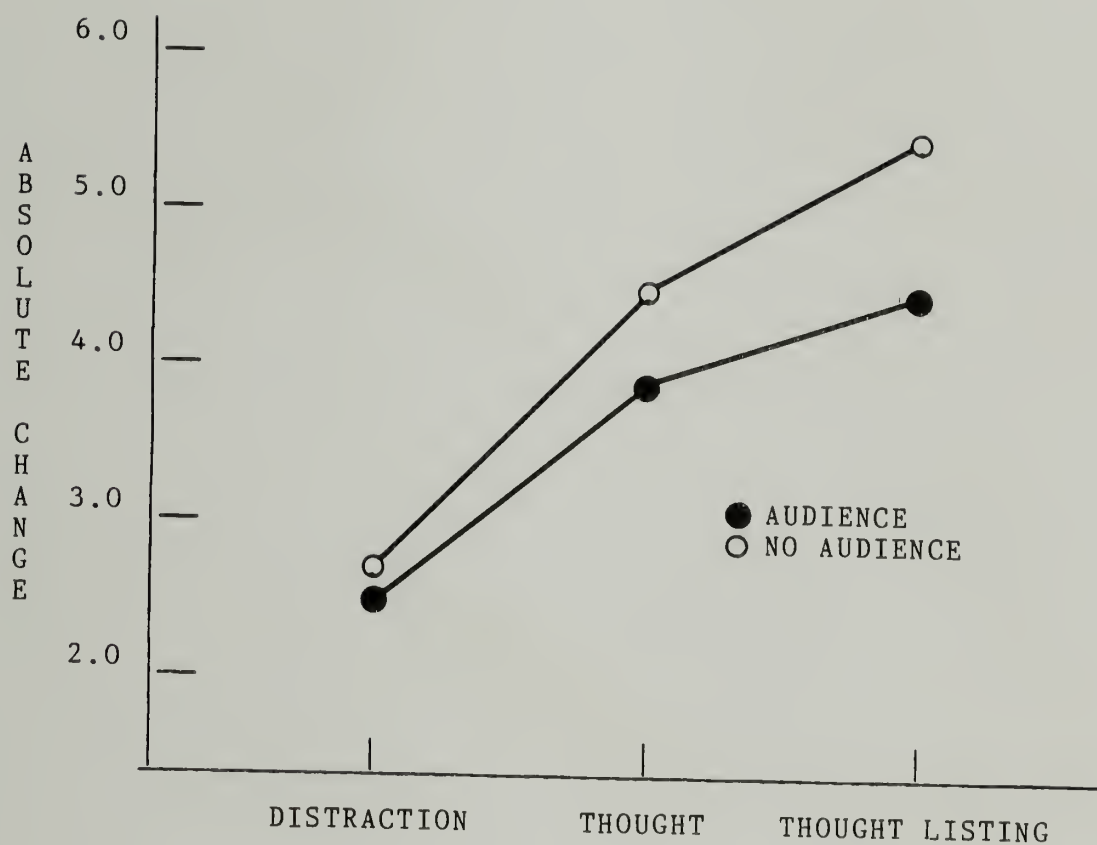
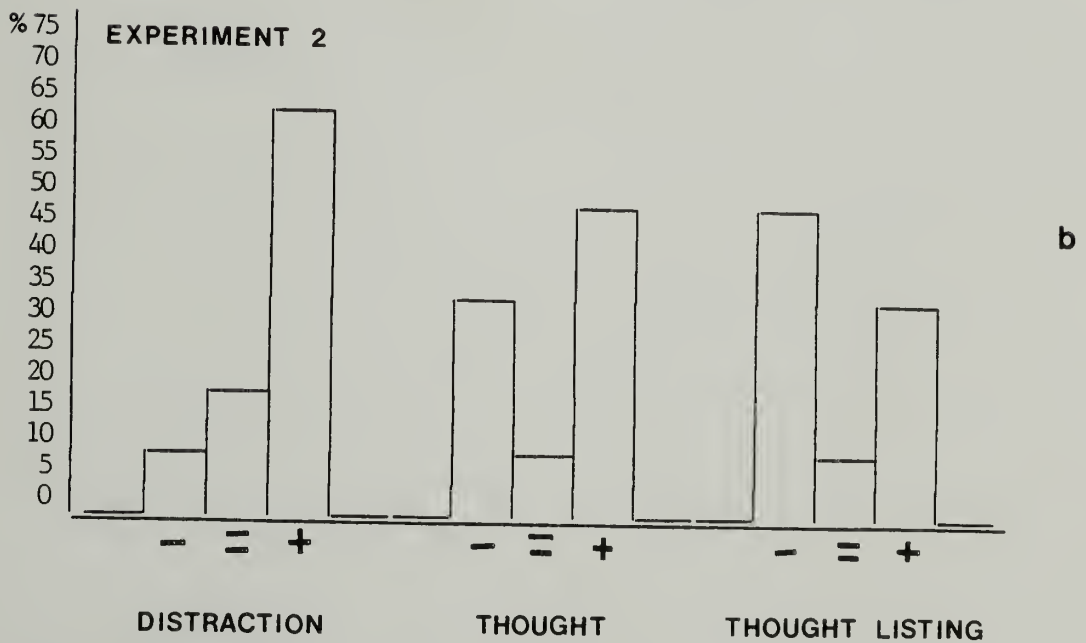
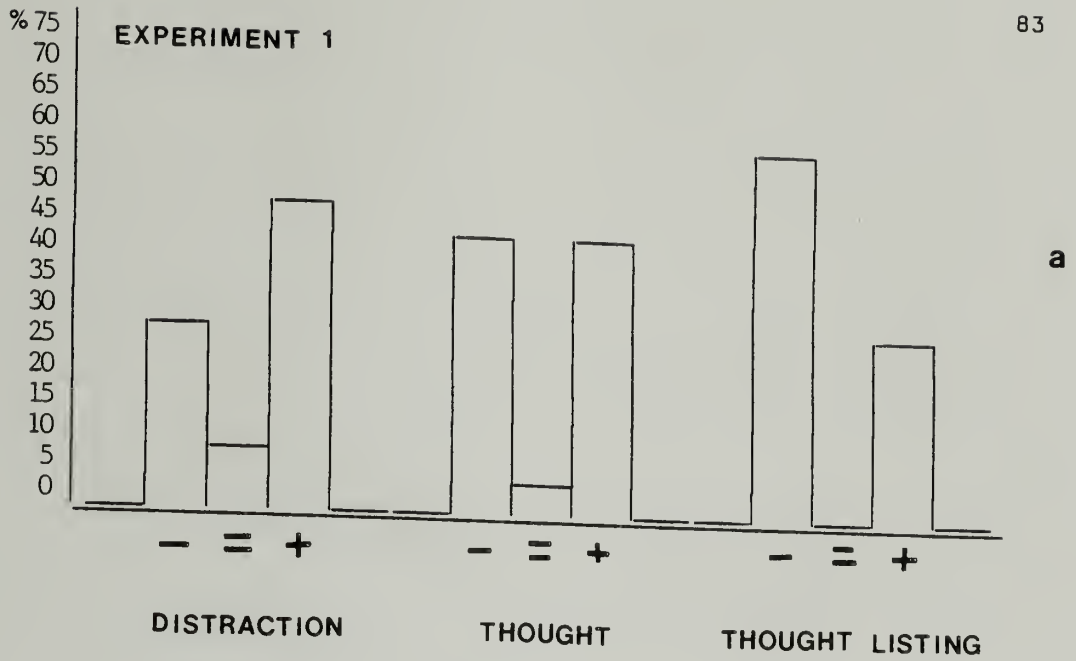


Figure 3. Mean absolute attitude change scores as a function of thought about the target topic and presence of an audience.

FIGURE 4.

83



Percentage of subjects' attitudes depolarized, unchanged, and polarized in the Distraction, Thought, and Thought Listing conditions of Experiments 1 and 2.

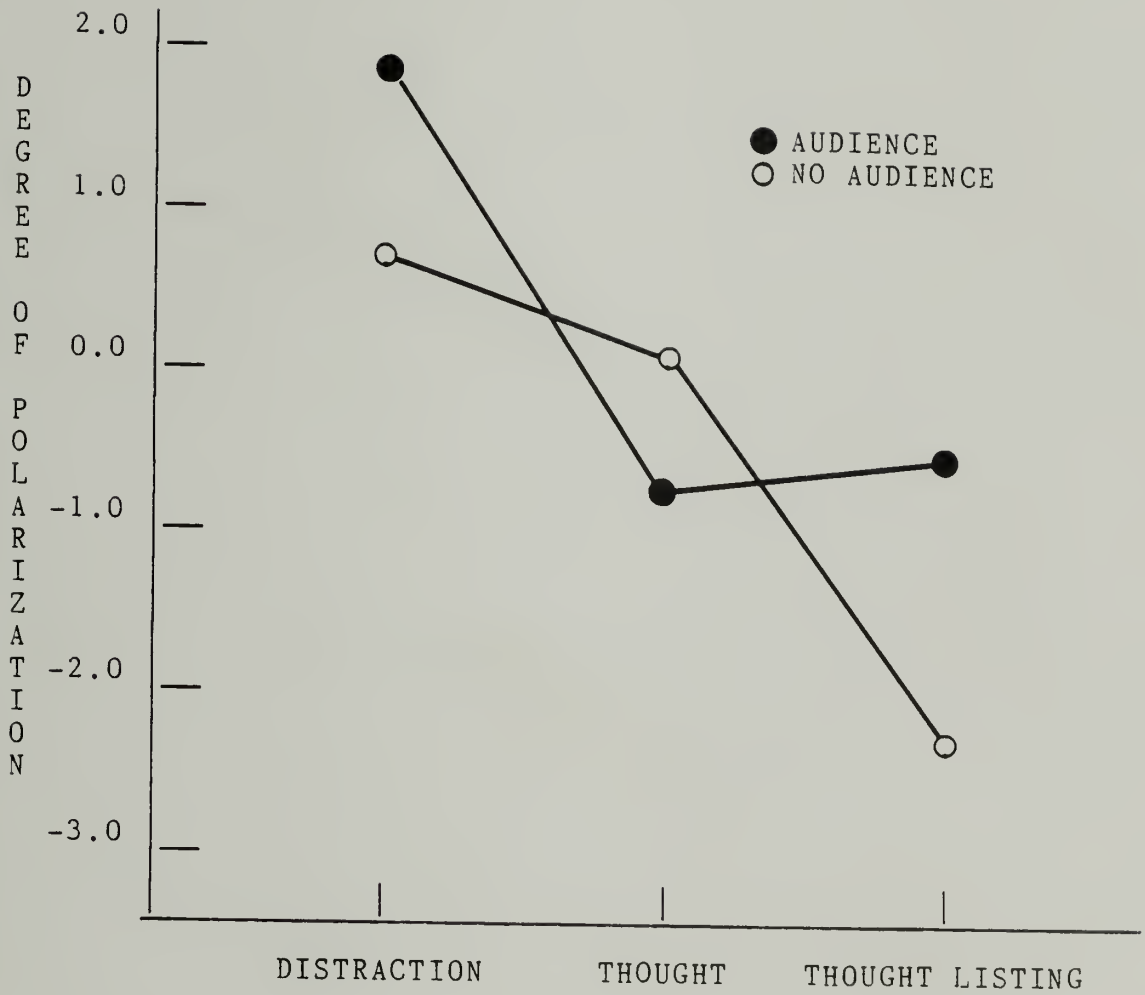


Figure 5. Mean degree of polarization as a function of thought about target topic and presence of audience.

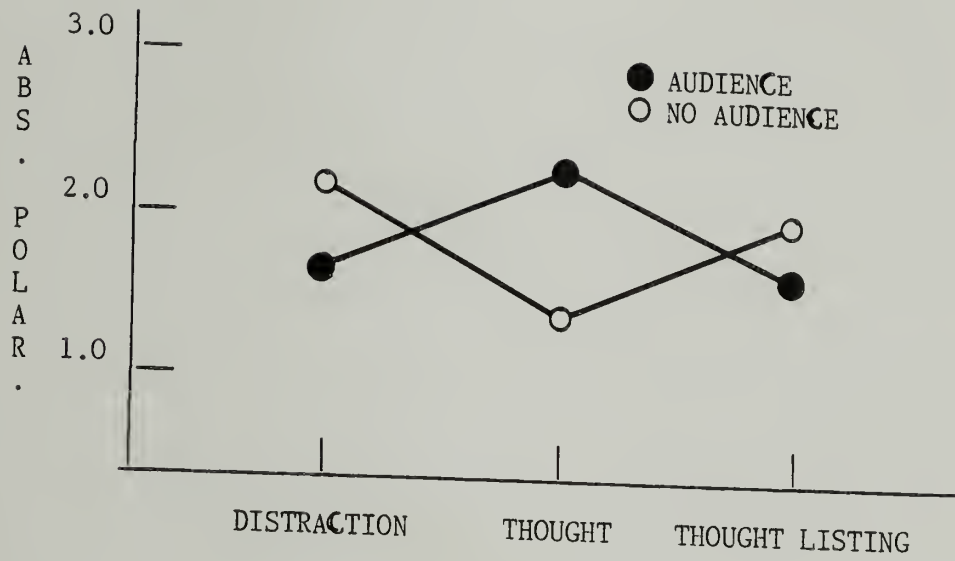


Figure 6. Mean absolute polarization as a function of thought about the target topic and presence of audience.

