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AN AXIOMATIC REPRESENTATION OF FESTINGER'S THEORY
OF COGNITIVE DISSONANCE: AN END AND A BEGINNING.

The Ohio State University, Ph.D., 1970
Social Psychology

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AN AXIOMATIC REPRESENTATION OF FESTINGER'S THEORY
OF COGNITIVE DISSONANCE: AN END AND A BEGINNING

DISSERTATION

Presented in Partial Fulfillment of the Requirements for
the Degree Doctor of Philosophy in the Graduate
School of The Ohio State University

By

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* * * * * *

The Ohio State University
1970

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Axiomatizing Festinger's dissonance theory. Why did I choose this topic? Why do I consider it significant?

On the surface level, I chose this topic because I had once written a rudimentary axiomatization of Festinger and Brehm and Cohen, as a class assignment in social psychology. We were required to do a propositional inventory of a major theory, and the only suggested possibility that I had never before worked with was dissonance theory. So I ended up with Festinger somewhat by default.

On a deeper level, I chose this topic because I had discovered, in writing the class assignment, that Festinger's theory touches upon a large number of questions that seem intriguing to me and crucial to sociology. For example, one of my major interests is in status--specifically, what is hierarchical "status" and what is it that determines this kind of status. In looking at various situations, it seemed obvious that different types of factors seemed important in determining status in different situations. For example, sometimes age was a critical dimension; sometimes not. Sometimes sex mattered; sometimes it didn't. Basketball ability could be very important as a status determinant for a high school that emphasized basketball, and yet it seemed relatively unimportant in a sociology seminar. In sum, different dimensions seemed
important in determining status in different situations. The question is, Why? Why is it that basketball ability is important sometimes, and not important other times? On an abstract level, what is "importance" and what are its determinants?

In a similar vein, I have also been intrigued by such questions as, What is "value"? What does it mean to say that something is valued? What does it mean to say that people hold certain values? How are values determined? What are the factors that affect them?

Another question concerns the nature of "relevance." What does it mean to say that something is relevant, or irrelevant? The term is frequently used in sociology, as well as other disciplines, but it is hard to pin down exactly what it means and what determines it.

Likewise, the concept of "stress" has puzzled me. Too often, it is used simply as shorthand for "something bad that causes something bad." Sometimes, the concept seems so over used that it ought to be abandoned as meaningless. More often, I feel that the concept probably does have meaning and that it could be potentially very useful, if the essence of its meaning could be clarified. For example, might it be possible to see stress, at least in part, as pressure-to-change, met by resistance to change?

The nature of change and stability suggest still more intriguing issues that pervade much of sociology. What is change? What is stability? How can change and stability be accounted for?

In various ways, Festinger's theory touches upon all of these
issues, as well as upon many others. It does not "solve" these various issues nor even discuss them in depth. However, it is at least tangentially related to all of them. Thus, working with Festinger's theory seemed to offer the potential for confrontation with these various issues. From the start, I was necessarily aware that I could not hope to "solve" all these issues. However, working with Festinger's theory did seem to offer one possible way to begin seeing all these issues within a common framework.

Thus, axiomatizing Festinger's theory is significant to me primarily as an initial attempt to develop a theoretical nucleus, grounded in a major theory and collection of empirical data, that is relevant to a number of basic issues in sociology.

In writing this dissertation, my primary debt is to my committee: Russell R. Dynes (Chairman), Clyde W. Franklin, Jr., and Robert H. Roth, Jr. All three have been extremely helpful in developing both the ideas presented and the manner of presentation. Especially appreciated was their willingness and ability to work creatively with a somewhat unusual dissertation.

I am also grateful to Robert B. Zajonc for his careful readings of early drafts and his many helpful and encouraging suggestions.

In addition, I am very much indebted to the following men, who have also had major influence on my thought and ideas, as reflected in the present paper: Bo Anderson, Joseph Berger, Bernard P. Cohen, James Kimberly, John Lofland, Thomas F. Mayer, James C. Moore,
Naturally, I am also indebted to Leon Festinger for writing *A Theory of Cognitive Dissonance*, the book upon which this study is based.

Finally, I am grateful to Graham H. Alexander for his constant support and encouragement.
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  Theory Construction
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  Social Organization
  Medical Sociology
  Deviance
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CHAPTER I

INTRODUCTION

Theory is a central concern of sociology. And it is often lamented that there is not more of it. Theory is seen both as a starting point for research and as a desired consequence of it. Few would deny that the development of theory is one of the major objectives of sociology.

The present study attempts to develop theory within one of the principal subareas of sociology--namely, the field of social psychology. The long-range goal, toward which this study is directed, is the development of a set of concepts, together with a set of statements interrelating these concepts, that will be useful for social psychology. This study, as simply one step toward this goal, has as its first objective the development of a set of concepts and interrelating statements appropriate for one of the major theories within the field of social psychology--namely, Festinger's theory of cognitive dissonance. It then takes this set of concepts and statements and attempts to show (1) that this set is indeed appropriate for, and potentially useful to, the theory of cognitive dissonance and (2) that this set can suggest a framework for the development of a new, more general, theory.

The method of theory construction used in this study is
axiomatization. The axiomatic method involves taking a set of propositions, or hypotheses, and attempting to develop a set of basic terms and assumptions from which the propositions can be deduced, but from which contradictory propositions cannot be deduced. It is an attempt to develop a set of verbal statements, the terms and assumptions, that can then be used to generate other verbal statements, the propositions, by the use of logical deduction.¹ ²

¹ For examples of others who have used the axiomatic approach, see the following:


² For a discussion of some conditions to be aware of in making deductions from axiomatic theory in the social sciences, see Herbert L. Costner and Robert K. Leik, "Deductions from Axiomatic Theory," American Sociological Review, Vol. 29 (December, 1964), pp. 819-835. In this article, they assert that, "To make valid deductions from postulated relations between variables through the application of the sign rule [i.e., 'The sign of the deduced relationship is the algebraic product of the signs of the postulated relationships.' (p. 820)], it is sufficient to

1. state postulates in asymmetric causal form;
Axiomatizing a theory has five interrelated objectives. First, and perhaps most important, it clarifies what the essential principles of the theory really are. It forces an explicit recognition of necessary basic terms and assumptions, thus facilitating the discovery of inconsistencies, contradictions, hidden assumptions, indeterminacies, limitations of scope, etc. Second, it aids reformulation of the theory, by making it easier to discover which aspects are in need of change and how they should be changed. Third, it encourages systematic testing of the theory, by pointing out what the crucial assumptions and derivable propositions of the theory are. Fourth, it serves as an integrating framework, facilitating the bringing together of empirical and theoretical contributions of many types. Fifth, it facilitates comparison with other theories by specifying precisely what the assumptions and derivable propositions of the axiomatized theory really are.

Axiomatizing is especially appropriate when there already exists a rudimentary theory, or even simply a set of propositions believed to be related. Therefore, it seems particularly appropriate for developing Festinger's theory of cognitive dissonance.³

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³Clearly, this is not the only method of theory development appropriate for Festinger's theory. For example, using a grounded theory approach, it would be possible to consider various empirical instances of dissonance to stimulate ideas as to possible extensions.
Festinger's theory was first presented as his book, *A Theory of Cognitive Dissonance*, in 1957. This book contains both a rudimentary theory and a rather large set of propositions believed to be related. The rudimentary theory contains various terms—such as, "cognition," "follows from," "relevance," "consonance," and "dissonance"—and some basic assertions about the nature of dissonance. Moreover, the various propositions can be seen as or limitations of the theory. (Festinger's book, *When Prophesy Fails*, can be viewed as an example of a grounded theory approach to dissonance.) That the verification approach is also possible is clearly attested to by the tremendous research literature aimed at testing and suggesting revisions of the theory. (For reviews of this type of literature, see the following:


Many other methods of theory development could also be appropriate. The present paper, however, while acknowledging the potential fruitfulness of other methods of theory development, relies exclusively on the axiomatic approach.

Festinger's theory is so interwoven with his book that it is virtually impossible to clearly differentiate the theory from the book. Therefore, in order to minimize the possibility of omitting important ideas, we will treat the entire book as Festinger's statement of his theory.
loosely derivable from these dissonance assertions. However, it is not possible to identify unambiguously exactly what all the basic terms and assertions are, nor is it possible to derive in a precise manner all the various propositions. Thus, it seems justifiable to view Festinger's theory as a rudimentary theory, with good potential for axiomatization.

Festinger's theory of cognitive dissonance would seem to be a useful starting point for developing a set of concepts and interrelating statements for social psychology not only because it seems to have good potential for axiomatization but also because it is an example of one of the major theoretical traditions in social psychology--the Gestalt/Field Tradition. The Gestalt/Field Tradition assumes that man is so constructed that he is principally concerned with developing an organized and meaningful view of his world. It is characterized by two central assumptions. First, it emphasizes that psychological phenomena should be conceived as occurring in a "field"--as part of a system of coexisting and mutually interdependent factors having certain properties as a system that are not deducible from knowledge of the isolated elements of the system. Second, it assumes that certain states of the psychological field are simpler and more orderly than other states and that psychological processes act to make the state of the field as "good" as the prevailing conditions allow. The means by which

the best end-state is reached may vary, since the end-state can be reached by different routes. The Gestalt/Field Tradition can be seen in the theories of such men as Lewin, Festinger, Asch, Heider, Newcomb, Abelson and Rosenberg, Lippitt, Deutsch, and Cartwright.

Festinger's theory is an example of the Gestalt/Field Tradition, in contrast to what may be viewed as the two alternative traditions in social psychology: the Stimulus-Response/Reinforcement Tradition and the Symbolic Interaction Tradition. The Stimulus-Response/Reinforcement Tradition\(^6\) may be seen as characterized by three major tendencies. First, it emphasizes the methodological point of view of behaviorism, concentrating on external observables that everyone can see; such as, the stimuli that impinge on an organism's sense organs and the observable responses or behavior elicited as responses to stimuli. Second, it generally is based on the elementistic structural principles of associationism, stressing that the elementary units of mind--like sensations or ideas--are linked by contiguity in space and time. Third, it frequently assumes the motivational principle of hedonism, focusing on the role of "reward," "pleasure," etc., in establishing and strengthening stimulus-response connections. The Stimulus-Response/Reinforcement Tradition is exemplified by such theorists as Homans, Thibaut and Kelley, Bem, Bandura, Miller and Dollard, and Hovland.

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The third tradition in social psychology, the Symbolic Interaction Tradition starts from the assumption that man is, uniquely, socially determined. It emphasizes that man is a symbol manipulator, the only symbol-manipulating animal and the only animal whose social groupings depend on and are pervaded by complex symbolic processes. Man's membership in given social groups or structures makes him a carrier of certain sets of symbols—e.g., beliefs, attitudes, perspectives, etc. Thus, the Symbolic Interaction Tradition places much emphasis on "meaning." Moreover, it sees social behavior as consisting of events, and not of structure. It stresses that explanations of behavior must be couched in terms of process or sequences of interconnected processes. It is opposed to explanations in terms of variables, rather than of processes, or of statistical associations between variables, rather than of interconnected processes. The Symbolic Interaction Tradition is reflected in the works of such theorists as Mead, Becker, Goffman, Blumer, Thomas, Mills, Glaser, Lindesmith, and Strauss.

In addition to exemplifying the Gestalt/Field Tradition, Festinger's theory can also be seen as an example of the cognitive consistency theories—theories that have received a great deal of

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attention in recent years. These theories—which may all be seen as examples of the Gestalt/Field tradition—are based on the assumption that thoughts, beliefs, attitudes, and behavior tend to organize themselves in meaningful and sensible ways. All these theories assume that inconsistency is less stable, or less "good," than consistency and that there are pressures toward reducing inconsistency, or toward gaining consistency. Festinger's notion of cognitive dissonance is the most general, since it considers consistency among any cognitions. The principle of congruity is the most restrictive and specific, since it limits itself to the problems of the effects of information about objects and events on the attitudes toward the source of information. In between are the notions of balance and symmetry, which consider attitudes toward people and objects in relation to one another, either within one person's cognitive structure, as in the case of Heider's theory of balance, or among a given group of individuals, as in the case of Newcomb's strain toward symmetry.

In addition to exemplifying the Gestalt/Field Tradition and the cognitive consistency theories, Festinger's theory has also been associated with an enormous quantity of research. In fact,


Zajonc asserts that, "No theory in social psychology has stimulated more research than the theory of cognitive dissonance. Articles in this area constitute the modal category in journals publishing results of social-psychological research."\(^{12}\)

Thus, Festinger's theory can be seen as related to, or typical of, much of current theory and research in social psychology. Therefore, axiomatizing Festinger's theory of cognitive dissonance would seem to be a potentially fruitful way to begin working toward the development of a set of concepts and interrelating statements that can be useful for social psychology.