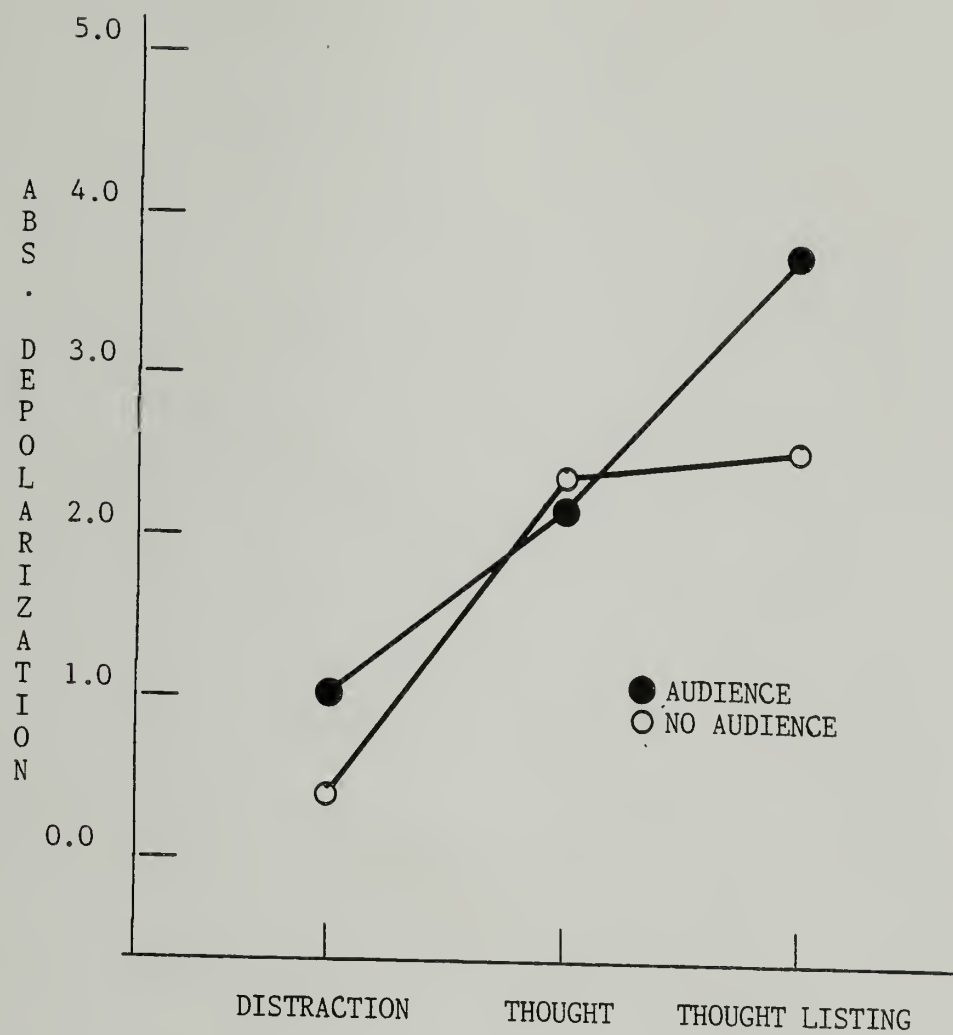


Figure 7. Mean absolute depolarization as a function of thought about the target topic and presence of audience.

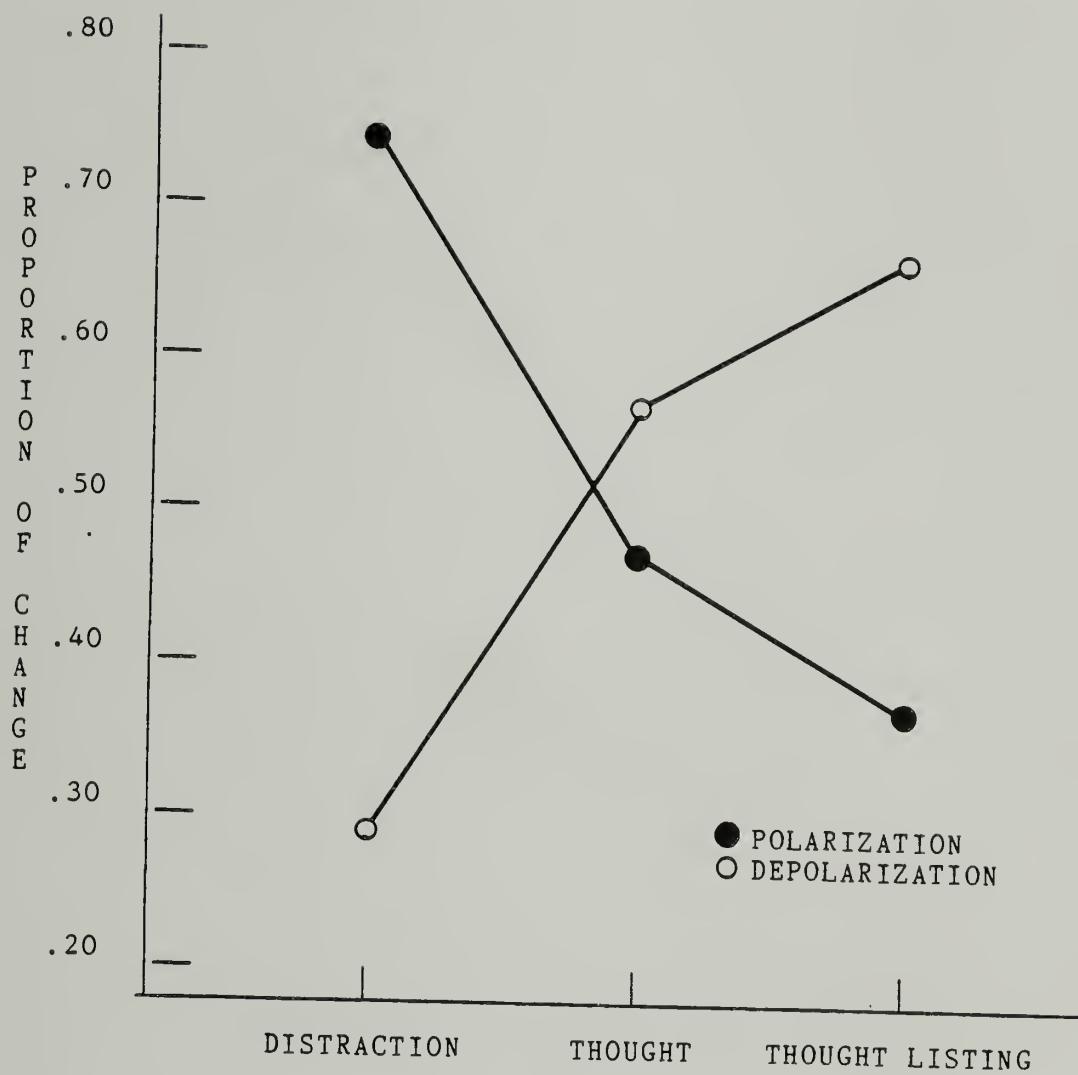


Figure 8. Proportion of mean absolute attitude change of mean absolute polarization and mean absolute depolarization as a function of thought about the target topic.

particular condition with the effects of thought listing.) Figure 3 is a graph of the six cell means. Because no significant effect of the presence or absence of an audience was found, and no significant interactions occurred, the data from the Audience and No Audience experiments was combined. As predicted, a planned comparison showed that a greater amount of change was measured in the Thought ($M = 4.07$) and Thought Listing conditions ($M = 4.95$) than in the Distraction condition ($M = 2.55$), $F(1,174) = 9.98$, $p < .001$. No significant difference was found between the Thought and Thought Listing conditions $F(1,174) = 1.53$.

Hypotheses 1 and 2 Three different kinds of scores were computed to represent the amount of attitude polarization and depolarization exhibited by the subjects: Percentage scores, degree scores, and absolute scores.

Figures 4a and 4b display the results obtained in Experiments 1 and 2 by using the percentage method of scoring. As can be seen in Figure 4a, more subjects' attitudes towards "Professional football" polarized in the Distraction groups than in the Thought groups. Combining the data from the two experiments, 60% of the subjects in the Distraction condition ($n = 60$) showed attitude polarization, and 48% of the subjects in the Thought condition ($n = 60$) showed polarization. The rate of polarization in the Distraction group was significantly greater than would be predicted by chance ($p < .01$), but the rate of polarization in the Thought group was about equal to the

chance rate. (The chance rate was estimated as 45% by taking the 11% rate of no attitude change in the total sample ($n = 180$) as an estimate of the population rate of no change.) About the same percentage of subjects in the Thought condition showed attitude polarization (48%) as showed depolarization (42%). In contrast, 60% of the subjects in the Distraction condition polarized, but only 23% depolarized.

The evidence based on the percentage of subjects' attitudes polarizing and depolarizing clearly does not support Hypothesis 1, the "mere thought" polarization hypothesis, which predicts that subjects in the Thought condition will polarize at a higher rate than those in the Distraction condition. The finding that Thought subjects depolarized at a substantially higher rate than Distraction subjects appears to support Hypothesis 2, the depolarization hypothesis. It must be noted, however, that this result can be interpreted as evidence of a polarizing effect of the Distraction condition, rather than evidence of a depolarizing effect of "mere thought".

Given the smaller absolute attitude change measured in the Distraction condition (see above) and the lack of a basis in attitude change theory for predicting any effect of the Distraction condition, an explanation for this apparent polarization effect might invoke processes in information storage and retrieval that could introduce a systematic bias into posttest scores. That is, subjects may attempt to repeat their pretest responses while taking the posttest, and their recollection of those responses may tend to be distorted in a way that would produce a small, but reliable, pseudo-polarization effect. Such

an effect could be present in the posttest scores of subjects in all conditions of this study, but could be overshadowed by genuine attitude change effects in the Thought and Thought Listing conditions. Whatever the case, the difficulty of interpreting the evidence based on percentage scores prevents drawing any firm conclusion relevant to the depolarization hypothesis.

Figure 5 is a graph of the six degree of polarization score means in Experiments 1 and 2. A 2-way ANOVA found no significant audience effect or interaction, so the data from the two experiments were combined to test for thought treatment effects. A planned comparison showed that the difference between the Distraction condition ($M = 1.18$) and the Thought condition ($M = -.43$) fell short of significance, $F(1,174) = 2.59$. (The difference between the Thought Listing condition and the other two conditions is discussed below in the section on Hypothesis 6.) Although the direction of the difference is the opposite of that predicted by the polarization hypothesis, the finding provides only the weakest support for the depolarization hypothesis.

Figures 6 and 7 show the mean absolute polarization and the mean absolute depolarization scores in the two experiments. Again, 2-way ANOVAs showed no significant audience effects or interactions, and the data were combined. Looking first at the absolute polarization scores, virtually no difference was found between the Distraction ($M = 1.87$) and Thought ($M = 1.82$) conditions, $F(1,174) = .008$. On the other hand, absolute depolarization was significantly higher in the Thought condition ($M = 2.25$) than in the Distraction condition ($M = .68$),

$F(1,174) = 5.59, p < .05.$

The absolute polarization and depolarization scores have the advantage over the degree of polarization scores of permitting separate examination of polarization and depolarization effects. This advantage is purchased by suppressing much of the information in the data, however, and findings based on these scores must be interpreted cautiously. For example, although the mean absolute polarization in the Thought and Distraction conditions was approximately equal, it should be remembered that the 52% of the Thought group subjects whose attitudes either depolarized or did not change received absolute polarization scores of zero, and only 40% of the Distraction group subjects received zero scores.

It is apparent therefore, that the mean absolute polarization score is an estimate only of the expected score for a whole group of subjects, but that it underestimates the expected scores of those subjects whose attitudes did polarize. Given that a subject's attitude is known to have polarized, the best estimate of the magnitude of polarization is the mean degree of polarization score for all subjects whose attitudes polarized, excluding all cases of depolarization and no change. Similarly, the best estimate of a depolarization score is the mean score of cases of depolarization, excluding cases of polarization and no change.

In order to test for the possibility that the results based on absolute scores were merely an artifact of the scoring method, means were calculated separately for all those subjects in the Distraction

and Thought conditions of Experiments 1 and 2 whose attitude scores either polarized or depolarized. A t-test comparing polarization in the Distraction and Thought groups revealed precisely the same pattern found in the mean absolute polarization scores. Polarization in the Distraction condition ($M = 3.17$, $n = 36$) was approximately equal to polarization in the Thought condition ($M = 3.76$, $n = 29$), $t(65) = .86$. A comparison of depolarization in the two conditions was also entirely consistent with the result based on absolute scores. The magnitude of depolarization in the Distraction condition ($M = 2.92$, $n = 14$) was significantly less than in the Thought condition ($M = 5.4$, $n = 25$), $t(39) = 1.82$, $p < .05$.

The findings obtained through separate analysis of polarization and depolarization, by both approaches described above, directly conflict with the polarization hypothesis, and provide tentative support for the depolarization hypothesis. Even though subjects' attitudes polarized at a somewhat higher rate in the Distraction condition than in the Thought condition, the magnitude of polarization in the two conditions was about equal. On the other hand, attitudes depolarized more frequently in the Thought condition than in the Distraction condition. When depolarization did occur in the Distraction condition, its magnitude was significantly less than in the Thought condition.

As reported above in the section on Hypothesis 3, mean absolute change scores were calculated for all conditions in Experiments 1 and 2. Mean absolute change can be decomposed into a part due to

polarization, and a part due to depolarization. In fact, the mean absolute polarization and depolarization of a condition constitute such a division of absolute change. For example, the mean absolute change in the combined Distraction condition was 2.55, which is equal to the sum of the mean absolute polarization (1.87) and the mean absolute depolarization (.68). The proportion of absolute change attributable to polarization in the Distraction condition ($1.87/2.55 = .733$) is almost three times the proportion attributable to depolarization ($.68/2.55 = .266$). Figure 8 displays the proportions of absolute change due to absolute polarization and depolarization in all three conditions of the combined experiments.

Although no inferential statistical test appears to be available to determine the significance of the differences shown in Figure 8, the graph is a useful descriptive summary of the attitude change data in Experiments 1 and 2. As shown in Figure 3, absolute attitude change was significantly higher in the Thought condition than in the Distraction condition, yet, as Figure 6 indicates, absolute polarization was about equal in the two conditions. The difference in absolute attitude change is almost exclusively the result of the significantly higher absolute depolarization measured in the Thought group (see Figure 7). The absolute level of attitude polarization remained fairly constant in the two conditions, but the absolute level of depolarization increased substantially in the Thought condition. The sharp decline of absolute polarization as a proportion of absolute change shown in Figure 8 occurred because, while polarization stayed

constant, the total absolute change measured in the Thought condition included an increased amount of depolarization.

The various methods of scoring polarization and depolarization that were employed in this investigation are merely different approaches to examining the same data: pre-posttest differences in semantic differential attitude scores recorded in Experiments 1 and 2. The purpose of using a number of methods of analysis was to focus on enough different aspects of the data to ferret out any patterns that are present in it. No claim is made that the results reported in this section are independent of each other; the findings must be evaluated as a whole. Putting these results together, the data obtained in Experiments 1 and 2 appear consistent with the following two conclusions.

First, the data do not support Hypothesis 1, Tesser's polarization hypothesis, and their overall trend is actually the opposite of what this hypothesis predicts. It is unlikely that "Professional football" has especially unusual characteristics as a target topic in a study of "mere thought" attitude change, and there are probably many topics that would produce similar results. Therefore, the polarization hypothesis seems to be untenable as a general prediction about the effects of "mere thought" on attitudes.

Second, the data give some support to the present depolarization hypothesis, but not enough to warrant retaining it as a general prediction. Despite the relatively large sample ($n = 60$ in each of the combined Distraction and Thought groups), the depolarization effect of

"mere thought" attained, at best, only a minimal acceptable level of significance. However, the evidence does support the proposition that, under conditions that were to some extent present in this investigation, "mere thought" is likely to produce a depolarization effect. Identifying precisely what factors are involved in determining whether "mere thought" produces attitude polarization or depolarization is a problem that requires further research.

Hypothesis 6 The prediction that writing down thoughts about a topic would tend to result in depolarization of subjects' attitudes toward that topic received strong support in the findings of Experiments 1 and 2. The same methods used to score polarization and depolarization in the Distraction and the Thought conditions were used to score the change data obtained in the Thought Listing condition. The findings of a depolarization effect of thought listing are displayed in the same figures that show the results in the other two conditions.

Percentages of subjects' attitudes polarizing and depolarizing are shown in Figures 4a and 4b, which are separate graphs of the results of Experiments 1 and 2. Combining the data from the two experiments, the 58% rate of depolarization in the Thought Listing condition ($n = 60$) was significantly greater than the expected chance rate of 45%, $p <$

Figure 5 graphs the mean degree of polarization in the six groups of Experiments 1 and 2. As already mentioned, a 2-way ANOVA of the degree of polarization scores found no significant audience effect or interaction, so the data from the two experiments were combined. A

planned comparison found that the mean degree of polarization in the Thought Listing condition ($M = -1.48$) was significantly lower than in the Distraction condition ($M = 1.18$), $F(1,174) = 7.08$, $p < .01$, but did not differ significantly from the Thought condition ($M = .43$), $F(1,174) = 1.1$.

The mean absolute depolarization scores for the six groups in the two experiments are displayed in Figure 7. The mean absolute depolarization score in the combined Thought Listing condition ($M = 3.22$) was significantly greater than that in the Distraction condition ($M = .68$), $F(1,174) = 14.64$, $p < .001$. The difference between the Thought Listing condition and the Thought condition ($M = 2.25$) was not significant, however, $F(1,174) = 2.135$.

Finally, as shown in Figure 8, the mean absolute depolarization measured in the Thought Listing condition constituted 65% of the mean absolute change in that condition. In contrast, only 27% of the absolute change in the Distraction condition was due to depolarization, and 55% in the Thought condition was due to depolarization.

Unlike the depolarization effect of the Thought condition, the effect of the Thought Listing condition is significant regardless of which scoring method is used. As indicated in Chapter 6, at least two explanations can be offered for the apparent depolarizing effect of thought listing. The first is that thought listing alerts the subject to the possibility that others might challenge his or her views, prompting the subject to adopt a "strategy of moderation" (Cialdini, et al., 1973). The other is that thought listing may initiate an internal

dialogue in which the subject tests the validity of the statements that he or she has put in writing by searching for contrary information, or counterarguments, in long term memory.

The investigation produced some evidence that the attitude change that was measured in the Thought Listing condition persisted for a time after completion of the semantic differential posttest. The final phase of the experimental procedure in all conditions was the completion of a 20 item attitude scale consisting of modal belief statements obtained in a pilot study. In the Thought Listing condition, the partial correlation between posttest scores and modal belief scores, controlling for pretest scores, was .50, $p < .001$. On the other hand, the partial correlation between pretest scores and modal belief scores, controlling for posttest scores, was $-.09$, which is not significantly different from a correlation of zero. In other words, when the part of the posttest variance that is explained by the pretest is removed from the posttest scores, the remaining scores, consisting mainly of the pretest-posttest differences, or change, still accounts for 25% of the modal belief variance. Similar evidence of persistence of attitude change was not found in either the Thought or Distraction conditions.

Table 1 presents the relevant correlation coefficients for all three conditions. Seven of the 120 cases in the Distraction and Thought conditions were excluded in order to eliminate outliers. In these instances subjects scored an extreme posttest score in one evaluative direction, and an extreme modal belief score in the opposite direction,

Table 1

Zero-Order and First-Order Partial Correlations Among Pretest(1),
Posttest(2) and Model Beliefs(4) Attitude Scores

	Correlation coefficients					n
	a					
	1-2	1-4	1-4.2	2-4	2-4.1	
Distraction	.96 *	.64 *	.19	.62 *	.04	56
Thought	.84 *	.70 *	.38 **	.65 *	.15	57
Thought Listing	.86 *	.56 *	-.09	.69 *	.50 *	85

*--p < .001 **--p < .002

Note a The numbered headings correspond to the following attitude score types: 1--Pretest; 2--Posttest; 4--Model Belief Scale.

the apparent result of failure to follow the instructions for making responses on the modal belief scale. Data collected in the Thought Listing condition in Experiment 3 were included in this analysis because the procedure followed was identical to that of Experiment 1's Thought Listing condition. Five of the 90 cases in the combined Thought Listing condition were excluded for the same reason cases were excluded from the other two conditions.

As Table 1 shows, subjects in the Thought condition did not display the pattern of apparent attitude persistence that Thought Listing subjects displayed. Instead, they appear to have reverted somewhat to their pretest attitudes toward the target topic by the time they completed the modal beliefs scale. In the Distraction condition, the information contained in the posttest scores provides no better prediction of the modal beliefs score than the pretest scores. This finding is consistent with the general absence of attitude change as a consequence of the Distraction treatment.

Overall, the data suggest that thought listing tends to produce a more persistent attitude change effect than "mere thought" alone, and that, in the case of the target topic "Professional football", at least among college students, this effect is depolarization. In view of the present investigation's failure to support either a general polarization or depolarization hypothesis about the effect of "mere thought", it seems best to interpret the findings concerning the effect of thought listing cautiously. It is very possible that the depolarization effect observed in the current study may not reflect a

general depolarization effect of thought listing. The results do demonstrate, however, that there are conditions under which such an effect will be manifest.

Hypothesis 7 The "mere presence" of others has been shown to have either a facilitating or inhibiting influence on the performance of a wide range of overt behaviors (Zajonc, 1968). Having an audience or not may also affect the performance of covert cognitive tasks, such as thinking about a target topic. Unlike overt behavior, however, covert behavior like thinking cannot be observed directly. The apparent relation of thinking to attitude change suggests the possibility that social facilitation effects on thinking can be observed indirectly. That is, as Hypothesis 7 states, the presence of an audience while a person thinks about a target topic might be associated either with a greater or lesser amount of attitude change (i.e., polarization or depolarization) than might be associated with solitude during thought. As the reader may have noted already while examining Figures 4 through 8, the current investigation produced no evidence in support of this hypothesis.

Figure 3 displays the mean absolute attitude change scores for the six conditions of Experiments 1 and 2, the No Audience and Audience experiments. Although the level of attitude change recorded when the experimenter was present while subjects completed the experimental tasks was consistently lower ($M = 3.53$) than when subjects participated alone ($M = 4.18$), this difference was not significant ($F(1, 174) =$

1.2). No consistent relation between the presence of an audience is apparent in the analyses of degree of polarization and absolute polarization and depolarization scores, displayed in Figures 4 through 7.

In view of the present study's failure to support Hypothesis 7, it may be tentatively concluded that if the mere presence of others has an impact on the processes that often lead to attitude change in the "mere thought" situation, the effect is quite small. Detecting such an audience effect apparently would require the use of very large samples, given that the No Audience and Audience conditions in the current investigation each included 90 subjects. It is possible however, that variants of the audience manipulation that, for example, introduced evaluation apprehension, or competition, into the "mere thought" situation, might be associated with more substantial effects on subjects' attitudes. Future research may shed light on this issue.

Evaluative Consistency

Hypotheses 4 and 5. The key assumption in Abraham Tesser's derivation of his "mere thought" attitude polarization hypothesis is that, when people think about some object, and receive no additional information from external sources, they are likely to increase the evaluative consistency of their representation of the object. The opposite proposition has been advocated here. It is equally reasonable to suspect that, the longer a person thinks about something, the more two-sided the object's representation is likely to become. The

existence of numerous plausible arguments for both positions on this issue suggests that neither statement should be granted the status of an assumption. The data collected during the present investigation provide an empirical basis for considering this question.

Subjects in all nine treatment groups in the study completed a thought listing procedure during which they reported their thoughts about the target topic as the thoughts occurred. Analysis of the relation of the temporal order of the listed thoughts to their consistency with the subjects' attitudes toward the target topic provides a fairly direct test of the two opposed hypotheses. If earlier thoughts tend to be less attitude consistent than later thoughts, then Tesser's hypothesis would be supported. On the other hand, if later thoughts, or "second thoughts", tend to be less consistent, the present hypothesis would be supported. As can be seen in Table 2, a matched-pairs t-test analysis of the thought listing data yielded unambiguous support for the present hypothesis.