The present paper consists of three main chapters. First, an axiomatic representation of Festinger's theory is developed, consisting of (1) a list of basic terms and (2) a set of six axioms interrelating these terms. Second, it is shown that all of Festinger's major propositions—as well as numerous other propositions—can be derived from this axiomatic representation, with the aid of certain empirical assumptions. Third, the axiomatization is used as the starting point for raising questions and developing the framework of a new theory based on one of the primary concepts in the axiomatization, "pressure."

Thus, the axiomatic representation of Festinger's theory can be viewed both as an end and as a beginning. It is an end to the extent that it summarizes, interrelates, and clarifies the essence of Festinger's theory. It is a beginning to the extent that it

suggests new propositions and axioms, raises questions, and points out directions for development of a new theory.

**Methodology**

The methodological development of this study occurred in four overlapping, but nonetheless distinguishable, phases: (I) propositional inventory, (II) axiomatic reduction, (III) derivation of propositions, and (IV) development of a framework for a new theory.

Phase I, propositional inventory, began with a careful reading of one book: Leon Festinger's *A Theory of Cognitive Dissonance*. This reading resulted in a list of about 250 theoretical assertions of various types, some occurring as explicit theoretical statements, others as casual explanations of empirical findings.

Phase II, axiomatic reduction, started with this list and developed a set of basic terms and assumptions. The object was to develop this set of terms and assumptions such that (1) the list of propositions from Phase I could be derived from it and (2) assertions that contradicted, or went far beyond the scope of, these propositions could not be derived. As much as possible, the basic terms and assumptions were taken directly from the list in Phase I. Where necessary, Phase I statements were modified and new statements added. As many terms as possible were defined by means of a small set of undefined terms. Thus, two sets of terms emerged: Undefined terms (or primitives) and defined terms. The assumptions were also broken into two types: (1) axioms--the most
basic, general statements and (2) empirical assumptions—the specific empirical conditions assumed to hold in the various empirical applications discussed by Festinger.

Phase III involved the derivation of propositions from the set of basic terms and assumptions developed in Phase II. Primary attention was placed on demonstrating that the assertions from Phase I—i.e., Festinger's propositions—were derivable. Effort was also made to indicate that many other propositions—propositions that seem to be within the scope of Festinger's intent—are derivable as well.

Phase IV revolved around the development of a framework for a new theory. This framework is a beginning attempt (1) to generalize the set of ideas presented in Phase II in order to gain a better understanding of some of the basic issues involved and (2) to open up this set of ideas so that potential contributions from the general field of social psychology can be more easily recognized and integrated.

These four phases of methodological development can be seen as the links connecting three different theories. First, there is Festinger's theory as presented in his book, *A Theory of Cognitive Dissonance*. Festinger's theory does not physically appear in the present paper; rather, it exists prior to—it is the stimulus for—this paper. Second, there is the axiomatic theory, the theory actually appearing in this paper. It consists of the set of basic terms and assumptions developed in Phase II and the derivable propositions, such as those developed in Phase III. Third, there
is the theory that has been given a general framework in Phase IV. This theory does not yet exist; only a general outline for it has been drawn. Thus, Festinger's theory exists **before** the present paper; the axiomatic theory exists **in** this paper; and the third theory exists **beyond** this paper. The purpose of the four phases of methodology is to move from Festinger's theory, **to** the axiomatic theory, and **toward** the third theory.

**Festinger's Theory: The Starting Point**

The theory serving as the starting point for this study is Festinger's theory of cognitive dissonance, as presented in his book, *A Theory of Cognitive Dissonance*. In this book Festinger introduces the term "dissonance" and makes a number of assertions as to its basic nature and consequences. He also reviews a wide range of data as illustration of, and as support for, his basic hypotheses. These explicit assertions, together with the assumptions make in discussing the data, encompass most of the major theoretical ideas that are still central to dissonance theory today.

Dissonance theory is based on the idea that the individual strives toward consistency within himself. The individual works to develop consistency between his various opinions and attitudes and also between these cognitions and his behavior. He attempts to reduce existing inconsistencies, to achieve consistencies, and to avoid events likely to increase inconsistencies. The existence of inconsistencies is a motivating factor in its own right and leads to activity oriented toward its reduction. "Dissonance" is the term Festinger introduces
to refer to the existence of nonfitting relations, or inconsistencies, between cognitions.

Dissonance theory also states that the strength of the pressure to reduce and avoid dissonance is a direct function of the existing amount, or magnitude, of dissonance. In other words, the more dissonance an individual has, the greater the pressure to reduce the existing dissonance and to avoid increasing it.

Festinger further specifies that the magnitude of dissonance is a direct function of two things. First, it is a function of the importance of the cognitions involved. The more important the cognitions are, the more the dissonance. Second, the magnitude of dissonance is a function of the proportion of relevant cognitions that are dissonant. In other words, there is more dissonance if a large proportion of the relevant cognitions are dissonant than if only a small proportion is dissonant.

In sum, Festinger's theory is based on three central assertions:

(1) There are pressures to reduce and avoid dissonance;

(2) The strength of these pressures is a direct function of the magnitude of dissonance; and

(3) The magnitude of dissonance is a function of (a) the importance of the cognitions involved and (b) the proportion of relevant cognitions that are dissonant.

In the course of the book, Festinger also makes various other assertions. For example, he states that cognitions are responsive
Festinger also makes such statements as the following:

"The more alternatives that are involved in a decision (other factors held constant), the greater will be the dissonance following the decision." (p. 54)

"In situations where many persons who associate with one another all suffer from the identical dissonance, dissonance reduction by obtaining social support is very easy to accomplish." (p. 265)

"The greater the difference between the opinion of the person and the opinion of the one voicing disagreement, and, hence, the greater the number of elements which are dissonant between the cognitive clusters corresponding to the two opinions, the greater will be the magnitude of dissonance." (p. 263)

"Since the dissonance created by such disagreement is greater when the groups are more attractive and when the opinion is relevant to the group, one would expect more change of opinion in such groups than others." (p. 192)

13Unless otherwise specified, all references to Festinger in the present paper refer to A Theory of Cognitive Dissonance, Evanston: Row, Peterson, 1957.
"The higher the importance of the opinions involved, the greater is the magnitude of reward or punishment necessary to elicit forced compliance and the greater is the magnitude of dissonance that is created." (p. 93)

"The greater the cognitive overlap between the two alternatives, that is, the less the qualitative distinction between them, the smaller the dissonance that exists after the choice has been made." (p. 41)

These statements are typical of the approximately 250 statements taken from Festinger's book during the propositional inventory. The task of developing the axiomatic theory thus became one of integrating these ideas into a more unified, deductive theory.

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14A complete list of statements selected during the propositional inventory may be found in Appendix B.
CHAPTER II

AN AXIOMATIC THEORY OF DISSONANCE: BASIC TERMS AND AXIOMS

Starting with Festinger's book and the propositional inventory, the object is to develop a set of basic terms and assumptions from which the various propositions in the inventory can be derived. The set eventually developed, and presented in this paper, is not the only set of terms and assumptions that could have been developed to represent Festinger's theory. At various points during the development of the present set, decisions were made—decisions as to what terms and assumptions to treat as basic, as to the wording of definitions and assumptions, etc. Had different decisions been made, a different set of basic terms and assumptions would have resulted.

Perhaps the most pervasive decision made in developing this axiomatic theory was to follow Festinger as closely as possible. Heavy reliance was thus placed on Festinger's own terms, definitions, and explicit statements. Moreover, sincere effort was made to avoid over-simplifying, over-abstracting, over-complicating, or otherwise over-developing Festinger's basic ideas. This decision was made in order to keep the axiomatic theory directly relevant to the tremendous volume of literature in the area of dissonance.
It would have been possible to construct a more "elegant" axiomatic theory by not following Festinger quite as closely. For example, concepts could have been abstracted and simplified, numerous simplifying assumptions could have been made, and several problem areas could have been completely ignored. However, one of the most significant features of Festinger's theory is the vast amount of research that has been associated with it. At least half of his book is devoted to discussions of data relevant to his theory. And a great deal of research since Festinger's 1957 book has drawn upon his theory for explanatory principles. If the axiomatization had not followed Festinger closely, the axiomatic theory would have been much less relevant to the large body of dissonance literature that has accumulated. Therefore, it was decided to sacrifice a certain amount of "elegance" in order that the axiomatic theory be more relevant to the currently existing dissonance literature.

The second major decision made in developing this axiomatic theory was to concentrate more on discovering problems than on developing "perfect" solutions. This decision was made because of the decision to follow Festinger closely, because of a desire to be concerned with the entire theory, rather than with just isolated parts of it, and because of a belief that generally the most important step in finding a solution is locating the problem.

The axiomatic method is especially appropriate for discovering problems because of its emphasis on explicitness and consistency. "Explicitness" requires that all assumptions necessary for deriving
the asserted propositions be explicitly stated. "Consistency" requires that all the assumptions and propositions be consistent with one another; i.e., they must not contradict one another. The attempt to uncover and state the necessary assumptions results in the discovery of numerous problems and problem areas. The attempt to locate and resolve inconsistencies results in the discovery of still more problems. In sum, the very process of axiomatizing a theory facilitates the discovery of problems.

These two decisions--to follow Festinger closely, and to emphasize the discovery of problems--underlie the axiomatic theory here presented.

The present chapter is divided into two parts. First, there is an enumeration and discussion of basic terms; such as, cognition, dissonance, consonance, importance, pressure, change, reality, and reward. Most of the terms are presented as primitives, or undefined, terms. A few are presented as defined terms--i.e., defined in terms of the primitives. The primary objectives of this term presentation are (1) to point out the basic concepts that the axiomatic theory--and Festinger's dissonance theory--relies upon and (2) to indicate the ambiguity and vagueness in many of these concepts.

The second part of the chapter is devoted to a presentation of the axioms--the most basic, general statements of the axiomatic theory. These are the statements from which the other statements in the theory--or propositions can be derived.¹ These axioms are

¹The empirical assumptions--i.e., the basic assumptions somewhat
presented in three groups: (1) those directly related to dissonance and its pressures, (2) those related to the consequences of pressure, and (3) those related to sources of pressure other than dissonance.

Basic Terms

Dissonance theory is dependent upon a number of basic terms. Many of these terms may be classified as primitives--i.e., terms which are never precisely defined. Dissonance theory also has a few basic defined terms--terms defined by the primitives. The conceptualization of these terms--both primitive and defined--is crucial to the conceptualization of dissonance theory. The ambiguities of the primitives and the disagreement on definitions underlie many of the theoretical and operational problems of dissonance theory today.

The primary object of this section is to identify what the basic terms are. These are the building blocks of the entire theory, and it is important to recognize what they are. In developing this set of terms, an effort has been made to keep as close to Festinger's intent as possible. At the same time, an effort has been made to present these terms as blatantly as possible. Many of these terms will seem weak, unclear, or ambiguous. They are--in Festinger's book, as well as in the present discussion. It is primarily the

less general and more empirical than the axioms--will be presented in Chapter III, in conjunction with the propositions with which they are most closely related. A few terms, also somewhat less general and more empirical than those enumerated in this chapter, will be presented in Chapter III, too.
stark form of presentation that here facilitates the discovery of these weaknesses.

Thus, the present section can be read in two ways. First, it can be read to determine what the basic terms and definitions of the theory are. Second, it can be read to identify the terms and definitions of Festinger's theory that are most in need of clarification and development.

"Cognition," "Follows from," "Relevant," and "Dissonant"

Cognitions are the basic elements of the theory. It is cognitions that enter into dissonant and consonant relations with one another. And it is change in cognitions that serves as one of the focal concerns of the theory. The term "cognition" is used as a primitive; that is, it is left undefined. On an informal, intuitive level, a cognition is assumed to mean any knowledge, opinion, or belief of an individual. The central feature of a

2Festinger, p. 3.

3For other uses of the term "cognition," see Shaw and Costanzo, p. 173: "Most cognitive theorists use the concept cognition without explicitly defining it, perhaps because they believe it is so frequently used as to require no definition. However, some writers have attempted to define cognition. For example, Scheerer (1954) referred to cognition as a centrally mediated process representing internal and external events. 'It takes the form of phenomenal organization which is centrally imposed between the source of stimulation and the behavioral adjustment' (Scheerer, 1954, p. 99). Festinger (1957) identified 'cognitive elements' as cognitions, which he defined as the things a person knows about himself, his behavior, and his surroundings. He used the term 'knowledges' to refer to these things. Most recently, Neisser (1967) stated that the term refers to the processes by which any sensory input is transformed,
cognition is its content, which can be of several types. For example, the content may be primarily descriptive, a kind of mental statement of what is. The content can also be evaluative, a belief as to what is good or bad. A third type of content is prescriptive, a belief as to what is expected or ought to be. Although there may also be other types of content, these three types seem to be those most often assumed by the theory. In the present paper, a cognition will be symbolically represented by a letter (e.g., x, y, z, R) or a negated letter (e.g., -x, -y, -z).