Details of the method used to compute the proportions of consistent affect expressed in the first and second halves of the thought listing protocols can be found in Chapter 6. Table 2 shows that, regardless of treatment condition, when subjects listed their thoughts about "Professional football", their earlier thoughts tended to be associated with a higher proportion of attitude-consistent affect than their later thoughts. Combining the data from 269 subjects' protocols, the difference between the mean proportion of consistent affect in the first half ($M = .81$) and the second half ($M = .68$),

Table 2

Comparisons of the Mean Proportions of Consistent Affect Expressed in the First and Second Halves of Subjects' Thought Listing Protocols for "Professional football" in Nine Experimental Conditions

Condition	First Half Mean	Second Half Mean	t	Sig.	n
No Audience I	.81	.67	3.67	p < .001	88
Distraction	.77	.69	1.39	N.S.	28
Thought	.83	.63	2.80	p < .01	30
Thought Listing	.84	.69	2.06	p < .05	30
Audience	.80	.66	3.74	p < .001	89
Distraction	.75	.68	.93	N.S.	29
Thought	.83	.64	3.22	p < .01	30
Thought Listing	.83	.67	2.62	p < .02	30
No Audience II	.82	.70	2.92	p < .01	92
Distraction	.88	.71	3.19	p < .01	31
Thought	.76	.69	.89	N.S.	31
Thought Listing	.81	.71	1.46	N.S.	30
All Conditions	.81	.68	5.98	p < .001	269
Distraction	.80	.69	2.99	p < .01	88
Thought	.81	.67	3.74	p < .001	91
Thought Listing	.83	.69	3.56	p < .001	90

Table 3

Comparisons of the Mean Consistent Affect Expressed in the First and Second Halves of Subjects' Thought Listing Protocols for "Professional football" in Nine Experimental Conditions

Condition	First Half Mean	Second Half Mean	t	Sig.	n
No Audience I	17.32	13.82	4.15	$p < .001$	88
Distraction	17.20	14.01	1.89	$p < .10$	28
Thought	18.70	15.10	2.46	$p < .02$	30
Thought Listing	16.08	12.38	2.87	$p < .01$	30
Audience	17.62	13.12	4.56	$p < .001$	89
Distraction	15.10	13.56	1.03	N.S.	29
Thought	20.10	12.66	5.12	$p < .001$	30
Thought Listing	17.58	13.15	2.23	$p < .05$	30
No Audience II	18.63	14.95	4.21	$p < .001$	92
Distraction	18.79	13.56	3.44	$p < .001$	31
Thought	18.67	15.41	2.44	$p < .05$	31
Thought Listing	18.41	15.91	1.48	N.S.	30
All Conditions	17.87	13.97	7.48	$p < .001$	269
Distraction	17.06	13.70	3.70	$p < .001$	88
Thought	19.15	14.40	5.71	$p < .001$	91
Thought Listing	17.36	13.81	3.68	$p < .001$	90

Table 4

Comparisons of the Mean Inconsistent Affect Expressed in the First and Second Halves of Subjects' Thought Listing Protocols for "Professional Football" in Nine Experimental Conditions

Condition	First Half Mean	Second Half Mean	t	Sig.	n
No Audience I	3.96	5.35	-2.10	p < .05	88
Distraction	4.29	5.25	-0.86	N.S.	28
Thought	4.47	6.80	-1.67	N.S.	30
Thought Listing	3.17	4.00	-0.96	N.S.	30
Audience	4.06	5.74	-2.39	p < .02	89
Distraction	4.45	4.03	.37	N.S.	29
Thought	3.75	6.85	-1.67	N.S.	30
Thought Listing	4.01	6.28	-2.06	p < .05	30
No Audience II	3.60	4.55	-1.42	N.S.	92
Distraction	2.46	5.08	-2.32	p < .05	31
Thought	4.58	4.90	-0.25	N.S.	31
Thought Listing	3.78	3.65	.13	N.S.	30
All Conditions	3.88	5.20	-3.42	p < .001	269
Distraction	3.69	4.78	-1.68	p < .10	88
Thought	4.27	6.17	-2.45	p < .02	91
Thought Listing	3.65	4.64	-1.70	p < .10	90

Table 5

Comparisons of the Mean Total Affect Expressed in the First and Second Halves of Subjects' Thought Listing Protocols for "Professional football" in Nine Experimental Conditions

Condition	First Half Mean	Second Half Mean	t	Sig.	n
No Audience I	21.29	19.18	2.66	p < .01	88
Distraction	21.48	19.26	1.33	N.S.	28
Thought	23.17	21.90	1.10	N.S.	30
Thought Listing	19.25	16.38	2.13	p < .05	30
Audience	21.69	18.86	3.36	p < .002	89
Distraction	19.55	17.58	1.62	N.S.	29
Thought	23.85	19.51	3.04	p < .01	30
Thought Listing	21.60	19.43	1.28	N.S.	30
No Audience II	22.23	19.51	3.71	p < .001	92
Distraction	21.26	18.65	1.93	p < .10	31
Thought	23.26	20.32	2.73	p < .01	31
Thought Listing	22.20	19.56	1.85	p < .10	30
All Conditions	21.74	19.19	5.63	p < .001	269
Distraction	20.77	18.49	2.82	p < .01	88
Thought	23.42	20.57	4.01	p < .001	91
Thought Listing	21.01	18.46	3.00	p < .01	90

greatly exceeded conventional criteria of significance ($t(268) = 5.98$), $p < .001$. As examination of Table 2 will reveal, no matter how the data were subdivided, the same result emerged. When they reached the thought listing phase of the experiment, subjects in all conditions tended to begin by listing thoughts that were more consistent with their attitudes towards "Professional football" than were the final thoughts they listed.

Proportion of attitude consistent affect has been defined here as the ratio of consistent expressed affect to the total expressed affect. The total expressed affect is the sum of the consistent expressed affect and the inconsistent expressed affect. Tables 3, 4, and 5 display the results of matched-pair t -tests of the three components of the proportion of consistent affect scores. The tables reveal the pattern of verbal behavior that underlies the decline in the proportion of consistent affect expressed in the first and second halves of the protocols.

Table 3 shows that consistent affect declined not only as a proportion of total affect, but in absolute magnitude. Pooling the data from all subjects' protocols, the statements in the first half of the protocols received a significantly higher mean consistent affect score ($M = 17.87$) than the second half ($M = 13.97$), $t(268) = 7.48$, $p < .001$. This produced the same result: subjects expressed a greater amount of consistent affect earlier in their protocols than they did later.

Table 4 reveals that the expression of inconsistent affect followed the opposite course. Across all conditions, subjects tended

to express less inconsistent affect in the first half of their protocols ($M = 3.88$), than they expressed in the second half ($M = 5.20$), $t(268) = -3.24$, $p < .001$. While expression of consistent affect decreased, expression of inconsistent affect increased.

The trend in the total affect expressed in the protocols is displayed in Table 5. Subjects tended to communicate more total affect in the first half of their protocols ($M = 21.74$) than in the second half ($M = 19.19$), $t(268) = 5.71$, $p < .001$. So the rise in the expression of inconsistent affect stands against an overall decline in affect expressed.

Overall, the data present the following picture of the sequence of subjects' verbal expressions concerning the target object in a "mere thought" situation. Their initial statements are likely to be evaluatively consistent with their attitude toward the object, and are likely to be associated with relatively intense affect. Later statements are still more likely than not to be evaluatively consistent, but later statements are more likely to be inconsistent than early statements. In general, later statements tend to be associated with less intense affect than initial statements; however, later inconsistent statements tend to express greater affect than earlier inconsistent statements.

The findings seem to be consistent with the notion outlined in the Introduction and in Chapter 6 of thinking as a dialectical process that continuously improves the veridicality of a representation by counterposing cognitive elements that represent both favorable and

unfavorable aspects of an object. Instead of producing representations of objects that are either all "good" or all "bad", as Tesser's interpretation of cognitive consistency theory maintains, thinking appears to yield two-sided representations that mirror the complexity of objects in the real world. The data appear to show that "second thoughts" are a regular feature of human cognition.

Summary

This chapter has presented the main findings of three experiments conducted to test seven hypotheses related to Abraham Tesser's "mere thought" attitude change paradigm. Five of these hypotheses were predictions about attitude change as a consequence of "mere thought", and two were predictions about changes in the evaluative consistency of representation of an object as a function of length of time spent thinking.

The findings clearly demonstrate that attitude change is likely to occur in the "mere thought" situation, a prediction of the cognitive mediation model of attitude change. Rather than producing attitude polarization, as Tesser predicts, the "mere thought" treatment in the current investigation produced a weak depolarization effect. This result is consistent with the depolarization hypothesis advanced in the Introduction and in Chapter 6, but the borderline significance of the finding argues against retention of this hypothesis as a general prediction. Tesser's hypothesis that thought listing is likely to depolarize attitudes was strongly supported here. The fifth attitude

change hypothesis tested in the experiments, that the mere presence of an audience would either facilitate or impede attitude change, was not supported. Finally, the data demonstrate that, contrary to Tesser's prediction and consistent with the present prediction, the cognitive contents of working memory are likely to become less evaluatively consistent the more time subjects spend thinking about a target object. Some of the implications of these findings for attitude change theory and research will be discussed in the next chapter.

CHAPTER IX

DISCUSSION

At the beginning of this paper, it was argued that Tesser's (1978) "mere thought" attitude polarization hypothesis is contradicted by the common sense view of the effects of thinking on attitudes. The common sense view, based on Western society's traditional opposition of cold reason to hot emotion, is that thinking generally tends to moderate attitudes, and can even reverse an initial attitude through the occurrence of "second thoughts". When a theory implies a testable prediction that conflicts with common sense, and that prediction is borne out by empirical evidence, the theory deserves to be valued as a source of insight that transcends everyday blindness. On the other hand, empirical evidence can often evaporate when the operationalization of variables and the method of data collection are scrutinized. The divergence between the polarization hypothesis and popular ideas about the effects of thinking on attitudes is a clear signal that the theory behind the hypothesis, and the evidence adduced in its support, need to be put under the lens of critical analysis. Unfortunately, little critical work has been done so far, and the present investigation has made only a small start in carrying out the rigorous assessment that the polarization hypothesis merits.

Even though the empirical findings that have been reported here supply just a few pieces in a very large puzzle, the data appear difficult to reconcile with any general statement of a "mere thought"

attitude polarization hypothesis. Instead of reporting more polarized attitudes after thinking about the target topic, subjects who engaged in "mere thought" about the topic tended to report less polarized, and occasionally, reversed attitudes. This depolarization effect was only of borderline significance, but was so far opposite to the polarization prediction that the general validity of that hypothesis is thrown into serious doubt. More importantly, the temporal trend analysis of the thought listing protocols that all subjects completed (either subsequent to treatment or as a treatment) produced a strong finding directly counter to Tesser's key assumption of a trend towards increased evaluative consistency. The subjects' later thoughts tended to be less evaluatively consistent than their earlier thoughts. In other words, there was a powerful tendency for subjects to report "second thoughts" that could tend to moderate their initial attitudes. This tendency is precisely what would be expected on the basis of the assumption that thinking generally has the adaptive function of constructing veridical representations of the environment in which a person must behave.

In Chapter 2's discussion of the theoretical basis of Tesser's "mere thought" attitude polarization hypothesis, the existence of cognitive schemas that guide the course of thinking was left an open question outside the scope of the present investigation. It should be noted, however, that the tendency toward an ordered sequence of attitude consistent and attitude inconsistent statements that was observed in the thought listing protocols collected in this study can

be interpreted as evidence of schematic control of the subjects' representational processes. Schemas can be regarded as systems of rules for integrating information from external and internal sources into conscious representations of objects and of relations among objects. Three regularities emerged in subjects' protocols that appear to indicate the operation of a system of rules controlling the order in which subjects become conscious of and able to express stored information about a target object. First, the most strongly affective statements in the protocols tended to occur early, and the least affective statements tended to occur late. Second, a greater proportion of early statements were attitude consistent than of later statements. Finally, a greater proportion of later statements were attitude inconsistent than of early statements, and later inconsistent statements tended to express stronger affect than early inconsistent statements.

Given that these patterns are clearly not consequences of subjects randomly retrieving items of information about the target object from their pools of information about the object in long term memory, it seems reasonable to conclude that what can be called 'schemas' appear to direct the production of thought listing protocols. Although it is not possible at this stage to describe the nature of these schemas, defining them simply as the control systems responsible for the observed patterns in the protocols is defensible. As Fodor (1968, p. 13) has argued, geneticists adopted the concept of "genes" as an explanation for the heritability of biological traits decades before

they were able to identify DNA molecules as the bearers of genetic code. Something certainly accounts for the regularities observed in the protocols, and for the time being it seems adequate to refer to this 'something' as 'cognitive schemas'.