Follows from is the basic relation between cognitions upon which dissonance theory is based. "Follows from," like "cognition," is a primitive; that is, it is left undefined. In an abstract sense, it is assumed to be a directed relation between two cognitions. Symbolically, it will be represented as an arrow (e.g., y → x means

reduced, elaborated, stored, recovered, and used. Thus, cognition seems to be that which is known or knowledge acquired through personal experience."

Many aspects of the concept cognition are unclear. For example, what exactly is -x? In a rough way, -x seems to mean any cognition that cannot coexist with x. For example, the belief that the car is red (x) cannot coexist with the belief that the car is not red (-x). However, sometimes -x seems to mean any one of the cognitions that might be perceived as contradictory with x (e.g., the car is blue, the car is green, the car is yellow, etc.) and sometimes -x seems to mean the entire set of all cognitions contradictory with x. It is also unclear whether -x is intended to include the absence of x (e.g., the absence of any beliefs as to the color of the car). (See Cartwright and Harary's distinction between complement and opposite in their formalization of Heider.) The problem is further complicated by the difficulty of identifying, or defining, the set of -x cognitions. Note this is not a trivial problem since the entire theory is based on the issue of conflict (or dissonance). In sum, the entire conceptualization of -x is very much in need of clarification.
cognition x "follows from" cognition y). On an intuitive level, "follows from" is assumed to have a general meaning, encompassing in a loose manner such ideas as logical implication and cause. In this paper, the expression "x follows from y" will be used interchangeably with the expression "y implies x."5,6

Any two cognitions are either relevant or irrelevant. Cognition y is relevant to cognition x if and only if one of three conditions exists:

(1) y \rightarrow x,
(2) y \rightarrow -x, or
(3) y \rightarrow x and y \rightarrow -x.

In the first case, y is relevant to x if x follows from y. In other words, if a cognition implies another cognition, it is relevant to it. In the second case, y is relevant to x if the obverse of x (i.e., -x) follows from y. That is, cognition y is relevant to x if it implies the obverse, or complementary cognition. In the third

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5 The concept "follows from" is probably responsible for more of the problems and difficulties of dissonance theory than any other concept. It is very much in need of development. Abelson and Rosenberg's "symbolic psycho-logic" and Brehm and Cohen's concern with the strength of the relation are steps in the right direction.

6 The Zelditch-Berger-Cohen definition of relevance also seems potentially useful in this context: "Characteristics and goal-objects are relevant to other characteristics and goal-objects when:

(1) given that p or q possesses a state of one, he also possesses or expects to possess one, but not both states of another; or (2) given that p or q possesses a specific state of one, he also possesses or expects to possess a specific state of another" (J. Berger, M. Zelditch, and B. Anderson (eds.), Sociological Theories in Progress, Vol. 1, Boston: Houghton Mifflin, 1966, p. 272).
case, y is relevant to x if y implies both x and its complement. (For example, if an attitude implies two possible and incompatible behaviors, such as watching a TV western and going to a Bach concert, the attitude would be relevant to cognitions corresponding to either behavior.) Thus, in any of these three cases, y is relevant to x. If either y is relevant to x or x is relevant to y, then cognitions x and y are relevant. Cognitions x and y are irrelevant only when neither cognition is relevant to the other.

Definition 1. Relevant.

Cognition y is relevant to cognition x if and only if

1) y → x or (2) y → ¬x or (3) y → x and y → ¬x.

Two cognitions, x and y, are relevant if and only if (1) y is relevant to x or (2) x is relevant to y.

If two cognitions are relevant, then they are either dissonant or consonant. Two cognitions, x and y, are dissonant if and only if

1) x → ¬y,
2) y → ¬x, or
3) x → ¬y and y → ¬x.

In other words, two cognitions are dissonant if either one (or both) implies the obverse of the other. If two cognitions are relevant but not dissonant—i.e., if neither implies the obverse of the other—then the cognitions are consonant.

7 Festinger, p. 13.

8 This definition of consonant differs somewhat from Festinger's:
Definition 2. Dissonant.

Two cognitions, x and y, are dissonant if and only if
(1) $x \rightarrow -y$ or (2) $y \rightarrow -x$ or (3) $x \rightarrow -y$ and $y \rightarrow -x$.

Definition 3. Consonant.

Two cognitions, x and y, are consonant if and only if they are relevant and not dissonant.

"Magnitude," "Importance," "Weighted Sum," and "Degree of x-Dissonance"

Magnitude, a primitive, is the general descriptive term referring to the amount, strength, weight, size, etc., of any specified element. It can be reduced and increased; and it assumes values greater than, or equal to, zero.

"If, considering a pair of elements, either one does follow from the other, then the relation between them is consonant" (p. 15). His definition is ambiguous, since it is theoretically possible to have a case where $x \rightarrow y$ and $y \rightarrow -x$.

One of the primary decisions that had to be made in developing the axiomatization was whether to treat the concept of dissonance as symmetric or non-symmetric. That is, should $x \rightarrow -y$ be treated as identical to $y \rightarrow -x$. Festinger does not explicitly differentiate between the two instances, and he seems to assume that the direction of the relationship makes no difference. However, a definition of dissonance that was not symmetric would allow the derivation of Festinger's propositions equally well and would also specifically disallow the derivation of certain propositions that seem to me beyond Festinger's intent. Personally, I think the theory would be improved by using dissonance as a non-symmetric concept, thus placing more attention on the direction of the "follows from" relation. However, since "dissonance" is such a central concept in the theory, and since Festinger seems to assume it is a symmetric concept, dissonance is here defined as a symmetric concept.
Importance is another primitive. Its chief characteristic is magnitude; that is, it varies in amount, taking on values greater than, or equal to, zero. "Importance" is used as a descriptive term both of cognitions (e.g., an "important" cognition) and of cognition content (e.g., a belief that someone is "important"). When the term "important" is used without a specification of magnitude, it is assumed to have a high magnitude.10

Combined importance is a related primitive, referring to the total importance of a given set of cognitions. "Combined importance" is conceptualized as a direct function of the importance of the cognitions in the set; that is, if the importance of the individual cognitions increases, the "combined importance" also increases. The "combined importance of x-relevant cognitions" refers to the "combined importance" of the set including x and all cognitions either relevant to x or to which x is relevant.11

A weighted sum is a sum of the importances of specified elements. For example, the weighted sum of x-dissonance is equal to the sum of the importances of all cognitions dissonant with x.

10"Importance" is another of the basic terms very much in need of development: e.g., what exactly does it mean? What causes it? What are its indicators? What are the consequences?

11The ambiguity as to how "combined importance" should be determined is a very serious problem in dissonance theory. For example, if an added cognition is interpreted as a consonant cognition, it reduces the "magnitude of x-dissonance" (See Axiom 1); on the other hand, if the added cognition is interpreted as increasing combined importance, it increases the "magnitude of x-dissonance." This makes it possible to derive opposite predictions purely on the interpretation of the specific empirical situation.
Similarly, the weighted sum of x-consonance is equal to the sum of the importances of all cognitions consonant with x.

**Definition 4. Weighted Sum.**

A "weighted sum" is the sum of the importances of specified elements.

The "weighted sum of x-dissonance" is equal to the sum of the importances of all cognitions dissonant with x.

The "weighted sum of x-consonance" is equal to the sum of the importances of all cognitions consonant with x.

The degree of x-dissonance is equal to the following ratio:

\[
\frac{\text{Weighted sum of } x\text{-dissonance}}{\text{Weighted sum of } x\text{-dissonance} + \text{weighted sum of } x\text{-consonance}}
\]

In less formal terms, the degree of x-dissonance is equal to the proportion of relevant relations that are dissonant, with all elements weighted by importance.

**Definition 5. Degree of x-dissonance.**

The degree of x-dissonance is equal to the following ratio:

\[
\frac{\text{Weighted sum of } x\text{-dissonance}}{\text{Weighted sum of } x\text{-dissonance} + \text{weighted sum of } x\text{-consonance}}
\]

"Change" and "Pressure"

Change, a primitive, is a descriptive term referring to the variation of something over time. A "change" can refer to the creation of something new, to the elimination of something that had
existed, or simply to a difference between two time periods of some essential characteristic of an element. For example, "change" of a cognition may refer to the creation, the discarding, or a difference in the content of the cognition. A "change" of importance refers to a difference in the magnitude of importance; i.e., the importance increases or decreases.

Pressure, also a primitive, is a type of force. It serves as the major causal linkage in the theory. One of its chief characteristics is "magnitude," which can vary from none (i.e., zero) to a great deal. "Pressure" can also be characterized by source, object, and direction. That is, pressure can be exerted by certain things, on certain objects, and toward certain outcomes. A "pressure toward change" is a pressure exerted in the direction of change; i.e., toward something that does not exist at that time. A "pressure toward stability" is a pressure exerted toward something that does exist at that time. A "pressure against a change" is a pressure exerted in a direction opposing (i.e., incompatible with) a specified change. When the direction of a pressure is not specified, the statement that there is pressure on a cognition means that there is "pressure toward change" of that cognition.

The sum of pressures is equal to the sum of the magnitudes of a specified set of pressures. The "sum of pressures toward stability" refers to a sum of the magnitudes of those pressures exerted toward stability. The "sum of pressures toward a change" refers to the sum of the magnitudes of those pressures exerted in the direction of
a specified change. The "sum of pressures against a change" refers to the sum of the magnitudes of those pressures exerted in a direction opposing (i.e., incompatible with) a specified change. 12

**Definition 6. Sum of Pressures.**

The "sum of pressures" is the sum of the magnitudes of a specified set of pressures.

The "sum of pressures toward stability" is equal to the sum of the magnitudes of those pressures exerted toward stability.

The "sum of pressures toward a change" is equal to the sum of the magnitudes of those pressures exerted in the direction of a specified change.

The "sum of pressures against a change" refers to the sum of the magnitudes of those pressures exerted in a direction opposing a specified change.

"Reality," "Reward," "Cost," "Behavior," and "Correspondence With"

Five remaining primitives are also significant in dissonance theory: "reality," "reward," "cost," "behavior," and "correspondence with."

**Reality** refers to what is. It exists independently of cognitions, but provides the basis for most cognition content.

**Reward** and **cost** are sanctions; i.e., things acquired by an

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12 The "sum of pressures against a change" would include the "sum of pressures toward stability," as well as certain other possible pressures.
individual as a consequence of his cognitions or behavior. A reward is a sanction that is better than its absence; a cost is a sanction that is worse than its absence. The "magnitude" of a reward, or cost, refers to how much better, or worse, it is than its absence. A "potential reward" is a reward the individual expects to acquire upon the "change" of a cognition or behavior. A "potential cost" is a cost the individual expects to acquire upon the "change" of a cognition or behavior.

A behavior is any act of an individual. It is something the individual does.

One element is in correspondence with another element to the extent that it is similar to, or matches, the other element. For example, a cognition that is a mental description of a reality element is said to be the cognition in "correspondence with" that reality element. A pressure on a cognition to be in "correspondence with" a specified element is a pressure on the cognition in the direction of "correspondence with" that element.

Summary

The above terms are those most central to the axiomatization. They are the terms from which the axioms are constructed, and the terms upon which the entire theory depends. In discussing and defining these terms, an effort has been made to follow Festinger's apparent intent as closely as possible. Many of these terms—in the somewhat blatant presentation of this section—may seem weak, unclear,
and ambiguous. They are—perhaps even more in Festinger's book than in the above discussion. Developing these terms would seem to be one of the major ways of improving dissonance theory.

Axioms

Building upon the above basic terms, it is now possible to construct a set of axioms—that is, a set of basic assertions capable of generating the various propositions of Festinger's theory. It is desirable that this set contain all the basic ideas of the theory, while still being as small as possible. It is also desirable that this set of axioms not be capable of generating propositions that contradict, or far exceed the scope of, Festinger's own assertions.

Three types of axioms seem to underlie Festinger's propositions. First, there are assumptions as to the basic nature of dissonance. These are the special assumptions of dissonance theory—the assumptions with which dissonance theory is generally identified. These ideas form the core of the theory and underlie all the major propositions and hypotheses commonly attributed to dissonance theory. Second, there are assumptions specifying the nature of change. These are important assumptions of the theory, but are not unique to dissonance theory and are not always given explicit recognition.

For comparison purposes, Zajonc's attempt to state the essential assertions of dissonance theory is included as Appendix A.
Third, there are assumptions specifying variables other than dissonance that also exert pressures. These are the assumptions that are rarely recognized as belonging to dissonance theory, and yet are an integral part of Festinger's book.

These three types of axioms together form the set of axioms containing the basic ideas of Festinger's theory.

**Dissonance and Its Pressures**

"Dissonance" is the special term of Festinger's theory. Its most important characteristic is magnitude.

The "magnitude of dissonance" refers to the total dissonance involving a specified cognition. For example, the "magnitude of x-dissonance" refers to the total dissonance involving cognition x. 14

The "magnitude of x-dissonance" is a direct function of two factors: (1) the combined importance of x-relevant cognitions and (2) the degree of x-dissonance. 15

14 Festinger also specified that the total amount of dissonance be determined in relation to one particular element (p. 17). This is a very important limiting specification, with many consequences. For example, an individual can have many different magnitudes of dissonance; e.g., magnitude of x-dissonance, magnitude of y-dissonance, magnitude of z-dissonance, etc. The theory does not specify how, or if, these separate dissonances can be combined into a total measure of dissonance for the individual. Moreover, the fact that an individual can have a different magnitude of dissonance for each of several cognitions creates slipperiness since the researcher can arbitrarily focus on any one of the dissonances. Festinger never uses the somewhat awkward term "x-dissonance," but this term is used here in the axioms as a mental reminder that the magnitude of dissonance must be determined in relation to one specified element.

15 Festinger, pp. 16-17.
Axiom 1. The magnitude of x-dissonance is a direct function of (1) the combined importance of x-relevant cognitions and (2) the degree of x-dissonance.

The "combined importance of x-relevant cognitions," as discussed in the section on basic terms, refers to the combined importance of the cognition set including x and all cognitions either relevant to x or to which x is relevant. If the cognitions in this set increase in importance, or if cognitions are added to the set, the "combined importance of x-relevant cognitions" increases. If the cognitions in this set decrease in importance, or if cognitions are deleted from the set, the "combined importance of x-relevant cognitions" decreases. 16

The second factor affecting the magnitude of x-dissonance is the degree of x-dissonance. The "degree of x-dissonance," as

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16 If some of the cognitions increase in importance and some decrease in importance, it is not currently possible to determine in a definite manner whether the combined importance will increase or decrease or remain constant. For example, the theory does not specify whether all cognitions in the set have equal weight in determining "combined importance"; e.g., Does changing the importance of x have a greater effect than changing the importance of (1) cognitions relevant to x or (2) cognitions to which x is relevant? Does increasing the importance of an already important cognition have more (or less) effect than increasing the importance of a previously unimportant cognition? Does having a few very important cognitions affect combined importance more than having many less important cognitions? etc. With two cognitions considered comparable, if one cognition increases a great deal in importance and the other decreases only a little, it may then be possible to say that the increase is larger than the decrease and, therefore, combined importance will increase. In empirical situations when many cognitions may be changing in importance simultaneously, problems such as these are not simply academic and should at least be given recognition.
defined in the above section on basic terms, is equal to the following ratio:

\[
\frac{\text{Weighted sum of } x\text{-dissonance}}{\text{Weighted sum of } x\text{-dissonance} + \text{weighted sum of } x\text{-consonance}}
\]

A "weighted sum," also as defined above, is the sum of the importances of specified elements. In particular, a "weighted sum of x-dissonance" is equal to the sum of the importances of all cognitions dissonant with x; and a "weighted sum of x-consonance" is equal to the sum of the importances of all cognitions consonant with x. Therefore, the "degree of x-dissonance" is increased by (1) increasing the importance or number of cognitions dissonant with x, and (2) decreasing the importance or number of cognitions consonant with x. Similarly, the "degree of x-dissonance" is decreased by (1) decreasing the importance or number of cognitions dissonant with x, and (2) increasing the importance or number of cognitions consonant with x. \(^{17}\)

These two factors---"degree of x-dissonance" and "combined importance of x-relevant cognitions"---together determine the "magnitude of x-dissonance." Therefore, it is clear that the "magnitude of x-dissonance" will increase whenever one of the following three conditions exists:

(1) the degree of x-dissonance increases, and the combined importance of x-relevant cognitions increases;

\(^{17}\)Once again it becomes problematic what happens to "degree of x-dissonance" if some changes imply an increase and others imply a decrease.
(2) the degree of x-dissonance increases, and the combined importance of x-relevant cognitions remains constant;

(3) the degree of x-dissonance remains constant, and the combined importance of x-relevant cognitions increases.

Similarly, the "magnitude of x-dissonance" will decrease whenever one of the following three conditions exist:

(1) the degree of x-dissonance decreases, and the combined importance of x-relevant cognitions decreases;

(2) the degree of x-dissonance decreases, and the combined importance of x-relevant cognitions remains constant;

(3) the degree of x-dissonance remains constant, and the combined importance of x-relevant cognitions decreases.

It is also clear that the "magnitude of x-dissonance" will remain constant whenever both the degree of x-dissonance and the combined importance of x-relevant cognitions remain constant.

The problematic situations occur under two conditions:

(1) the degree of x-dissonance increases, and the combined importance of x-relevant cognitions decreases;

(2) the degree of x-dissonance decreases, and the combined importance of x-relevant cognitions increases.

Unfortunately, these conditions are not rare exceptions that are only infrequently encountered. Rather, one of these conditions occurs whenever a consonant cognition is added, deleted, or increased.
or decreased in importance. For example, when a consonant cognition is deleted or decreased in importance, the "degree of x-dissonance" is increased, but the "combined importance" is decreased. Similarly, when a consonant cognition is added or increased in importance, the "degree of x-dissonance" is decreased, but the "combined importance" is increased.\(^{18}\)

This is a major problem in dissonance theory--one that eventually needs a carefully devised solution. For the purposes of the present axiomatization, however, it seems best simply to follow Festinger and assert that (1) increasing the number or importance of consonant cognitions decreases the "magnitude of x-dissonance" and (2) decreasing the number or importance of consonant cognitions increases the "magnitude of x-dissonance." This is possible if it is assumed that consonant cognitions have less effect on the "combined importance" than they do on the denominator of the "degree of x-dissonance."\(^{19}\)

Thus, it is possible to say that the "magnitude of x-dissonance"

\(^{18}\)There is no problem with dissonant cognitions. Adding, or increasing the importance of, a dissonant cognition increases both "degree of x-dissonance" and "combined importance." Similarly, deleting, or decreasing the importance of, a dissonant cognition decreases both "degree of x-dissonance" and "combined importance."

\(^{19}\)Clearly, this artificial solution, while legitimate within the axiomatization since "combined importance" is treated as a primitive, does not really solve the problem. In fact, it may actually be true that adding consonant cognitions sometimes increases and sometimes decreases the magnitude of dissonance, depending on specific conditions. This is a problem in dissonance theory that deserves serious attention.
is increased by increasing the number or importance of dissonant cognitions and by decreasing the number or importance of consonant cognitions. Similarly, the "magnitude of x-dissonance" is decreased by decreasing the number or importance of consonant cognitions. Therefore, one of the most effective ways to reduce dissonance would be to change a dissonant cognition to a consonant one, thus both decreasing the number of dissonant cognitions and increasing the number of consonant cognitions.

The second axiom of the theory asserts that, whenever the magnitude of x-dissonance is greater than zero, there exist pressures toward reducing, and against increasing, the magnitude of x-dissonance. Moreover, the magnitude of these pressures is a direct function of the magnitude of x-dissonance.

**Axiom 2.** If the magnitude of x-dissonance is greater than zero, then there exist pressures toward decreasing, and against increasing, the magnitude of x-dissonance. The magnitude of these pressures is a direct function of the magnitude of x-dissonance.

In other words, when there is little or no x-dissonance, there is little or no pressure to reduce, or to avoid increases in, x-dissonance. However, when there is a great deal of x-dissonance, there are strong pressures both to reduce and to avoid increases in x-dissonance.  

20Note that this axiom specifies only that x-dissonance affects the pressures to reduce and avoid x-dissonance. In other words, it does not say that x-dissonance will result in a general tendency to
With Axiom 2, the magnitude of x-dissonance is the determinant of the magnitude of pressure, regardless what factors are primarily responsible for a high magnitude of x-dissonance. Moreover, these pressures are assumed to be exerted equally toward all means of reducing x-dissonance and against all means of increasing x-dissonance. 21

By combining these first two axioms, it is possible to derive a large number of propositions, with the following being only a small sample: 22

1. The larger the number of dissonant cognitions, the greater the pressure to eliminate dissonant cognitions. 23

2. The larger the number of dissonant cognitions, the greater the pressure to add consonant cognitions.

3. The larger the number of consonant cognitions, the less the pressure to eliminate dissonant cognitions.

reduce and avoid all types of dissonance. This is a significant limiting feature of the axiom.

21 In other words, the theory does not specify that pressures will be directed more toward major sources of x-dissonance, or toward sources easily changed, or toward sources consciously recognized, etc. These possibilities seem worth consideration in future development of the theory.

22 Whenever statements of the form "the greater the x, the greater the y" are used in this paper, they postulate not simply covariation between two variables, but an asymmetric or causal relationship.

23 Naturally, all propositions implicitly include the words "other things being equal." In this instance, the number of relevant cognitions and the importance of all the cognitions must be comparable between cases compared.
4. The larger the number of consonant cognitions, the less the pressure to add consonant cognitions.

5. The greater the importance of dissonant cognitions, the greater the pressure to eliminate dissonant cognitions.

6. The greater the importance of dissonant cognitions, the greater the pressure to reduce the importance of dissonant cognitions.

7. The greater the importance of dissonant cognitions, the greater the pressure to add consonant cognitions.

8. The greater the importance of dissonant cognitions, the greater the pressure to increase the importance of consonant cognitions.

The above propositions are only a fraction of those that could be derived from the first two axioms, but they should be sufficient to illustrate that numerous propositions can be derived. These are the kinds of formal propositions that implicitly or explicitly underlie much of the research in dissonance theory.

Consequences of Pressure

In addition to the basic assumptions about dissonance and its pressures, Festinger's theory also makes certain assumptions as to the consequences of these pressures. These assumptions are not explicit in the theory, but assumptions such as those expressed by the axioms in this section seem necessary to derive the behavioral consequences generally attributed to Festinger's theory. These
axioms contain basic assumptions as to the ways in which pressures affect cognitions and behavior.

There are at least three ways in which pressure can exert its influence: the threshold process, the probability process, and the degree process. The threshold process assumes that, if and when the pressures equal a certain specified amount, the change will take place. As long as the pressures are less than this threshold, no change will result. As soon as the pressures equal (or exceed) this threshold, change will occur. The probability process assumes that, as the pressures increase, the probability of change increases. Each added increment of pressure increases the probability of change. The degree process assumes that, as the pressures increase, the degree of change increases. With greater pressure, the degree of change is greater.

In dissonance theory it is not clear which of these processes are operating. Different processes seem to be assumed at different times. For example, the threshold process may be assumed when discussing whether a cognition will change. The threshold in this instance is the pressure against the change. For example, Festinger states that, "The maximum dissonance which can exist between two elements is equal to the resistance to change of the less resistant of the two elements. If the dissonance exceeds this magnitude, the less resistant cognitive element will be changed, thus reducing the dissonance." 24 This statement assumes that a cognition will change

24 Festinger, p. 266.
if the sum of pressures toward change is greater than the threshold set by the sum of pressures against change.

At other times, Festinger seems to assume a probability process; e.g., "A change of private opinion would follow public compliance more frequently when the punishment or reward is relatively weak than when it is too strong." In this case the degree of dissonance affects the frequency, or probability, of the opinion change.

At still other times, Festinger seems to assume a degree process; e.g., "Because of the moderate magnitude of the reward, the dissonance would not be great. We would thus expect a relatively moderate change in private opinion." In other words, dissonance is associated with the amount, or degree, of change in opinion.

In his abstract discussions of dissonance, Festinger tends to assume a threshold process. Cognitions either change or do not change; behaviors either occur or do not occur. There is no concern with probability or degree. However, in discussions of empirical examples, reliance is often placed on an assumption of probability or degree process. The present axiomatization, in trying to stay as close to Festinger's intent as possible, will place primary emphasis on the threshold process.

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25Festinger, p. 95.

26Festinger, p. 115.
**Axiom 3.** A cognition will change if and only if the sum of the pressures toward change is greater than the sum of pressures against change; a behavior will change if and only if the sum of pressures toward change is greater than the sum of pressures against change.