The schemas evidenced in the present data are obviously unlike the schemas that Tesser believes work to steadily increase the evaluative consistency of a person's conscious representation of an object as the person continues thinking about it. Rather than forming one-sided, "all good" or "all bad" representations of objects, these schemas apparently form two-sided, or what may be termed 'objective' representations. Of course, the subjects displayed much variability in the two-sidedness of their protocols, with some expressing only attitude consistent affect and some expressing almost as much inconsistent as consistent affect. The modal pattern, however, which may be taken as an indication of the modal schema, was to describe both favorable and unfavorable aspects of the target object, with a strong predominance of attitude consistent statements. As noted earlier, it has been generally agreed at least since the time of Plato (Russell, 1972, p. 121) that real objects always have positive and negative attributes. Thus, the modal schema whose workings were detected in the present investigation appears to steer thought toward the production of veridical conscious representations.

Turning to another issue, in the discussion of the cognitive mediation model of attitude change in Chapter 5, it was argued that "mere thought" would be likely to be an effective means of changing

attitudes, but that the model did not necessarily predict the direction of such self-generated attitude change. Where an external influence attempt is likely to instigate the retrieval into working memory of beliefs that are not directly related to a person's evaluation of a target object, "mere thought" is likely to instigate the retrieval of the primary beliefs that Fishbein and Ajzen's (1975) theory of reasoned action identifies as the direct determinants of the person's attitude toward the object. Once in working memory, the primary beliefs become subject to the pro and counterargumentation that cognitive response theorists (e.g., Petty & Caccioppo, 1981) view as the mechanism that brings about persisting attitude change.

The current findings strongly support the expectation that "mere thought" will result in measurable attitude change. Although the present experiments have obviously not settled the issue of the validity of either a polarization or a depolarization hypothesis about the effects of "mere thought", it is encouraging that the more basic attitude change prediction of the cognitive mediation model has been borne out in the experiments' results. The significantly greater absolute attitude change in the Thought and Thought Listing conditions than in the Distraction conditions appears to demonstrate the fundamental soundness of the model as a guide to the study of attitude change. Thus, the study adds to the growing body of evidence showing that attitude change is best thought of as the outcome of active internal information processing rather than of passive response to external influence.

The most effective attitude change treatment in the experiments was Thought Listing, in which subjects typed their thoughts about the target object during a three minute "mere thought" period. As predicted by Tesser, thought listing tended to exert a depolarizing influence on subjects' attitudes. Two different explanations can be advanced to account for this finding. First, the requirement that they make their thoughts about the target object public may alert the subjects to the possibility that others might challenge their views. The subjects then adopt a "strategy of moderation" (Cialdini, et al., 1973) in completing the posttest attitude measurement in order to present a position that can be defended against a wide range of potential opponents. The second explanation is that thought listing merely intensifies the dialectical process characteristic of "mere thought". The act of making a thought external increases the likelihood that the thought will instigate the construction of a counterposed "second thought". The presence of these second thoughts in working memory results in genuine depolarization of the subject's attitude that is reflected in the posttest responses. Perhaps a critical experiment could be designed to pit these two positions against each other, but the present data does not support one over the other. This unsettled issue will have to be left as a topic for future study.

Another important question that this investigation has left unanswered is why Tesser's data shows a polarization effect of thinking, and the current data tend to show an opposite depolarization

effect. The conceptual and methodological critique of Tesser's experimental procedures presented in Chapter 4 may supply a few leads to finding an explanation for the contradictory data. At least two potential sources of the discrepancy can be identified. One possibility is that the use of a single-item pre- and posttest attitude measure in Tesser's studies may have allowed subjects to make their posttest judgement more on the basis of their memory for their pretest rating than on their current attitudes toward the target object. Subjects may have experienced the posttest as the experimenter's effort to "double-check" the accuracy of their pretest ratings, and given their relatively precise recall of their single pretest responses, they may have chosen to emphasize their prior positions with more extreme posttest ratings.

Post experimental interviews with subjects in the present investigation revealed a widespread perception that the post test was intended to test the validity of the pretest ratings by determining how "consistent" the ratings would remain over time. Inconsistent ratings would allow the experimenter to detect subjects who, for whatever reasons, gave inaccurate responses on the pretest scales. (Almost all subjects reported having tried to recall their pretest responses during the posttest, but they usually noted the difficulty of remembering their responses accurately, due to the number of scale items and the scrambled order of presentation.)

This problem seems to be inherent in the pre-posttest design, no matter how many items are used, no matter what measures are taken to

interfere with subjects' recall of pretest responses. Single-item pre- and posttest measures are especially susceptible to the confounding influence of subjects' memory for pretest responses because subjects are more capable of recalling a single response than multiple responses. Both the present experimental procedure and Tesser's can be criticized for allowing this confounding variable to effect results. The current study's use of multiple item attitude scales probably reduced the effect of pretest recall, however. It is conceivable, therefore, that the opposite findings can be explained as the result of the different degree of influence of pretest recall on posttest ratings in the two procedures.

Another possible cause of the opposed findings is Tesser's use of novel target topics in contrast with the present study's use of a familiar target object. As discussed in Chapter 4, Tesser's "mere thought" experiments are more correctly categorized as attitude formation than attitude change studies. It seems reasonable that a person's initial attitude toward a novel stimulus object would be more neutral than the attitude after a period of thought about the object. Thinking might produce a more polarized attitude toward a novel target object by constructing a more developed and coherent cognitive representation than the person's initial sketchy representation. Thought might both raise the subjective probability of the links between the object and the initial, externally communicated, set of attributes, and it might generate inferences about additional attributes that would tend to be evaluatively consistent with the

overall representation. It could be that Tesser's data demonstrate a polarizing effect of thinking about an object during an early phase of attitude formation, and the present data demonstrate a depolarizing effect of thinking about an object after a representation and attitude have been formed. Further research may clarify this issue.

Not surprisingly, this investigation has left many questions unanswered, and has possibly brought confusion to issues that previously seemed clear. Some interesting findings did emerge, however, particularly in the analysis of subjects' thought listing protocols. Although many theorists have believed otherwise, the protocols demonstrate the validity of the popular assumption that thoughtful consideration is likely to lead a person to "second thoughts" that provide a more reliable guide to adaptive behavior than initial, evaluatively consistent, thoughts and feelings. By integrating both favorable and unfavorable attributes into their representations of objects, people arrive at more veridical models of how the objects might facilitate and impede accomplishment of their goals and values. Social psychologists with a cognitive orientation have tended to emphasize the many ways that human thought processes can produce erroneous conclusions, yet it should be evident that people would not survive long if thinking served principally to deceive them (cf. McGuire, 1986). This study's finding that thought often has the beneficial effect of making people aware of both the good and the bad aspects of things may help shift interest to studying the adaptive value of thinking.

REFERENCES

- Abelson, R. P., and M. J. Rosenberg. Symbolic psycho-logic: A model of attitudinal cognition. Behavioral Science, 1958, 3, 1-13.
- Ajzen, I., and Fishbein, M. Understanding attitudes and predicting social behavior. Englewood Cliffs, N.J.: Prentice-Hall, 1980.
- Asch, S. E. Forming impressions of personality. Journal of Abnormal and Social Psychology, 1946, 41, 258-290.
- Baddeley, A. D. The psychology of memory. New York: Basic Books, 1976.
- Bartlett, F. C. Remembering: A study in experimental and social psychology. London: Cambridge University Press, 1932.
- Bartlett, F. C. Thinking: An experimental and social study. New York: Basic Books, 1958.
- Batini, C., Moruzzi, G., Palestini, M., Rossi, G. F., and Zanchetti, A. Persistent patterns of wakefulness in the pretrigeminal midpontine preparation. Science, 1958, 128, 30-32.

- Brehm, J. W., Wright, R.A., Solomon, S., Silka, L., and Greenberg, J. Perceived difficulty, energization, and the magnitude of goal valence. Journal of Experimental Social Psychology, 1983, 21,
- Bremer, F. L'activite cerebral au cours du sommeil et de la narcose. Contribution a l'etude du mecanisme du sommeil. Bulletin de l'Academie Royale de Belgique, 1937, 4, 68-86.
- Brock, T. C. Communication discrepancy and intent to persuade as determinants of counterargument production. Journal of Experimental Social Psychology, 1967, 3, 269-309.
- Burnstein, E., and Schul, Y. The informational basis of social judgements: Operations in forming an impression of another person. Journal of Experimental Social Psychology, 1982, 18, 217-234.
- Byrne, D., and Nelson, D. Attraction as a linear function of proportion of positive reinforcements. Journal of Personality and Social Psychology, 1965, 1, 659-663.
- Caccioppo, J. T., and Petty, R. E. Effects of extent of thought on the pleasantness ratings of P-O-X triads: Evidence for three judgemental tendencies in rating social situations. Journal of Personality and Social Psychology, 40, 1000-1009.

- Carlson, E. R. Attitude change through modification of attitude structure. Journal of Abnormal and Social Psychology, 1956, 52, 256-261.
- Carlson, N. R. Physiology of behavior. Boston: Allyn and Bacon, 1981.
- Cialdini, R. B., Levy, A. C., Herman, C. P., and Evenbeck, S. Attitudinal politics: The strategy of moderation. Journal of Personality and Social Psychology, 1973, 25, 100-108.
- Clary, E. G., Tesser, A., and Downing, L. L. Influence of a salient schema on thought induced cognitive change. Personality and Social Psychology Bulletin, 1978, 4, 39-43.
- Collins, A. M., and Quillian, M. R. Retrieval time from semantic memory. Journal of Verbal Learning and Verbal Behavior, 1969, 8, 240-247.
- Fazio, R. H., Chen, J-M., McDonel, E. C., and Sherman, S. J. Attitude accessibility, attitude-behavior consistency, and the strength of the object-evaluation association. Journal of Experimental Social Psychology, 1982, 18, 339-357.

- Festinger, L. A theory of cognitive dissonance. Evanston, Ill.,: Row, Peterson, 1957.
- Festinger, L., Riecken, H. W., and Schacter, S. When prophecy fails. Minneapolis, Minn.: University of Minnesota Press, 1956.
- Fishbein, M. An investigation of the relationships between beliefs about an object and the attitude toward that object. Human Relations, 1963, 16, 233-240.
- Fishbein, M. and Ajzen, I. Belief, attitude, intention and behavior: An introduction to theory and research. Reading, Mass.: Addison-Wesley, 1975.
- Fishbein, M. and Feldman, S. Social psychological studies in voting behavior: I. Theoretical and methodological considerations. American Psychologist, 1963, 18, 388.
- Fishbein, M. and Raven, B. H. The AB scales: An operational definition of belief and attitude. Human Relations, 1962, 15, 35-44.
- Fodor, J. A. Psychological explanation: An introduction to the philosophy of psychology. New York: Random House, 1968.

- Greenwald, A. G. Cognitive learning, cognitive response to persuasion, and attitude change. In A. G. Greenwald, T. C. Brock, and T. M. Ostrom (eds.), Psychological foundations of attitudes. New York: Academic Press, 1968.
- Guttman, L. A basis for scaling qualitative data. American Sociological Review, 1944, 9, 139-150.
- Harkins, S. G., and Petty, R. E. Effects of source magnification of cognitive effort on attitudes: An information processing view. Journal of Personality and Social Psychology, 1981, 40, 401-413.
- Heider, F. Attitudes and cognitive organization. Journal of Psychology, 1946, 21, 107-112.
- Judd, C. A., and Lusk, C. M. Knowledge structures and evaluative judgements: Effects of structural variables on judgemental extremity. Journal of Personality and Social Psychology, 1984, 46, 1193-1207.
- Kaplan, K. J. on the ambivalence-indifference problem in attitude theory and measurement: A suggested modification of the semantic differential technique. Psychological Bulletin, 1972, 77, 361-372.

- Kelman, H. C. Compliance, identification, and internalization: Three processes of opinion change. Journal of Conflict Resolution, 1958, 2, 51-60.
- Kelman, H. C. Processes of opinion change. Public Opinion Quarterly, 1961, 25, 57-78.
- Lewin, K. Field theory in social science. New York: Harper & Row, 1951.
- Likert, R. A technique for the measurement of attitudes. Archives of Psychology, 1932, No. 140.
- McGuire, W. J. A syllogistic analysis of cognitive relationships. In M. J. Rosenberg and C. I. Hovland (eds.) Attitude organization and change. New Haven, Conn.: Yale University Press, 1960, 98-114.
- McGuire, W. J. The current status of cognitive consistency theories. In S. Feldman (ed.), Cognitive consistency: Motivational antecedents and behavioral consequents. New York: Academic Press, 1966, 47-73.
- McGuire, W. J. The vicissitudes of attitudes and similar representational constructs in twentieth-century psychology. European Journal of Social Psychology, 1986, 16, 89-130.

Miller, G. A. The magical number seven; plus or minus two: some limits on our capacity for processing information. Psychological Review, 1956, 63, 81-97.

Newcomb, T. M. Autistic hostility and social reality. Human Relations, 1947, 1, 69-86.