This axiom assumes a threshold process, with the threshold being determined by the pressures against change. A modified probability process can then be derived by the following reasoning: The greater the pressures toward change, the more likely an unknown threshold is reached, and therefore the more likely a change is to occur.

A modified degree process can also be incorporated by specifying that, if a change does occur, the extent of the change will be determined by the strength of the pressure to change.

**Axiom 4.** If a change occurs, the magnitude of the change is a direct function of the magnitude of the pressure to change.

Axiom 4 does not specify when a change will occur; it simply states that if a change does occur, the magnitude of the change will depend on the magnitude of the pressure to change.

Combining these two new axioms with the two axioms in the preceding section allows the derivation of still more propositions; for example,

1. The greater the resistance to change of a cognition, the greater the pressure needed to produce change, and the greater the resultant change when change takes place.
2. The greater the importance of dissonant cognitions, the greater the pressure to reduce dissonance, and the greater the resultant change when change takes place.

3. The greater the dissonance, the more likely an individual will attempt to reduce the dissonance.

4. The greater the dissonance, the more likely is a change in cognitions.

5. The larger the number of dissonant cognitions, the more likely an individual will attempt to add consonant cognitions.

6. The greater the dissonance, the more likely an individual will attempt to decrease the importance of the dissonant cognitions.

7. The greater the dissonance, the more likely an individual will attempt to increase the importance of consonant cognitions.

8. A cognition is less likely to be created if it increases dissonance than if it decreases dissonance.

These eight propositions are only a sample of those that could be derived from the first four axioms. Continuing to interrelate these four axioms would yield still more of the propositions implicit in dissonance theory. However, even this brief list should indicate that numerous propositions are derivable.

Other Pressures

Festinger does not maintain that dissonance is the sole source of pressure; rather, he recognizes that various other pressures also affect cognitions and behavior. One of the most important
of these pressures is that exerted by reality on cognitions.

Festinger maintains that one of the most important factors affecting cognitions is reality, that for the most part cognitions correspond to reality. Translating this idea into the language of pressures, it may be said that reality exerts pressure on cognitions to be in correspondence with reality.

**Axiom 5.** Reality exerts pressure on cognitions to be in correspondence with reality.

It is not exactly clear what reality is or what it means to be in correspondence with reality. It is also not clear what determines the strength of these reality pressures. However, the general idea of reality pressures would seem to be useful and to be worth further development. For example, it may be that the clearer the reality, the stronger and more focused are the pressures it exerts. This idea could account for the apparent assumption in dissonance theory that it is easier to change a cognition when reality is ambiguous than when it is clear, given that the reality stays constant.\(^{26}\)

Another idea that may be related to clarity is probable validity. Perhaps, the higher the probability that an element of reality is valid (i.e., a true representation of reality), the stronger the pressures it exerts. Thus, in the daily process of using indicators as to what is the true reality, the individual

\(^{26}\text{Festinger, p. 179.}\)
will be most influenced by those indicators he considers most valid. For example, the opinion of a person considered to be an expert will have more effect than that of someone thought to be ignorant.

The concept of reality might also be developed by specifying some of the characteristics of reality that become acquired by the corresponding cognition. For example, it may be that the more important an element of reality is, the more important the corresponding cognition. The problem then becomes one of specifying what factors account for the importance of the reality element. For example, it may be that the more important or attractive the source of a reality element (such as an opinion), the more important the reality element. Or it may be that the more important an element is to its source, the more important the element is believed to be.

Needless to say, these ideas on the nature of reality pressures are not fully developed. They are only a very rudimentary attempt to pull out some of the ideas that may be implicit in Festinger's 1957 book. This would seem to be an area that could be very fruitfully developed in greater depth.

In addition to reality pressures, Festinger also frequently assumes some sort of cost-reward pressure; i.e., he tends to assume that a person acts so as to receive reward and to avoid cost. He does not explicitly consider reward and cost as exerting pressure; but by saying that public compliance can be brought about by threat of punishment or offer of reward, he is implicitly assuming some

\[27\text{Cf., Festinger, p. 85.}\]
sort of cost-reward pressure. It thus seems reasonable to assert
that potential rewards exert pressure toward a change and that
potential costs exert pressure against a change, with the magnitude
of the pressure a function of the magnitude of the rewards and costs.

Axiom 6. Potential rewards exert pressures toward a change;
potential costs exert pressures against a change. The magnitude of
these pressures is a direct function of the magnitudes of the
rewards and costs.

Stating the effects of rewards and costs in terms of pressures
(rather than by some global statement that man seeks to maximize
rewards and minimize costs) seems to be potentially useful in
interrelating reward and cost with other pressures. Naturally, the
ideas of reward and cost--e.g., what are they and what determines
their magnitude--need to be further developed. For example, the
magnitude of potential rewards and costs is probably relative both
to present rewards and costs and to alternative rewards and costs.
Nonetheless, even though the idea is only rudimentary, it seems
potentially useful to conceptualize rewards and costs in terms
of exerting pressure.

Festinger also mentions various other possible pressures.
However, since these are mentioned only in passing, no specific
attempt will be made to consider them or to develop them into
axioms.
Summary

These six axioms encompass the fundamental assumptions of Festinger's theory of cognitive dissonance:

**Axiom 1.** The magnitude of $x$-dissonance is a direct function of (1) the combined importance of $x$-relevant cognitions and (2) the degree of $x$-dissonance.

**Axiom 2.** If the magnitude of $x$-dissonance is greater than zero, then there exist pressures toward decreasing, and against increasing, the magnitude of $x$-dissonance. The magnitude of these pressures is a direct function of the magnitude of $x$-dissonance.

**Axiom 3.** A cognition will change if and only if the sum of the pressures toward change is greater than the sum of pressures against change; a behavior will change if and only if the sum of pressures toward change is greater than the sum of pressures against change.

**Axiom 4.** If a change occurs, the magnitude of the change is a direct function of the magnitude of the pressure to change.

**Axiom 5.** Reality exerts pressure on cognitions to be in correspondence with reality.

**Axiom 6.** Potential rewards exert pressures toward a change; potential costs exert pressures against a change. The magnitude of these pressures is a direct function of the magnitudes of the rewards and costs.
CHAPTER III

THE DERIVATION OF FESTINGER'S PROPOSITIONS

The present chapter is, in a sense, a "test" of the set of terms and axioms presented in Chapter II. The object is to show that Festinger's major assertions can indeed be derived from this set of terms and axioms, with the aid of a small set of empirical assumptions and definitions. In the process, it is also shown that there are hundreds of propositions in addition to those specifically considered by Festinger that can be derived from these same terms, axioms, and empirical assumptions.

The propositions in this chapter are presented in four sections, paralleling the four major divisions of Festinger's book: (1) post-decision dissonance, (2) forced-compliance, (3) seeking and avoiding information, and (4) disagreement and social support. Each of these four sections is then further subdivided into discussions of (1) the factors affecting the magnitude of dissonance, (2) how dissonance can be reduced, and (3) the effects of dissonance.
I. Post-Decision Dissonance

One of Festinger's chief interests is in post-decision dissonance—the dissonance that is a result of the simple, everyday act of choosing between alternatives. He is primarily concerned with three related aspects of this type of dissonance: (1) factors affecting its magnitude, (2) ways of reducing it, and (3) its effects on cognitions.

Magnitude

The basic assumption underlying discussions of post-decision dissonance is that cognitions implying decision $x'$ are consonant with that decision and that cognitions implying not choosing decision $x'$ are dissonant with that decision. For example, if Bob chooses to buy a Volkswagen, all his cognitions that imply buying a Volkswagen are consonant with his decision, while all his cognitions that imply not buying a Volkswagen are dissonant with the decision. Empirically, the assumption is generally made that positive aspects of an alternative imply choosing it and rejecting other alternatives and that negative aspects imply rejecting it and choosing another alternative. For example, high gas mileage may imply choosing a Volkswagen and not choosing the Cadillac alternative, whereas low power may imply not choosing the Volkswagen but choosing the Cadillac alternative.
Empirical Assumption 1. Positive aspects of $x$ imply decision $x'$ and not alternative decision $-x'$. Negative aspects of $x$ imply alternative decision $-x'$ and not decision $x$.

Empirical Assumption 1 actually has four parts, as illustrated in Chart 1. First, it states that positive aspects of $x$ imply decision $x'$; in other words, positive aspects of $x$ would be consonant with making decision $x'$. Second, it states that positive aspects of $x$ imply not the alternative decision $-x'$; i.e., positive aspects of $x$ are dissonant with decision $-x$. Third, it asserts that negative aspects of $x$ imply not decision $x'$; i.e., they are dissonant with decision $x'$. Fourth, negative aspects of $x$ imply alternative decision $-x'$; i.e., they are consonant with it. Thus, if $x$ has one positive aspect, consonance will be created by decision $x'$ and dissonance by decision $-x'$. Similarly, if $x$ has one negative aspect, dissonance will be created by decision $x'$ and consonance by

---

**Chart 1**

<table>
<thead>
<tr>
<th>Aspects of Decision Alternative $X$</th>
<th>Decision Implied</th>
</tr>
</thead>
<tbody>
<tr>
<td>$X'$</td>
<td>$-X'$</td>
</tr>
<tr>
<td>Positive aspects of $X$</td>
<td>+</td>
</tr>
<tr>
<td>Negative aspects of $X$</td>
<td>-</td>
</tr>
</tbody>
</table>

*a"+" means implies (consonant); "-" means implies not (dissonant).
decision -x'.

Since making a decision always implies a choice between at least two alternatives, it is also important to consider how the aspects of -x affect dissonance. For the most part, it is simply a matter of changing the signs of x in Table I: Positive aspects of -x create consonance with decision -x' and dissonance with decision x'; negative aspects of -x' create dissonance with decision -x' and consonance with decision x'. However, in considering more than one alternative, a condition called "cognitive overlap" may occur. "Cognitive overlap" refers to a similarity between alternatives, the case when the alternatives share certain of the same positive or negative aspects—as in a choice between a red and a blue Volkswagen. As can be derived from the above discussion, if both x and -x share the same positive (or negative) aspect, this aspect implies both decision x' and decision -x'. Therefore, since this aspect can imply either decision (i.e., either x or -x follows from this aspect), this aspect is consonant with either decision x' or -x'.

1According to the definition of relevance in the section on basic terms, y is relevant to x if y $\rightarrow x$ and y $\rightarrow -x$. And if two cognitions are relevant and not dissonant, they are consonant. It is not clear whether Festinger intends that shared negative aspects have the same effect as shared positive aspects. However, since he generally does not differentiate between them, it seems justifiable to treat them similarly.

2The conceptualization of "cognitive overlap" is another of the aspects of Festinger's theory that seems very much in need of careful theoretical development. The careful development is especially necessary since this is a potential point for slipperiness in the theory. For example, "cognitive overlap" can be applied to
In sum, unless there is cognitive overlap, the positive aspects of a decision alternative are consonant with choosing that alternative and dissonant with choosing a different alternative, while the negative aspects of a decision alternative are dissonant with choosing that alternative and consonant with choosing a different alternative. When there is cognitive overlap, the shared positive or negative aspects are consonant with choosing either alternative.

It is now possible to enumerate several things that should affect the magnitude of post-decision dissonance. Basically, dissonance will be greater the greater the number or importance of dissonant cognitions and the less the number or importance of consonant cognitions.

Proposition 1. Given decision $x'$, the magnitude of post-decision dissonance is greater

(a) the larger the number of negative aspects of $x$,
(b) the greater the importance of negative aspects of $x$,
(c) the smaller the number of positive aspects of $x$,
(d) the less the importance of positive aspects of $x$;
(e) the less the number of negative aspects of $-x$,
(f) the less the importance of negative aspects of $-x$,
(g) the larger the number of positive aspects of $-x$,
(h) the greater the importance of positive aspects of \(-x\);
(i) the smaller the number of positive aspects of \(-x\) shared by \(x\),
(j) the less the importance of positive aspects of \(-x\) shared by \(x\),
(k) the smaller the number of negative aspects of \(x\) shared by \(-x\);
(l) the less the importance of negative aspects of \(x\) shared by \(-x\);
(m) the less the number of aspects shared by \(x\) and \(-x\),
(n) the less the importance of aspects shared by \(x\) and \(-x\).

Under Proposition 1, the first four subparts refer to aspects of the chosen alternative, the second four subparts refer to aspects of the rejected alternative(s), and the last six subparts refer to cognitive overlap. The first eight subparts are simply a precise enumeration of the previous discussion of positive and negative aspects. All that is added is the effect of number and importance. With the next four subparts, however, something new has been added: These four subparts carefully specify whether the aspects of \(x\) are shared by \(-x\), or whether the aspects of \(-x\) are shared by \(x\). The reasoning behind this distinction is based on the six cases in Chart 2. The first three cases illustrate three conditions when a positive aspect is involved. In Case 1, there is one positive aspect of the chosen alternative, and thus one
## Chart 2

**Positive vs. Negative Shared Aspects**

<table>
<thead>
<tr>
<th>Case</th>
<th>Chosen Alternative $x$</th>
<th>Rejected Alternative $-x$</th>
<th>Number of Dissonant or Consonant Relationships</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case 1</td>
<td>+</td>
<td>+</td>
<td>1 consonant</td>
</tr>
<tr>
<td>Case 2</td>
<td>-</td>
<td>+</td>
<td>1 dissonant</td>
</tr>
<tr>
<td>Case 3</td>
<td>+</td>
<td>+</td>
<td>1 consonant</td>
</tr>
<tr>
<td>Case 4</td>
<td>-</td>
<td>-</td>
<td>1 dissonant</td>
</tr>
<tr>
<td>Case 5</td>
<td>-</td>
<td>-</td>
<td>1 consonant</td>
</tr>
<tr>
<td>Case 6</td>
<td>-</td>
<td>-</td>
<td>1 consonant</td>
</tr>
</tbody>
</table>

$a$"+" means positive aspect; "-" means negative aspect

Consonant relationship. In Case 2, there is one positive aspect of the rejected alternative, and thus one dissonant relationship. In Case 3, there is one positive aspect shared by both alternatives, and thus one consonant relationship. Therefore, there is less dissonance when the positive aspect is shared by both alternatives than when it is associated with just the rejected alternative. In contrast, there is equal consonance whether the positive aspect is associated with the chosen alternative or whether it is shared by both. Therefore, dissonance will be greater the smaller the number of positive aspects of $-x$ shared by $x$ (Proposition 1.1), but it makes no difference whether positive aspects of $x$ are shared by $-x$.

The last three cases in Chart 2 illustrate three conditions when a negative aspect is involved. In Case 4, there is one negative aspect of the chosen alternative, and thus one dissonant relationship. In Case 5, there is one negative aspect of the
rejected alternative, and thus one consonant relationship. In Case 6, there is one negative aspect shared by both alternatives and thus one consonant relationship. Therefore, there is less dissonance when the negative aspect is shared than when it is associated with just the chosen alternative. In contrast, there is equal consonance whether the negative aspect is associated only with the rejected alternative or whether it is shared by both. Therefore, dissonance will be greater the smaller the number of negative aspects of x shared by -x (Proposition 1.k), but it makes no difference whether negative aspects of -x are shared by x.

The last two subparts in Proposition 1 simply refer to cognitive overlap in a broad sense. They state that, the less the number and importance of shared aspects, the greater the dissonance. As should be evident from the previous discussion, the "other things equal" assumption in this case implies that the unshared aspects remain constant. In other words, the cognitive overlap cannot be established simply by adding an aspect like one already included for the other alternative. In this case, a new aspect must be added to (or deleted from) each alternative. Dissonance will be inversely related to the number of shared aspects because shared aspects establish consonant relationships.

Festinger makes a large number of statements relating the attractiveness of alternatives to the magnitude of dissonance. These statements are apparently derivable from Proposition 1, the major uncertainty being how to define "attractiveness." The term
"attractiveness" would seem to be a summary term combining the positive and negative aspects of an alternative. The best definition in the present context would seem to be one parallel to the degree of x-dissonance definition in the section on basic terms. Thus, the "attractiveness" of x is equal to the following ratio:

\[
\frac{\text{Weighted sum of positive aspects of } x}{\text{Weighted sum of pos aspects of } x + \text{weighted sum of neg aspects of } x}
\]

Since the highest degree of attractiveness thus becomes 1, the "unattractiveness" of x can be defined as 1 minus attractiveness, which is the same as the following ratio:

\[
\frac{\text{Weighted sum of negative aspects of } x}{\text{Weighted sum of pos aspects of } x + \text{weighted sum of neg aspects of } x}
\]

With these definitions and Empirical Assumption 1, the attractiveness of the chosen alternative x is equal to the degree of consonance contributed by the positive and negative aspects of x; the unattractiveness of x is equal to the degree of dissonance contributed. Correspondingly, the attractiveness of the rejected alternative -x is equal to the degree of dissonance contributed by the positive and negative aspects of -x; the unattractiveness is equal to the degree of consonance contributed. Before the dissonance stemming from aspects of x and -x can be truly combined, however, it is necessary to consider cognitive overlap. As was discussed above, when an aspect is shared by both alternatives, it always establishes a consonant relationship with the chosen alternative. Thus, any positive aspect of the unchosen alternative that is the same as an
aspect of the chosen alternative is consonant—not dissonant—with
the chosen alternative. Similarly, any negative aspect of the
chosen alternative that is shared by the unchosen alternative is
consonant with the chosen alternative. Thus, shared positive aspects
of the unchosen alternative and shared negative aspects of the
chosen alternative do not result in dissonance. Therefore, shared
aspects will not increase dissonance and, for simplicity's sake, will
be ignored in this context.

Thus, the total degree of dissonance would be a direct function
of the unattractiveness of $x$ and the attractiveness of $-x$, excluding
shared aspects. It is then possible to say that, excluding shared
aspects, the degree of dissonance is a direct function of the
attractiveness of the chosen alternative. These ideas are formally
stated in Proposition 2:

**Proposition 2.** Excluding shared aspects, the magnitude of
post-decision dissonance is greater

(a) the greater the unattractiveness of the chosen alternative,
(b) the greater the attractiveness of the unchosen alternative,
(c) the greater the attractiveness of the unchosen alternative
    relative to the attractiveness of the chosen alternative.

Attractiveness and unattractiveness also affect the magnitude
of dissonance with more than one alternative. For example, when the
rejected alternatives are attractive (i.e., when their "attractiveness"
is greater than their "unattractiveness"), the more alternatives
involved in a decision, the greater the post-decision dissonance. In contrast, when the rejected alternatives are unattractive (i.e., when their "unattractiveness" is greater than their "attractiveness"), the more alternatives involved in a decision, the smaller the post-decision dissonance. The reasoning behind these assertions is simple. If the rejected alternatives are attractive, they will primarily create dissonance with the chosen alternative; and the larger the number or importance of such alternatives, the greater the dissonance. In contrast, if the rejected alternatives are unattractive, they will primarily create consonance with the chosen alternative; and the larger the number or importance of such alternatives, the greater the consonance.

Proposition 3. Excluding shared aspects, the magnitude of post-decision dissonance is greater

(a) the larger the number of attractive alternatives,

(b) the greater the importance of attractive alternatives,

(c) the smaller the number of unattractive alternatives,

(d) the less the importance of unattractive alternatives.

Festinger also relates the magnitude of dissonance to the importance of the decision: Post-decision dissonance is greater the greater the importance of the decision. This statement is a

\footnote{Festinger simply states that, "The more alternatives that are involved in a decision (other factors held constant), the greater will be the dissonance following the decision" (p. 54). However, for consistency, and apparently in line with Festinger's intent, dissonance is here said to be greater only when the alternatives are attractive.}
simple derivation of Axiom 1, which states that dissonance is a function of the combined importance of the cognitions involved. Since the decision cognition, \( x \), is one of these cognitions, dissonance is a function of the importance of \( x \).

**Proposition 4.** The magnitude of post-decision dissonance is a direct function of the magnitude of importance of the decision.

Finally, Festinger considers the effect of cognitions other than those directly corresponding to the decision alternatives or aspects of those decisions. For example, Festinger asserts that a person can reduce dissonance by admitting his decision was wrong or by refusing to accept responsibility for the decision. This type of situation can be interpreted as adding a cognition consonant with the decision (e.g., "I was wrong," "I am not responsible," or "He is responsible, not me." ) or as deleting a dissonant cognition (e.g., "I always make correct decisions," "I am totally responsible," or "This is my decision").

**Proposition 5.** The magnitude of post-decision dissonance is greater

(a) the larger the number of dissonant cognitions,

(b) the greater the importance of dissonant cognitions,

(c) the smaller the number of consonant cognitions,

(d) the less the importance of consonant cognitions.

\(^4\)Festinger, pp. 29, 44.
Thus, post-decision dissonance has been seen as related to five things:

1. aspects of the chosen and unchosen alternatives—valence (i.e., "positive" and "negative" aspects), number, importance, and similarity (cf., "cognitive overlap");

2. attractiveness and unattractiveness of the alternatives,

3. the number and importance of rejected alternatives,

4. the importance of the chosen alternative, and

5. the number and importance of other relevant cognitions.

Reduction

Closely related to the factors which affect the magnitude of dissonance are the ways in which dissonance can be reduced once a decision has been made. Proposition 6 gives the mechanisms for reducing dissonance parallel to those in the first five propositions:

**Proposition 6.** Given decision x', the magnitude of post-decision dissonance can be reduced by

1. Changing cognitions about aspects of x and -x:
   
   (a) deleting negative cognitions about x,  
   (b) decreasing the importance of negative cognitions about x,  
   (c) adding positive cognitions about x,  
   (d) increasing the importance of positive cognitions about x;  
   (e) adding negative cognitions about -x,  
   (f) increasing the importance of negative cognitions about -x,
(g) deleting positive cognitions about \(-x\),
(h) decreasing the importance of positive cognitions about \(-x\);
(i) adding cognitions to \(x\) corresponding to positive cognitions of \(-x\),
(j) increasing the importance of cognitions of \(x\) corresponding to positive cognitions of \(-x\),
(k) adding cognitions to \(-x\) corresponding to negative cognitions of \(x\),
(l) increasing the importance of cognitions of \(-x\) corresponding to negative cognitions of \(x\);
(m) adding corresponding cognitions to both \(x\) and \(-x\),
(n) increasing the importance of corresponding cognitions of \(x\) and \(-x\);

2. Changing the attractiveness of \(x\) and \(-x\):
   (a) decreasing the unattractiveness of \(x\),
   (b) decreasing the attractiveness of \(-x\),
   (c) decreasing the attractiveness of \(-x\) relative to \(x\);

3. Changing the number and importance of rejected alternatives:
   (a) deleting attractive alternatives,
   (b) decreasing the importance of attractive alternatives,
   (c) adding unattractive alternatives,
   (d) increasing the importance of unattractive alternatives;

4. Decreasing the importance of the decision;
5. Changing the number and importance of other relevant cognitions:

(a) deleting dissonant cognitions,
(b) decreasing the importance of dissonant cognitions,
(c) adding consonant cognitions,
(d) increasing the importance of consonant cognitions.

Proposition 6 is exactly parallel to the first five propositions, which specify types of things which affect the magnitude of post-decision dissonance. Since, according to Axiom 2, the magnitude of the pressure to reduce dissonance is a function of the magnitude of dissonance, it would now be possible to combine Proposition 6 with the first five propositions to obtain quite a large number of subpropositions. For example, the larger the number of negative aspects of chosen alternative x (Proposition 1.a), the greater the pressure toward all twenty-six of the subparts of Proposition 6. Similar subpropositions could be developed for the remaining twenty-five statements included in the first five propositions.

Moving for a moment to a more formal consideration of dissonance results in still a few more propositions implied by the axioms and definitions, but not explicitly considered by Festinger. According to the definition of dissonance, a dissonance relation is essentially symmetrical. When dissonance exists between x and y, it does not matter whether x implies \(-y\) or whether y implies \(-x\). Both conditions are essentially similar, and the magnitude of dissonance should be affected in the same manner for each condition. For
example, increasing the importance of x should increase the magnitude of x-dissonance regardless whether x implies -y or y implies -x. Similarly, adding consonant cognitions to x should reduce the magnitude of dissonance under either condition.

Thus far, in considering factors affecting dissonance, the primary concern has been with cognitions implying (or not implying) the chosen alternative. In other words the focus has been on the factors y that imply x. For example, all the positive and negative aspects of x and -x are, formally, factors y that imply (or imply not) x. There has been no concern with the factors that x implies. According to the theory, however, the magnitude of x-dissonance should be affected not only by factors that imply x but also by the factors that x implies. Thus, for example, adding cognitions that x implies (i.e., cognitions that are consonant with x) should reduce the magnitude of x-dissonance. The reasoning behind this statement is simple: Increasing the number of cognitions consonant with x will increase the weighted sum of x-consonance and thus decrease the total magnitude of x-dissonance.