Newcomb, T. M. An approach to the study of communicative acts. Psychological Review, 1953, 60, 393-404.

Olds, J., and Milner, P. Positive reinforcement produced by electrical stimulation of septal area and other regions of rat brain. Journal of Comparative and Physiological Psychology, 1954, 47, 419-427.

Osgood, C. E., Suci, G. J., and Tannenbaum, P. H. The measurement of meaning. Urbana, Ill.: University of Illinois Press, 1957.

Osgood, C. E., and Tannenbaum, P. H. The principle of congruity in the prediction of attitude change. Psychological Review, 1955, 62, 42-55.

- Pepitone, A. Some conceptual and empirical problems of consistency models. In S. Feldman (ed.), Cognitive consistency: Motivational antecedents and behavioral consequents. New York: Academic Press, 1966, 47-73.
- Petty, R. E., and Caccioppo, J. T. Issue involvement can increase or decrease persuasion by enhancing message-relevant cognitive responses. Journal of Personality and Social Psychology, 1979, 37, 1915-1926.
- Petty, R. E., and Caccioppo, J. T. Attitudes and persuasion: Classic and contemporary approaches. Dubuque, Iowa: Wm. C. Brown, 1981.
- Rosenberg, M. J. Cognitive structure and attitudinal affect. Journal of Abnormal and Social Psychology, 1956, 53, 367-372.
- Rumelhart, D. E. Notes on a schema for stories. In D. G. Bobrow and A. M. Collins (eds.), Representation and understanding: Studies in cognitive science. New York: Academic Press, 1977.
- Rumelhart, D. E., and Ortony, A. The representation of knowledge in memory. In R. C. Anderson, R. J. Spiro, W. E. Montague (eds.), Schooling and the acquisition of knowledge. Hillsdale, N.J.: Lawrence Erlbaum Associates, 1976.

- Russell, B. A history of western philosophy. New York: Simon & Schuster, 1972.
- Sadler, O., and Tesser, A. Some effects of salience and time upon interpersonal hostility and attraction during social isolation. Sociometry, 1973, 36, 99-112.
- Singer, J. E. Motivation for consistency. In S. Feldman (ed.), Cognitive consistency: Motivational antecedents and behavioral consequents. New York: Academic Press, 1966, 47-73.
- Taylor, S. E., and Thompson, S. C. Stalking the elusive "vividness" effect. Psychological Review, 1982, 89, 155-181.
- Tesser, A. Thought and reality constraints as determinants of attitude polarization. Journal of Research in Personality, 1976, 10, 183-194.
- Tesser, A. Self-generated attitude change. In L. Berkowitz (ed.), Advances in experimental social psychology, 11, New York: Academic Press, 1978.
- Tesser, A. and Conlee, M. C. Some effects of time and thought on attitude polarization. Journal of Personality and Social Psychology, 1975, 3, 262-270.

- Tesser, A., and Cowan, C. L. Some effects of thought and number of cognitions on attitude change. Social Behavior and Personality, 1975, 3, 165-173.
- Tesser, A., and Danheiser, P. Anticipated relationship, salience of partner and attitude change. Personality and Social Psychology Bulletin, 1978, 4, 35-38.
- Tesser, A. and Leone, C. Cognitive schemas and thought as determinants of attitude change. Journal of Experimental Social Psychology, 1977, 13, 340-356.
- Zajonc, R. B. Social facilitation. Science, 1965, 149, 269-274.

APPENDIX A

PRINTOUT OF THE COMPUTERIZED QUESTIONNAIRE

INSTRUCTIONS AND PRETEST

This experiment is part of a study of people's opinions about a number of topics of current interest and importance. Thank you for agreeing to participate. The purpose of the experiment is to find out what YOU THINK about the topics. There are no right or wrong answers to the questions you will be asked to respond to here. Always select a response to a question which best states YOUR OWN OPINION on the topic.

(NOTE: Throughout the experiment, there may be slight delays when you finish reading instructions before the computer is ready to proceed. Please bear with these delays when they occur.)

Before beginning the first part of the experiment, please answer the background questions which will appear on the screen one by one as you answer them. To see the first background question, press any key.

<Press any key to continue>

TYPE IN THE APPROPRIATE ANSWER.

Please press RETURN after you type each answer.

What is your age (i.e. 20)

What is your academic major (i.e. psychology)

What is your gender (press M or F)

What year will you graduate (i.e. 87)

PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY.

In the first part of this experiment you are asked to rate your opinion on several topics by using seven-place scales. Please look at the example of a seven-place scale displayed below:

PLEASANT							UNPLEASANT
1	2	3	4	5	6	7	
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY	

To select a rating on a PLEASANT-UNPLEASANT scale, you would first decide whether the topic is PLEASANT or UNPLEASANT. Then you would decide HOW PLEASANT? or HOW UNPLEASANT? Then you would select the number on the scale which most accurately describes your opinion.

Use the TOP ROW OF NUMBER KEYS to enter your rating into the computer. If for example, you think that a topic is NEITHER PLEASANT nor UNPLEASANT, you would press Key #4. If the topic seems EXTREMELY UNPLEASANT, press Key #7. If the topic seems EXTREMELY PLEASANT, press Key #1. And so on.

<Press RETURN to continue>

You will rate each topic on nine other scales besides PLEASANT-UNPLEASANT. Although different adjectives are used on each scale, the basic principle in choosing a rating is the same. Select the number on the scale which best expresses what the topic means to you.

The topic being rated will appear at the top of the screen and the scale will be displayed below it. Each time you press a key to make a rating, the next scale will be displayed below the topic. When you have completed all ten scales for a particular topic, a buzzer will sound and you will go on to the next topic. When you finish rating all the topics, you will go on to the next part of the experiment. Thank you for your cooperation.

If you want to read the instructions over again, press R to repeat them. If you feel ready to begin rating the topics, press S to start.

PLEASE POSITION YOUR INDEX FINGER ABOVE THE NUMBER KEYS.
Select the rating which best describes your own opinion
of the topic displayed above the scale.

TV Commercials

FAIR 1	2	3	4	5	6	UNFAIR 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

TV Commercials

GOOD 1	2	3	4	5	6	BAD 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

TV Commercials

USEFUL 1	2	3	4	5	6	USELESS 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

TV Commercials

HAPPY 1	2	3	4	5	6	SAD 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

TV Commercials

REWARDING 1	2	3	4	5	6	PUNISHING 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

TV Commercials

BENEFICIAL						HARMFUL
1	2	3	4	5	6	7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

TV Commercials

OPTIMISTIC						PESSIMISTIC
1	2	3	4	5	6	7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

TV Commercials

PLEASANT						UNPLEASANT
1	2	3	4	5	6	7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

TV Commercials

VALUABLE						WORTHLESS
1	2	3	4	5	6	7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

TV Commercials

ATTRACTIVE						UNATTRACTIVE
1	2	3	4	5	6	7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

A new topic is about to be displayed. Please wait.
Daycare

FAIR						UNFAIR
1	2	3	4	5	6	7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Daycare

VALUABLE						WORTHLESS
1	2	3	4	5	6	7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Daycare

GOOD 1	2	3	4	5	6	BAD 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Daycare

USEFUL 1	2	3	4	5	6	USELESS 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Daycare

PLEASANT 1	2	3	4	5	6	UNPLEASANT 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Daycare

HAPPY 1	2	3	4	5	6	SAD 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Daycare

REWARDING 1	2	3	4	5	6	PUNISHING 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Daycare

ATTRACTIVE 1	2	3	4	5	6	UNATTRACTIVE 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Daycare

OPTIMISTIC 1	2	3	4	5	6	PESSIMISTIC 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Daycare

BENEFICIAL 1	2	3	4	5	6	HARMFUL 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

A new topic is about to be displayed. Please wait.
Abstract art

USEFUL 1	2	3	4	5	6	USELESS 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Abstract art

PLEASANT 1	2	3	4	5	6	UNPLEASANT 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Abstract art

FAIR 1	2	3	4	5	6	UNFAIR 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Abstract art

GOOD 1	2	3	4	5	6	BAD 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Abstract art

VALUABLE 1	2	3	4	5	6	WORTHLESS 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Abstract art

REWARDING 1	2	3	4	5	6	PUNISHING 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Abstract art

BENEFICIAL 1	2	3	4	5	6	HARMFUL 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Abstract art

ATTRACTIVE 1	2	3	4	5	6	UNATTRACTIVE 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Abstract art

HAPPY 1	2	3	4	5	6	SAD 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Abstract art

OPTIMISTIC 1	2	3	4	5	6	PESSIMISTIC 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

A new topic is about to be displayed. Please wait.
Capital punishment

GOOD 1	2	3	4	5	6	BAD 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Capital punishment

PLEASANT 1	2	3	4	5	6	UNPLEASANT 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Capital punishment

BENEFICIAL 1	2	3	4	5	6	HARMFUL 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Capital punishment

OPTIMISTIC 1	2	3	4	5	6	PESSIMISTIC 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Capital punishment

USEFUL 1	2	3	4	5	6	USELESS 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Capital punishment

HAPPY 1	2	3	4	5	6	SAD 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Capital punishment

ATTRACTIVE 1	2	3	4	5	6	UNATTRACTIVE 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Capital punishment

FAIR 1	2	3	4	5	6	UNFAIR 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Capital punishment

VALUABLE 1	2	3	4	5	6	WORTHLESS 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Capital punishment

REWARDING 1	2	3	4	5	6	PUNISHING 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

A new topic is about to be displayed. Please wait.
National health insurance

REWARDING 1	2	3	4	5	6	PUNISHING 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

National health insurance

ATTRACTIVE 1	2	3	4	5	6	UNATTRACTIVE 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

National health insurance

OPTIMISTIC 1	2	3	4	5	6	PESSIMISTIC 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

National health insurance

USEFUL 1	2	3	4	5	6	USELESS 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

National health insurance

BENEFICIAL 1	2	3	4	5	6	HARMFUL 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

National health insurance

GOOD 1	2	3	4	5	6	BAD 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

National health insurance

FAIR 1	2	3	4	5	6	UNFAIR 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

National health insurance

HAPPY 1	2	3	4	5	6	SAD 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

National health insurance

PLEASANT 1	2	3	4	5	6	UNPLEASANT 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

National health insurance

VALUABLE 1	2	3	4	5	6	WORTHLESS 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

A new topic is about to be displayed. Please wait.
The MX missile

FAIR 1	2	3	4	5	6	UNFAIR 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

The MX missile

USEFUL 1	2	3	4	5	6	USELESS 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

The MX missile

ATTRACTIVE 1	2	3	4	5	6	UNATTRACTIVE 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

The MX missile

OPTIMISTIC 1	2	3	4	5	6	PESSIMISTIC 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

The MX missile

REWARDING 1	2	3	4	5	6	PUNISHING 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

The MX missile

GOOD 1	2	3	4	5	6	BAD 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

The MX missile

PLEASANT 1	2	3	4	5	6	UNPLEASANT 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

The MX missile

VALUABLE 1	2	3	4	5	6	WORTHLESS 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

The MX missile

HAPPY 1	2	3	4	5	6	SAD 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

The MX missile

BENEFICIAL 1	2	3	4	5	6	HARMFUL 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

A new topic is about to be displayed. Please wait.
Professional football

PLEASANT 1	2	3	4	5	6	UNPLEASANT 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Professional football

OPTIMISTIC 1	2	3	4	5	6	PESSIMISTIC 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Professional football

VALUABLE 1	2	3	4	5	6	WORTHLESS 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Professional football

USEFUL 1	2	3	4	5	6	USELESS 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Professional football

BENEFICIAL 1	2	3	4	5	6	HARMFUL 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Professional football

REWARDING 1	2	3	4	5	6	PUNISHING 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Professional football

ATTRACTIVE 1	2	3	4	5	6	UNATTRACTIVE 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Professional football

GOOD 1	2	3	4	5	6	BAD 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Professional football

FAIR 1	2	3	4	5	6	UNFAIR 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Professional football

HAPPY 1	2	3	4	5	6	SAD 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

A new topic is about to be displayed. Please wait.
Space exploration

VALUABLE 1	2	3	4	5	6	WORTHLESS 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Space exploration

OPTIMISTIC 1	2	3	4	5	6	PESSIMISTIC 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Space exploration

USEFUL 1	2	3	4	5	6	USELESS 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Space exploration

PLEASANT 1	2	3	4	5	6	UNPLEASANT 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Space exploration

HAPPY 1	2	3	4	5	6	SAD 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Space exploration

BENEFICIAL 1	2	3	4	5	6	HARMFUL 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Space exploration

FAIR 1	2	3	4	5	6	UNFAIR 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Space exploration

REWARDING 1	2	3	4	5	6	PUNISHING 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Space exploration

ATTRACTIVE 1	2	3	4	5	6	UNATTRACTIVE 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Space exploration