Proposition 7. Given decision x, the magnitude of post-decision dissonance can be reduced by changing cognitions that x implies or implies not:

(a) adding cognitions that x implies,
(b) increasing the importance of cognitions that x implies,
(c) deleting cognitions that x implies not,
(d) decreasing the importance of cognitions that x implies not.
Two remaining ways of reducing dissonance have yet to be discussed. First, since dissonance is basically a relation between two cognitions, dissonance is affected by manipulating this relation. Dissonance can be reduced or even eliminated by the breaking of dissonant relations; i.e., by seeing previously dissonant cognitions as irrelevant. Similarly, consonance can be increased by establishing a consonant relation between two previously unrelated cognitions or by changing a relation that did result in dissonance to one that now results in consonance.

Proposition 8. The magnitude of x-dissonance can be reduced by
(a) eliminating dissonant relations,
(b) adding consonant relations,
(c) changing dissonant relations to consonant ones.

The second remaining way to reduce post-decision dissonance is perhaps the most obvious--change the decision. When a particular decision creates a great deal of dissonance, one of the most effective ways to reduce the dissonance may be simply to change the decision, or at least to change the cognition corresponding to the decision.

Proposition 9. The magnitude of post-decision dissonance can be reduced by
(a) changing the decision,
(b) changing the cognition corresponding to the decision.
The above four propositions specify some of the ways in which post-decision dissonance can be reduced: (1) by reducing the magnitude of dissonance in ways parallel to the assertions in the first five propositions, (2) by manipulating relevant factors implied (or implied not) by the decision, (3) by changing the nature of relations between cognitions, and (4) by changing the decision.

Effects

The major part of Festinger's discussion is devoted to the factors that affect the magnitude of dissonance and the ways in which dissonance can be reduced. However, one of his chief interests is in the effects of dissonance on decisions.

One of the central assertions of dissonance theory is that post-decision dissonance tends to stabilize decisions. The reasoning behind this assertion is as follows: The pressure to reduce post-decision dissonance results in reducing dissonance and increasing consonance; this change implies a reduction in the total magnitude of dissonance and, thus, a decrease in pressure to change. This decrease in pressure to change is synonymous with increased stability. Moreover, it is also possible to derive that the greater the post-decision dissonance, the greater the pressure to reduce dissonance and, thus, the greater the tendency toward stabilization. Naturally, this assumes that the dissonance is not

5Festinger, p. 77.
so great as to change the original decision.

**Proposition 10.** Given an unchangeable decision $x$ and the existence of post-decision dissonance, the decision tends to become stabilized; the greater the dissonance, the greater the tendency.

In other words, if a person experiences a great deal of post-decision dissonance--perhaps because the decision is a very important one or because the alternatives are both attractive--after a successful process of dissonance reduction, the individual should find it quite difficult to reverse the decision--even though before the decision he could have easily chosen the other alternative.

### 2. Forced Compliance Dissonance

A second substantive area of Festinger's book is the effect of behavior on cognitions. He is primarily interested in what happens to cognitions when a person can be induced to act in a manner dissonant with these cognitions. Once again, his propositions can be divided into three categories: (1) factors affecting the magnitude of dissonance, (2) ways of reducing dissonance, and (3) the effects of dissonance.

**Magnitude**

Since dissonance is a condition that, by definition, exists only between cognitions, it is necessary to specify how **behavior**
can result in dissonance. The required assumptions are found in Axiom 5, which specifies that reality exerts pressure on cognitions to be in correspondence with it, and in Axiom 3, which specifies that a cognition will be created\(^6\) if the pressures toward creation are greater than the pressures against creation. Thus, except for the rare case when there are strong pressures against the creation of a cognition, the reality pressures will result in a cognition corresponding to reality. Therefore, when a person behaves, he tends to form cognitions corresponding to this behavior.

The next step is to determine when such a behavioral cognition will create dissonance. The assumption seems to be that any cognition that implies an action other than the one taken is dissonant with the cognition(s) corresponding to the action taken.\(^7\) In a similar vein, a cognition is consonant with any cognition corresponding to an action which it implies.

**Empirical Assumption 2.** Any cognition that implies an action other than the one taken is dissonant with the cognition(s) corresponding to the action taken; any cognition that implies the action taken is consonant with the cognition(s) corresponding to that action.

\(^6\)"Change," in the above section on basic terms, is assumed to include creation.

\(^7\)Festinger, p. 36.
Since, according to Axiom 2, there are pressures to avoid dissonance, why would a person ever engage in a behavior that would result in dissonance? According to Axiom 3, a person will engage in a behavior only if the pressures toward that behavior are greater than the pressures against it. In other words, a person will engage in a behavior creating dissonance only if the pressures toward that behavior are greater than the dissonance pressures against it. What could some of the pressures toward this behavior be? According to Axiom 6, potential rewards and costs are capable of exerting pressure. Potential rewards can exert pressure toward a behavior; potential costs can exert pressure against a behavior. Thus, potential rewards could result in a behavior creating dissonance with other cognitions. And potential costs could inhibit a behavior implied by other cognitions, thus resulting in a non-behavior cognition dissonant with these other cognitions. Since the strength of these reward-cost pressures is dependent on the magnitude of the rewards and costs (Axiom 6), the occurrence (or non-occurrence) of the behavior would depend on the magnitudes of these rewards and costs.

The occurrence (or non-occurrence) of a behavior would also depend on the magnitude of dissonance, since this dissonance also results in pressures. Thus, the occurrence of a behavior depends upon both the magnitude of rewards and costs and also
upon the magnitude of dissonance. For example, the greater the dissonance expected to result from a behavior, the greater would be the pressures against the behavior, and the greater must be the potential reward to elicit the behavior. Similarly, when avoiding a threatened punishment is viewed as a type of relative reward, the greater the dissonance expected, the greater must be the threatened punishment to elicit the behavior. Thus, any of the factors that affect magnitude of dissonance (e.g., the importance of the cognitions involved) will affect the magnitude of reward or punishment necessary to elicit the behavior.

Not only is the magnitude of reward or punishment an important determinant of whether a behavior will occur, it is also an important determinant of the amount of dissonance once the behavior has occurred. The assumption must here be made that cognitions are formed corresponding to the reward or punishment (from Axiom 5 on reality pressures). It must also be assumed that the importance of these cognitions is a function of the magnitude of the reward or cost.⁸

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⁸If the magnitude of rewards and costs is to affect dissonance, it must (in the present formulation) affect either the number or importance of cognitions. We have chosen to make it affect importance (Cf., Festinger, p. 91: "As the promised reward... becomes smaller in importance").
Empirical Assumption 3. The importance of cognitions corresponding to rewards and costs is a direct function of the magnitude of the rewards and costs.

In other words, the magnitude of the rewards and costs affect the importance of the corresponding cognitions and thus affect the magnitude of dissonance. When the corresponding cognitions are consonant with the elicited behavior, therefore, the greater the magnitude of the rewards and punishments, the greater the importance of the consonant cognitions and the less the dissonance. In contrast, when the corresponding cognitions are dissonant with the elicited behavior, the greater the magnitude of the rewards and punishments, the greater the importance of the dissonant cognitions and the greater the dissonance.

Finally it is necessary to assume that, since anticipated rewards exert "pressure" toward a behavior, these rewards "imply" the behavior. Then, with the help of Empirical Assumption 2, it is possible to say that cognitions corresponding to rewards are consonant with the cognitions corresponding to the behavior implied by the rewards; similarly, cognitions corresponding to rewards are dissonant with the cognitions corresponding to a behavior alternative not implied by the rewards. In accordance with Festinger's terminology, the phrase "compliant behavior" shall be used as shorthand for "the behavior implied by the
reward or punishment."

Now it is possible to consider two simple cases: (1) when compliant behavior is elicited and (2) when compliant behavior is not elicited. In the first case (when compliant behavior is elicited), the reward cognition is consonant with the behavioral cognition; thus, the greater the reward, the greater the consonance contributed and the less the dissonance. In the second case (when compliant behavior is not elicited), the reward cognition is dissonant with the behavioral cognition; thus, the greater the reward, the greater the dissonance contributed, and the greater the total dissonance. 9

It can also be shown that the more important the behavior involved, the greater the dissonance whether the compliant behavior is elicited or not. It is only necessary to assume that the importance of the cognition corresponding to the behavior is a function of the importance of the behavior. Then, if compliant behavior is elicited, the behavioral cognition is dissonant with the initial cognition; and the greater the importance of the behavioral cognition, the greater the dissonance. 10 If compliant behavior is not elicited, the behavioral cognition is dissonant with the reward cognitions; and the greater the importance of the behavioral cognition, the greater the dissonance.

9 Festinger, pp. 91-94, 263.

10 Festinger, p. 92.
Finally, it can also be shown that the importance of the initial cognitions (e.g., opinions or attitudes) also affects the magnitude of dissonance. If the compliant behavior is elicited, the initial cognitions are dissonant with the behavioral cognition; and the more important the initial cognitions, the greater the dissonance. If the compliant behavior is not elicited, however, the initial cognitions are consonant with the behavioral cognition; and the more important the initial cognitions, the greater the consonance and the less the dissonance.

The ideas in the above three paragraphs are summarized in Proposition 11:

**Proposition 11.** A. When compliant behavior is elicited, the magnitude of x-dissonance is greater

(a) the less the promised reward or threatened punishment,

(b) the more important the behavior involved,

(c) the more important the initial cognitions.

B. When compliant behavior is not elicited, the magnitude of x-dissonance is greater

(a) the more the promised reward or threatened punishment,

(b) the more important the behavior involved,

(c) the less important the initial cognitions.

The above discussion relates the dissonance from compliant behavior to three factors: (1) the magnitude of promised reward or

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11 Festinger, p. 93.
threatened punishment, (2) the importance of the behavior involved, and (3) the importance of the initial cognitions. Needless to say, drawing upon the previous discussion of the magnitude of post-decision dissonance, still other factors could be enumerated. However, these three factors seem to be those with which Festinger is chiefly concerned when discussing compliant behavior.

Reduction

Given that dissonance exists either because compliant behavior has been elicited or because it has failed to be elicited, how can dissonance be reduced? First of all, it can be reduced in ways parallel to those mentioned in Proposition 11. 12

Proposition 12. A. If compliant behavior is elicited, the magnitude of x-dissonance can be reduced by

(a) increasing the importance of the promised reward or threatened punishment,

(b) decreasing the importance of the behavior involved,

(c) decreasing the importance of the initial cognitions.

B. If compliant behavior is not elicited, the magnitude of x-dissonance can be reduced by

(a) decreasing the importance of the promised reward or threatened punishment,

(b) decreasing the importance of the behavior involved,

(c) increasing the importance of the initial cognitions.

12 Festinger, pp. 96-97, 264-265.
It is also apparent that dissonance resulting from compliant behavior can be reduced by changing the initial cognitions (e.g., opinions or attitudes) so that they become consonant, rather than dissonant, with the behavior. It would also be possible to reduce dissonance by breaking the relevance bond between the initial cognitions and the behavior; i.e., by believing that the initial cognitions are irrelevant as far as the behavior in question is concerned.

**Proposition 13.** If compliant behavior is elicited, the magnitude of x-dissonance can be reduced by

(a) changing the initial cognitions so that they become consonant,

(b) breaking the relevance relation between the initial cognitions and the behavior.

Finally, it may be possible to reduce dissonance by changing the behavioral cognition—whether by changing the actual behavior or by changing simply the cognitions about the behavior. Naturally, these changes would have to be in the direction of becoming consonant with the initial cognitions. The problem with changing the actual behavior is that this can potentially result in more dissonance than there was in the first place.

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13 Festinger, pp. 97, 122, 264.

14 Festinger, p. 265.
Proposition 14. If compliant behavior is elicited, the magnitude of x-dissonance can be reduced by

(a) changing the actual behavior,

(b) changing the cognitions about the behavior.

Effects

An analysis of the effects of forced compliance dissonance is a rather straightforward extension of the previous discussion. In the case when the compliant behavior is elicited, the resulting dissonance exerts pressure toward the reduction of dissonance, with the magnitude of the pressure a function of the magnitude of dissonance. Thus, the greater the dissonance (Proposition 11), the greater the pressure to reduce it (Propositions 12, 13, 14). For example, if compliant behavior is elicited, the less the promised reward (Proposition 11.A.a), the greater the dissonance and the greater the pressure to change the original opinions (Proposition 13.a). Similarly, the more important the behavior (Proposition 11.A.b), the more dissonance and the greater the pressure to change cognitions about the behavior (Proposition 14.b).

The second case, when the compliant behavior is not elicited, also requires simply an interrelating of the previous propositions. For example, if compliant behavior is not elicited, the greater the promised reward (Proposition 11.B.a), the greater the dissonance and the greater the pressure to increase the importance of the initial cognitions (Proposition 12.B.c). Similarly, if the behavior
is not elicited, the greater the importance of the behavior involved (Proposition 11.B.b), the greater the dissonance and the greater the pressure to decrease the importance of the promised reward (Proposition 13.B.a).