GOOD 1	2	3	4	5	6	BAD 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

A new topic is about to be displayed. Please wait.
Labor unions

REWARDING 1	2	3	4	5	6	PUNISHING 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Labor unions

PLEASANT 1	2	3	4	5	6	UNPLEASANT 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Labor unions

FAIR 1	2	3	4	5	6	UNFAIR 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Labor unions

HAPPY 1	2	3	4	5	6	SAD 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Labor unions

BENEFICIAL 1	2	3	4	5	6	HARMFUL 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Labor unions

VALUABLE 1	2	3	4	5	6	WORTHLESS 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Labor unions

USEFUL 1	2	3	4	5	6	USELESS 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Labor unions

OPTIMISTIC 1	2	3	4	5	6	PESSIMISTIC 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Labor unions

GOOD 1	2	3	4	5	6	BAD 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Labor unions

ATTRACTIVE 1	2	3	4	5	6	UNATTRACTIVE 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

A new topic is about to be displayed. Please wait.
Ronald Reagan

VALUABLE 1	2	3	4	5	6	WORTHLESS 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Ronald Reagan

USEFUL 1	2	3	4	5	6	USELESS 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Ronald Reagan

HAPPY 1	2	3	4	5	6	SAD 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Ronald Reagan

REWARDING 1	2	3	4	5	6	PUNISHING 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Ronald Reagan

FAIR 1	2	3	4	5	6	UNFAIR 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Ronald Reagan

GOOD 1	2	3	4	5	6	BAD 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Ronald Reagan

OPTIMISTIC 1	2	3	4	5	6	PESSIMISTIC 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Ronald Reagan

PLEASANT 1	2	3	4	5	6	UNPLEASANT 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Ronald Reagan

ATTRACTIVE 1	2	3	4	5	6	UNATTRACTIVE 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Ronald Reagan

BENEFICIAL 1	2	3	4	5	6	HARMFUL 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

A new topic is about to be displayed. Please wait.
Walter Mondale

GOOD 1	2	3	4	5	6	BAD 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Walter Mondale

HAPPY 1	2	3	4	5	6	SAD 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Walter Mondale

BENEFICIAL 1	2	3	4	5	6	HARMFUL 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Walter Mondale

REWARDING 1	2	3	4	5	6	PUNISHING 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Walter Mondale

VALUABLE 1	2	3	4	5	6	WORTHLESS 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Walter Mondale

USEFUL 1	2	3	4	5	6	USELESS 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Walter Mondale

OPTIMISTIC 1	2	3	4	5	6	PESSIMISTIC 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Walter Mondale

FAIR 1	2	3	4	5	6	UNFAIR 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Walter Mondale

ATTRACTIVE						UNATTRACTIVE
1	2	3	4	5	6	7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Walter Mondale

PLEASANT						UNPLEASANT
1	2	3	4	5	6	7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

A new topic is about to be displayed. Please wait.

A nuclear freeze

PLEASANT						UNPLEASANT
1	2	3	4	5	6	7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

A nuclear freeze

BENEFICIAL						HARMFUL
1	2	3	4	5	6	7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

A nuclear freeze

ATTRACTIVE						UNATTRACTIVE
1	2	3	4	5	6	7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

A nuclear freeze

USEFUL						USELESS
1	2	3	4	5	6	7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

A nuclear freeze

VALUABLE						WORTHLESS
1	2	3	4	5	6	7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

A nuclear freeze

REWARDING 1	2	3	4	5	6	PUNISHING 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

A nuclear freeze

HAPPY 1	2	3	4	5	6	SAD 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

A nuclear freeze

FAIR 1	2	3	4	5	6	UNFAIR 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

A nuclear freeze

GOOD 1	2	3	4	5	6	BAD 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

A nuclear freeze

OPTIMISTIC 1	2	3	4	5	6	PESSIMISTIC 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

A new topic is about to be displayed. Please wait.

Abortion

BENEFICIAL 1	2	3	4	5	6	HARMFUL 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Abortion

PLEASANT 1	2	3	4	5	6	UNPLEASANT 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Abortion

GOOD 1	2	3	4	5	6	BAD 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Abortion

VALUABLE 1	2	3	4	5	6	WORTHLESS 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Abortion

OPTIMISTIC 1	2	3	4	5	6	PESSIMISTIC 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Abortion

ATTRACTIVE 1	2	3	4	5	6	UNATTRACTIVE 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Abortion

HAPPY 1	2	3	4	5	6	SAD 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Abortion

FAIR 1	2	3	4	5	6	UNFAIR 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Abortion

REWARDING 1	2	3	4	5	6	PUNISHING 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Abortion

USEFUL 1	2	3	4	5	6	USELESS 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

EXPERIMENTAL TREATMENTS

DISTRACTION

<Press RETURN to continue>

You have just completed the first part of this experiment.

<Press RETURN to continue>

This part of the experiment will focus on a single one of the topics which you encountered in the first part. You are asked to take three minutes to give serious thought and reflection to the topic. During this three minute period of thought it is important that you do THINK about the topic and that you do not permit your mind to wander.

THE THOUGHT PERIOD WILL BEGIN WHEN YOU PRESS RETURN TO CONTINUE, AND THE TOPIC IS DISPLAYED ON THE SCREEN. A buzzer will sound when the three minutes are up.

<Press RETURN to continue>

Please think about:

ABSTRACT ART

THOUGHT

<Press RETURN to continue>

You have just completed the first part of this experiment.

<Press RETURN to continue>

This part of the experiment will focus on a single one of the topics which you encountered in the first part. You are asked to take three minutes to give serious thought and reflection to the topic. During this three minute period of thought it is important that you do THINK about the topic and that you do not permit your mind to wander.

THE THOUGHT PERIOD WILL BEGIN WHEN YOU PRESS RETURN TO CONTINUE, AND THE TOPIC IS DISPLAYED ON THE SCREEN. A buzzer will sound when the three minutes are up.

<Press RETURN to continue>

Please think about:

PROFESSIONAL FOOTBALL

THOUGHT LISTING

<Press RETURN to continue>

You have just completed the first part of this experiment.

<Press RETURN to continue>

PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY.

This part of the experiment will focus on a single one of the topics which you encountered in the first part. You are asked to take three minutes to give serious thought and reflection to the topic, and to type your thoughts into the computer. During this three minute period of thought, it is important that you do THINK about the topic, and that you do not allow your mind to wander. Each time a new thought occurs to you, please type it into the computer. More detailed instructions follow.

Thank you for your cooperation.

<Press RETURN to continue>

In this part of the experiment, you are asked to list your thoughts on a topic by completing as many sentences beginning with the name of the topic as you can within three minutes. The name of the topic will be displayed on the screen, and all you need to do is type in sentence completions which express your thoughts. Please record every thought on the subject which occurs to you. Please try to keep your sentences short and to the point. That is, if possible EXPRESS ONLY ONE THOUGHT PER SENTENCE. You can write as many or as few sentences as you want.

There are no right or wrong answers, since the purpose of this experiment is to find out what you think.

<Press RETURN to continue>

For example, if the word TULIPS were to appear on the screen, you might type the following thought:

TULIPS
bloom in the spring.

or,

TULIPS
are beautiful flowers.

etc.

BE SURE TO COMPLETE EACH THOUGHT WITH A PERIOD. (.)

Each time you complete a thought with a period (.), the screen will clear so that you can begin a new sentence.

If you understand what you are being asked to do, press S to start.
If not, press R to repeat the instructions.

POSTTEST

You have just completed this part of the experiment. In the next part you will rate one of the topics you encountered previously on the same seven-place scales you used in the first part of the experiment. When you are ready to begin, press RETURN.

<Press RETURN to continue>

<Press RETURN to continue>

PLEASE POSITION YOUR INDEX FINGER ABOVE THE NUMBER KEYS.
Select the rating which best describes your own opinion
of the topic displayed above the scale.

Professional football

OPTIMISTIC							PESSIMISTIC
1	2	3	4	5	6	7	
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY	

Professional football

VALUABLE							WORTHLESS
1	2	3	4	5	6	7	
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY	

Professional football

ATTRACTIVE							UNATTRACTIVE
1	2	3	4	5	6	7	
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY	

Professional football

USEFUL							USELESS
1	2	3	4	5	6	7	
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY	

Professional football

PLEASANT							UNPLEASANT
1	2	3	4	5	6	7	
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY	

Professional football

FAIR 1	2	3	4	5	6	UNFAIR 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Professional football

GOOD 1	2	3	4	5	6	BAD 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Professional football

BENEFICIAL 1	2	3	4	5	6	HARMFUL 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Professional football

HAPPY 1	2	3	4	5	6	SAD 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Professional football

REWARDING 1	2	3	4	5	6	PUNISHING 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

INSTRUCTIONS FOR THE THOUGHT LISTING

AND RATING TASKS

Now that you have finished rating the topic on the seven-place scales, you are asked to type your thoughts on the topic into the computer. Please read the instructions which follow carefully. When you have completed a three minute period of listing your thoughts, you will go on to rate your statements on seven-place scales.

<Press RETURN to continue>

In this part of the experiment, you are asked to list your thoughts on a topic by completing as many sentences beginning with the name of the topic as you can within three minutes. The name of the topic will be displayed on the screen, and all you need to do is type in sentence completions which express your thoughts. Please record every thought on the subject which occurs to you. Please try to keep your sentences short and to the point. That is, if possible EXPRESS ONLY ONE THOUGHT PER SENTENCE. You can write as many or as few sentences as you want.

There are no right or wrong answers, since the purpose of this experiment is to find out what you think.

<Press RETURN to continue>

For example, if the word TULIPS were to appear on the screen, you might type the following thought:

TULIPS
bloom in the spring.

or,

TULIPS
are beautiful flowers.

etc.

BE SURE TO COMPLETE EACH THOUGHT WITH A PERIOD. (.)

Each time you complete a thought with a period (.), the screen will clear so that you can begin a new sentence.

If you understand what you are being asked to do, press S to start. If not, press R to repeat the instructions.

...

In the next part of this experiment, you are asked to rate the thoughts which you expressed above on 7-place scales. Select the place on each scale that best reflects your opinion of what the sentence says, and type the corresponding number key as soon as you have decided. First, you will rate each thought on how LIKELY or UNLIKELY it is that it is true. Then, you will rate how BAD or GOOD what the thought describes is. Here is what the two kinds of scales look like:

<Press RETURN to continue>

PLEASE POSITION YOUR INDEX FINGER ABOVE THE NUMBER KEYS SO THAT YOU CAN INDICATE YOUR CHOICES AS SOON AS YOU SELECT THEM.

To rate how LIKELY or UNLIKELY a statement is, first decide how strongly you believe that the statement is TRUE. Then, select the LIKELY-UNLIKELY rating which best describes how strongly you believe or disbelieve that the statement is TRUE.

You have finished rating your thoughts on the LIKELY-UNLIKELY scales. Next you will rate them on the GOOD-BAD scales. To make your rating, IGNORE how TRUE the sentence seems to be. Think about whether it says something GOOD or BAD about the topic, irregardless of whether it says something TRUE. DO NOT RATE HOW WELL OR POORLY WRITTEN THE SENTENCE ITSELF SEEMS. Please rate what the sentence says about the GOODNESS or BADNESS of the TOPIC.

For example, if the statement were,

TULIPS ARE BEAUTIFUL SPRING FLOWERS.

you would rate how GOOD or BAD the sentence implies that TULIPS are in YOUR opinion.

<Press RETURN to continue>

When you make a GOOD-BAD rating, ask yourself the following question: If what the sentence says about its TOPIC were actually true, whether it is or not, how GOOD or BAD would the sentence imply that its' TOPIC is? Does the sentence imply that its TOPIC is either GOOD or BAD, and if so, just how GOOD or BAD?

In the example given above, the word TULIPS is the TOPIC of the sentence: TULIPS ARE BEAUTIFUL SPRING FLOWERS. The sentence probably implies to you that TULIPS are GOOD rather than BAD, and that they are SLIGHTLY or SOMEWHAT GOOD. On the other hand, if the sentence read, TULIPS CONTAIN A DANGEROUS DEADLY POISON., you might decide that the sentence implies that TULIPS are BAD rather than GOOD, and that they are SOMEWHAT or EXTREMELY BAD.

In other words, if you think that the sentence says something GOOD about its TOPIC, you should select SLIGHTLY, SOMEWHAT or EXTREMELY GOOD. If you

think it says something BAD about its TOPIC, you should choose one of the BAD ratings.

If you want to read the instructions over again, press R to repeat them. If you feel ready to begin rating the sentences, press S to start.

In the final part of this experiment you are asked to rate a number of statements on the same scales which you used to rate your own statements. First you will rate the statements on the LIKELY-UNLIKELY scale, and then you will rate them on the GOOD-BAD scale.

Thank you again for your cooperation in this experiment.

<Press RETURN to continue>

Example of a Thought Listing Protocol

12	First Half		
	+	-	Total
"Professional football," 8,12,6,8,47	6	-	6
"is a big game"	4	-	4
8593,1221,14840,9326 (3,2)	6	-	6
"is voluntary"	-	-2	2
6622,732,4864,6203 (2,2)			
"exciting to watch"			
6913,1473,6291,2768 (2,3)			
"is a game of luck aaaaand chance"			
10043,2769,7927,7149 (2,-1)			
	Second Half		
	-	-6	6
"is blown out of proportion sometimes"	9	-	9
6666,2043,4965,6521 (3,-2)	-	-9	9
"can be rewarding"	4	-	4
10870,1242,4976,5338 (3,3)			
"is often accompanied with pain"			
7547,1932,7721,4452 (3,-3)			
"is adream for many young males"			
4479,2439,5432,5794 (2,2)			

0,0,10290,7711,0,0	Consistent	Inconsistent	Total
First Half	16	2	18
Second Half	13	15	28

Proportion of Consistent Affect

First Half $16/18 = .888889$

Second Half $13/28 = .464285$

MODAL BELIEFS SCALE

PLEASE POSITION YOUR INDEX FINGER ABOVE THE NUMBER KEYS SO THAT YOU CAN INDICATE YOUR CHOICES AS SOON AS YOU SELECT THEM.
To rate how LIKELY or UNLIKELY a statement is, first decide how strongly you believe that the statement is TRUE. Then, select the LIKELY-UNLIKELY rating which best describes how strongly you believe or disbelieve that the statement is TRUE.

Professional football is a lot of fun for its many fans.

LIKELY	1	2	3	4	5	6	UNLIKELY
EXTREMELY		SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Professional football does not interest me.

LIKELY	1	2	3	4	5	6	UNLIKELY
EXTREMELY		SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Professional football is exciting.

LIKELY	1	2	3	4	5	6	UNLIKELY
EXTREMELY		SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Professional football makes excessive profits for the owners.

LIKELY	1	2	3	4	5	6	UNLIKELY
EXTREMELY		SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Professional football is fun to watch.

1	2	3	4	5	6	7
LIKELY						UNLIKELY
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Professional football is very dangerous for the players.

1	2	3	4	5	6	7
LIKELY						UNLIKELY
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Professional football is often shown on television.

1	2	3	4	5	6	7
LIKELY						UNLIKELY
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

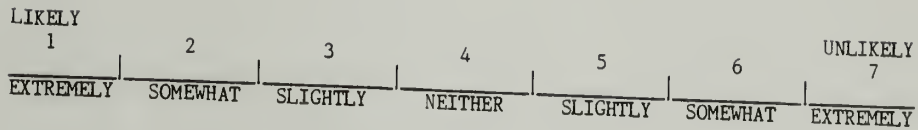
Professional football is a very silly game.

1	2	3	4	5	6	7
LIKELY						UNLIKELY
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

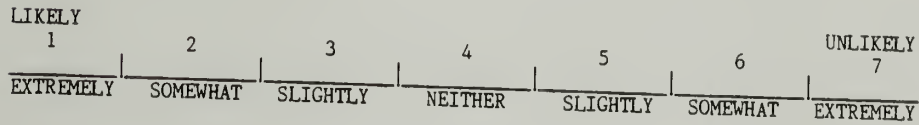
Professional football is an American past time.

1	2	3	4	5	6	7
LIKELY						UNLIKELY
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

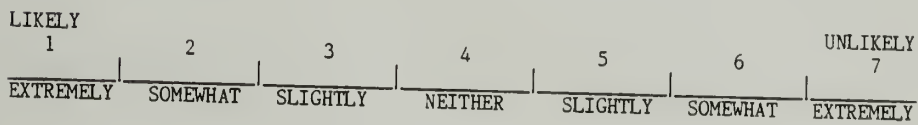
Professional football is a violent and brutal sport.



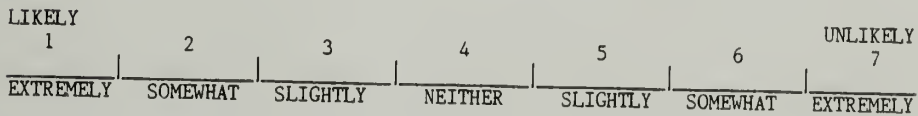
Professional football makes a lot of its players very rich.



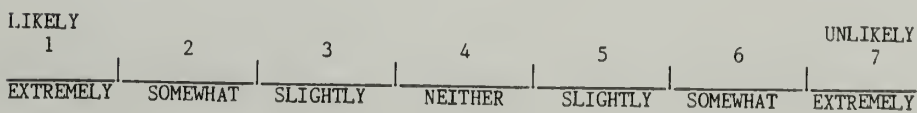
Professional football is enjoyed by most men.



Professional football demands a lot of strength and skill from the player.



Professional football cancels too many TV shows.



Professional football is a rough contact sport.

LIKELY 1	2	3	4	5	6	UNLIKELY 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Professional football pays its players too much money.

LIKELY 1	2	3	4	5	6	UNLIKELY 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Professional football is watched frequently on Sunday afternoons.

LIKELY 1	2	3	4	5	6	UNLIKELY 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Professional football is a short lived career for the players.

LIKELY 1	2	3	4	5	6	UNLIKELY 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Professional football is a great excuse to have a party.

LIKELY 1	2	3	4	5	6	UNLIKELY 7
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Professional football is bet on all the time.

LIKELY	1	2	3	4	5	6	UNLIKELY
EXTREMELY		SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

You have finished the statements on the LIKELY-UNLIKELY scales. Next you will rate them on the GOOD-BAD scales. To make your rating, IGNORE how TRUE the sentence seems to be. Think about whether it says something GOOD or BAD about the topic, irregardless of whether it says something TRUE. DO NOT RATE HOW WELL OR POORLY WRITTEN THE SENTENCE ITSELF SEEMS. Please rate what the sentence says about the GOODNESS or BADNESS of the TOPIC.

<Press RETURN to continue>

Professional football is a lot of fun for its many fans.

GOOD	1	2	3	4	5	6	BAD
EXTREMELY		SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

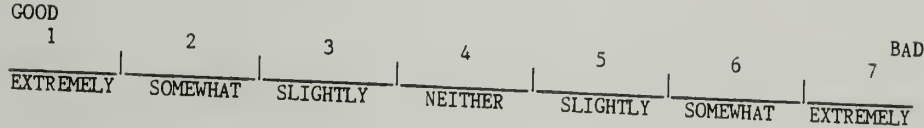
Professional football does not interest me.

GOOD	1	2	3	4	5	6	BAD
EXTREMELY		SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

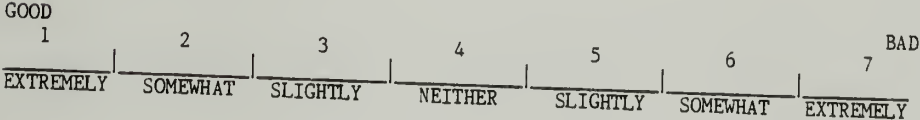
Professional football is exciting.

GOOD	1	2	3	4	5	6	BAD
EXTREMELY		SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

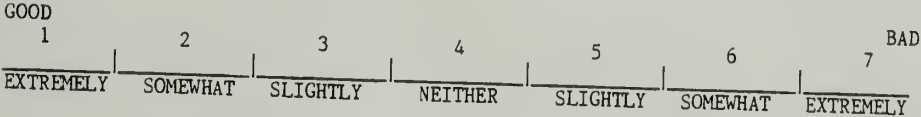
Professional football makes excessive profits for the owners.



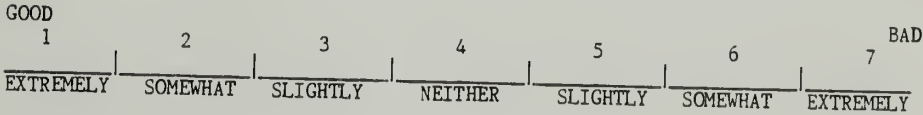
Professional football is fun to watch.



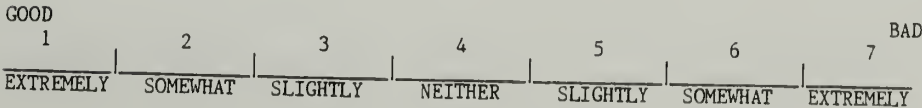
Professional football is very dangerous for the players.



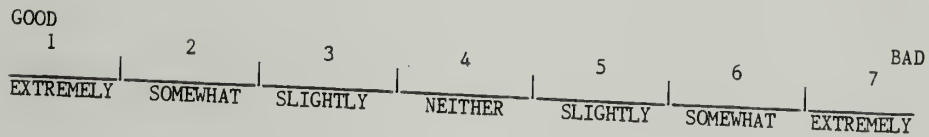
Professional football is often shown on television.



Professional football is a very silly game.



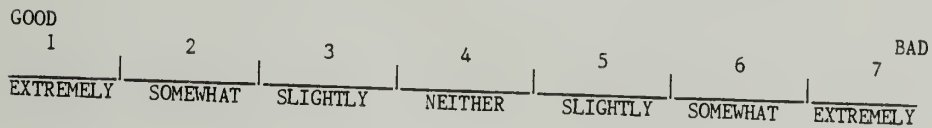
Professional football is an American past time.



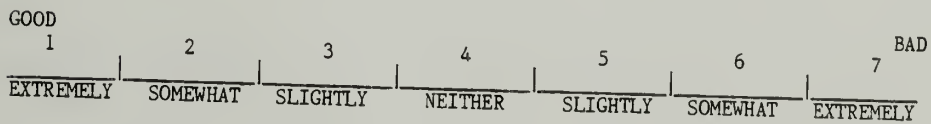
Professional football is a violent and brutal sport.



Professional football makes a lot of its players very rich.



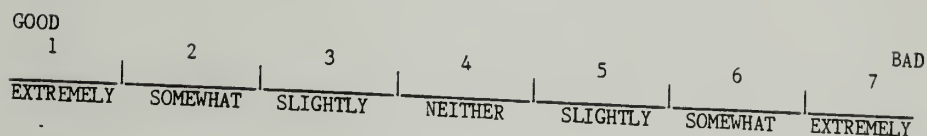
Professional football is enjoyed by most men.



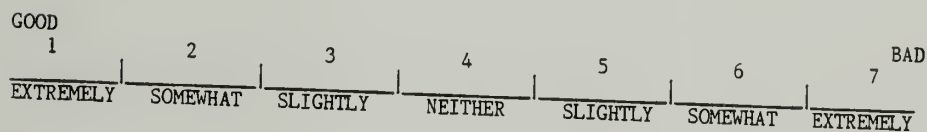
Professional football demands a lot of strength and skill from the player.



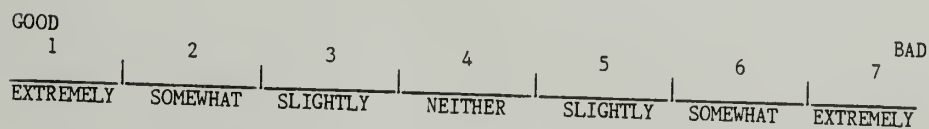
Professional football cancels too many TV shows.



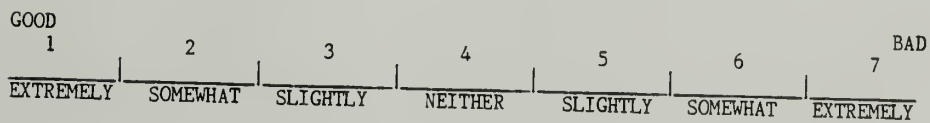
Professional football is a rough contact sport.



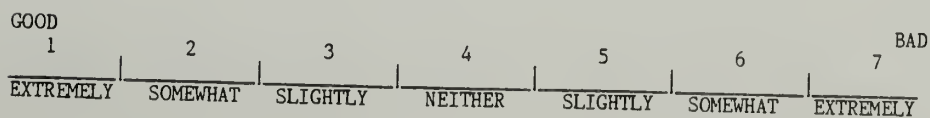
Professional football pays its players too much money.



Professional football is watched frequently on Sunday afternoons.



Professional football is a short lived career for the players.



Professional football is a great excuse to have a party.

GOOD 1	2	3	4	5	6	7 BAD
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

Professional football is bet on all the time.

GOOD 1	2	3	4	5	6	7 BAD
EXTREMELY	SOMEWHAT	SLIGHTLY	NEITHER	SLIGHTLY	SOMEWHAT	EXTREMELY

You have now completed the experiment. Thank you for your participation.
Please notify the experimenter that you are finished.