As can be seen, a number of propositions can be easily derived. However, Festinger is primarily concerned only with those that affect the original attitude or opinion. He states that the best way to obtain a change in private opinion is to offer just enough reward or punishment to elicit the overt compliance. 15 This assertion follows from the theory because the maximum dissonance, when the behavior is elicited, occurs when the reward or punishment is the least (Proposition 11.A.a). He also states that "once a change in behavior has occurred, a change in beliefs is likely to follow." 16 This statement is based on the proposition that the dissonance created by the behavior results in pressure to change the original beliefs (Proposition 13.a). Finally, Festinger writes that, "The offer of a reward or punishment which is not sufficient to elicit the overt behavior may be worse than nothing in that it serves to impel the person to increase his original conviction." 17 This statement is based on the assumption that the dissonance created by the offer of reward or punishment results in pressure to increase the importance of the original opinion (Proposition 12.B.c).

In sum, one of the major effects of forced compliance can be to change attitudes and opinions. One of the major consequences of the failure to elicit forced compliance can be to reinforce the individual's prior attitudes.

15Festinger, p. 95. 16Festinger, p. 121. 17Festinger, p. 96.
3. The Effects of Cognitions on Behavior:

Seeking and Avoiding Information

The preceding section discussed how behavior, by creating dissonance, can affect cognitions. This section discusses the complimentary problem of how cognitions, by creating dissonance, can affect behavior. Once again, the discussion will be divided into three parts: magnitude, reduction and avoidance, and effects.

Magnitude

As was established in the preceding section, behavior can affect dissonance because cognitions tend to be formed corresponding to the behavior. Behavior can also expose the individual to various reality elements which--exerting their pressure--then become established as cognitions corresponding to those reality elements. The necessary assumption is that, without exposure, the individual does not experience these reality pressures; but with exposure, he does. In discussing the effects of dissonance on behavior, Festinger is concerned with the type of behavior that leads to exposure, or non-exposure, to certain reality elements. The reality elements in which he is interested are those that can result in the formation of consonant or dissonant cognitions. The basic assumption is that, unless the pressures against the formation of the corresponding cognition are too great, dissonance will be greater the more reality elements the individual is exposed to that
correspond to dissonant cognitions, and the fewer reality elements
the individual is exposed to that correspond to consonant cognitions.
In less formal language, there will be more dissonance if the
individual is exposed to lots of dissonant things; there will be
less dissonance if he is exposed to lots of consonant things.

Proposition 15. Unless the pressures against the formation of the
corresponding cognitions are too great, the magnitude of x-dissonance
will be greater

(a) the more reality elements to which the individual is
exposed that correspond to dissonant cognitions,

(b) the fewer reality elements to which the individual is
exposed that correspond to consonant cognitions.

Reduction and Avoidance

The first means of reduction to be considered should be those
parallel to Proposition 15 on magnitude. However, whether a parallel
is completely justified is unclear—i.e., should reducing exposure
to dissonant reality elements reduce dissonance? This question
raises an interesting set of problems for future consideration:
What is the nature of a cognition once it has been formed? Does
it continue to exist forever unless there develop pressures against
it, or does time per se result in a weakening of the cognition? If
pressures develop against it, must they surpass the original
pressures toward the cognition, or must they only surpass some
weakened left-over of the original pressure, or is there no pressure at all to overcome? Does a reality element always exert the same amount of pressure, or do its effects differ over time? Although Festinger does not explicitly consider the possibility, it seems likely that eliminating exposure to a dissonant reality element might reduce the importance of that element, and thus reduce dissonance. Since, however, this idea is neither a direct derivation from the axioms nor explicitly considered by Festinger, it will not be stated as a proposition. Thus, Proposition 16 asserts only that dissonance can be reduced by increasing the number of consonant reality elements to which the individual is exposed.

Proposition 16. The magnitude of x-dissonance can be reduced by increasing the number of reality elements to which the individual is exposed that correspond to consonant cognitions.

In considering exposure, Festinger becomes concerned not only with the reduction of dissonance but also with the avoidance of any increase in dissonance. Thus, parallel with Proposition 15.a, it is possible to say that an increase in dissonance can be avoided by avoiding exposure to reality elements that correspond to dissonant cognitions.

Proposition 17. An increase in the magnitude of x-dissonance can be avoided by avoiding exposure to reality elements that correspond to dissonant cognitions.
In accordance with Axiom 2, the strength of the pressures to reduce or avoid dissonance depends on the magnitude of the existing dissonance. Thus, in general, the greater the dissonance, the greater the pressure toward behavior that will expose the individual to consonant reality elements and toward avoidance of behavior that will expose the individual to dissonant reality elements. Naturally, whether an individual believes a behavior will result in consonant or dissonant cognitions depends upon his expectations.

At this point, Festinger adds a new dimension to the previous theory. He asserts that, when dissonance is near to the limit which can exist, "a person may actively seek out, and expose himself to, dissonance-increasing information." The reasoning is that, when dissonance is near its limit, adding consonant elements may be less effective at reducing dissonance than increasing the dissonance pressures enough to cause a change in the cognition primarily responsible for the dissonance. The limit, in this case, is equal to the sum of the pressures against change. Dissonance can be said to be approaching this limit when the dissonance pressures, plus the other operating pressures toward change, are almost equal to this sum. The basic idea is that, when dissonance is approaching this limit, one way to reduce

\[18^\text{Cf., Festinger, p. 128.} \quad 19^\text{Festinger, p. 129.}\]

\[20^\text{In this context, Festinger does not mention that other operating pressures toward change must be considered (cf., Festinger, pp. 128-129). However, this would seem to be implicit from his general recognition in other contexts that other pressures exist.}\]
dissonance may be to temporarily increase it. Thus, since increasing

dissonance may be seen as a means of reducing dissonance in this
condition, the pressures to reduce dissonance can exert pressure
to increase dissonance.21

Proposition 18. When the magnitude of x-dissonance is approaching
its limit, it can be reduced by increasing exposure to reality
elements that correspond to dissonant cognitions.

Therefore, when dissonance is approaching its limit, there are not
only the standard pressures toward behavior that will reduce
dissonance but also this new pressure toward behavior that will
increase dissonance.

Effects

Putting together these various propositions, it is now possible
to make a few simple deductions about the effect of dissonance on
behavior.22 First, the existence of dissonance (except when almost
equal to its limit) will lead to the seeking out of situations
likely to result in consonant cognitions and the avoidance of
situations likely to result in dissonant cognitions. The probability
of this seeking out or avoidance will depend upon the magnitude of
dissonance. Thus, when there is little dissonance, these dissonance

21 This assertion seems to be another potential slippery point
in Festinger's theory, allowing the researcher to explain whatever
results occur.

22 Cf., Festinger, pp. 128-130.
pressures will have little effect on this type of behavior; the occurrence of this type of behavior will depend almost solely on other pressures. When there is a great deal of dissonance, however, these dissonance pressures become quite strong and increase the probability of the appropriate seeking out or avoidance behavior.

When dissonance is almost equal to its limit, it will then exert strong pressure both toward the seeking out and toward the avoidance of dissonance-producing situations. Thus, these pressures tend to counteract each other, and the occurrence of these behaviors depends largely on other pressures.

4. The Effects of Others' Opinions:

Disagreement and Social Support

One of the major types of reality elements is the opinions of others. How do these opinions of others affect dissonance? What are some of the characteristics of these opinions that affect the magnitude of dissonance? What are some of the ways to reduce this type of dissonance? What are some of the effects of this dissonance on cognitions and behavior?

Magnitude

The basic assumptions underlying Festinger's discussion of the opinions of others are (1) knowing another person disagrees
creates dissonance and (2) knowing another person agrees creates consonance. Festinger never explains exactly why the opinions of others affect dissonance, but two explanations seem possible.

According to the definition of dissonance, dissonance exists between two cognitions $x$ and $y$ if (1) $x \rightarrow -y$ and/or (2) $y \rightarrow -x$. Letting $y$ stand for the cognition corresponding to the disagreeing opinion of the other, and letting $x$ stand for the opinion of individual $A$, there will be dissonance if $A$ believes either (1) that the other should believe as $A$ does (i.e., $x \rightarrow -y$) or (2) that $A$ should believe as the other does (i.e., $y \rightarrow -x$). Either of these two conditions, or a combination of the two, would create dissonance. But whatever the reason why, the assumption is that disagreement results in dissonance and that agreement results in consonance.

**Empirical Assumption 4.** A cognition corresponding to a disagreeing opinion of another is dissonant with the individual's own opinion; a cognition corresponding to an agreeing opinion of another is consonant with the individual's own opinion.

Thus, since every disagreement results in a dissonant cognition, the larger the number of people who disagree, the greater the dissonance. Similarly, the larger the number of people who agree, the less the dissonance.  

\[23\] Festinger, p. 179.
Festinger also asserts that there will be little dissonance created by social disagreement when the opinion concerns "testable physical reality."\textsuperscript{24} The assumption is that if there are cognitions corresponding to reality that are consonant with A's opinion, there is less dissonance. There is also some suggestion that the more objective this physical reality, the less dissonance created by social disagreement. It is not clear, however, whether this objectivity of the reality affects the number or the importance of the corresponding cognitions. Therefore, it seems reasonable to say simply that dissonance is greater (1) the greater the number and importance of dissonant cognitions corresponding to physical reality, and (2) the less the number and importance of consonant cognitions corresponding to physical reality.

Festinger is next interested in identifying certain critical characteristics of (1) the source of the disagreeing opinion and (2) the disagreeing opinion itself. According to Festinger, dissonance is greater if the source of the disagreement is seen as attractive, very important to the individual, or expert.\textsuperscript{25} Although he does not say how these characteristics affect dissonance, it seems reasonable to assume that these characteristics increase the importance of the corresponding cognition. The

\textsuperscript{24}Festinger, p. 179.

\textsuperscript{25}Festinger, p. 180.
two features of the disagreeing opinion emphasized are (1) the importance to the source and (2) the extent of the disagreement. The more important the opinion to the source and the greater the disagreement, the greater the dissonance. Since Festinger does not specify why the importance of the opinion to the source should affect dissonance, it seems reasonable to assume that this factor also increases the importance of the corresponding cognition. With the extent of disagreement, however, Festinger asserts that this is related to dissonance between clusters of cognitions. In other words, he assumes that, in dealing with magnitude of disagreement between two opinions, it is really two clusters of cognitions being related and not just two cognitions. Thus, a higher degree of disagreement would simply mean that there were more disagreeing cognitions between clusters or that the disagreeing cognitions in these clusters were more important. These ideas are summarized in Empirical Assumptions 5 and 6.

26 Festinger, pp. 180, 192.
27 Festinger, pp. 188, 263.
28 Festinger, p. 181.
Empirical Assumption 5. The importance of a cognition corresponding to an element of reality is a direct function of

1. characteristics of the source of the element:
   (a) attractiveness,
   (b) importance,
   (c) expertness;

2. the importance of the element to its source.  

Empirical Assumption 6. The magnitude of disagreement between x and y is a function of the number and importance of the dissonant relations between cluster x and cluster y.

Relating the above discussion to the magnitude of dissonance then gives the following proposition:

Proposition 19. The magnitude of x-dissonance is greater

1. the greater the number and importance of dissonant cognitions:
   (a) the larger the number of people who disagree,
   (b) the greater the number and importance of dissonant cognitions corresponding to physical reality,
   (c) the greater the attractiveness of those who disagree,
   (d) the greater the importance of those who disagree,
   (e) the greater the expertness of those who disagree,

29This is not meant to imply that these are the only factors that affect importance of a cognition. Rather, it is intended just as a first step in identifying some of them.
(f) the greater the importance of the opinion to those who disagree,

(g) the greater the magnitude of disagreement;

2. the less the number and importance of consonant cognitions:
   (a) the smaller the number of people who agree,
   (b) the less the number and importance of consonant cognitions corresponding to physical reality,
   (c) the less the attractiveness of those who agree,
   (d) the less the importance of those who agree,
   (e) the less the expertness of those who agree,
   (f) the less the importance of the opinion to those who agree,
   (g) the less the magnitude of agreement.

Proposition 19 simply takes the above discussion and relates it to the magnitude of dissonance by showing the effects first on dissonant cognitions and then on consonant cognitions. It is a very straightforward extension of the previous discussion, except for the phrase "magnitude of agreement" in the last subsection (Proposition 19.2.γ). This phrase is introduced as the parallel to the "magnitude of disagreement" and is thus defined as a function of the number and importance of the consonant relations between the clusters.

Reduction

The most obvious ways to reduce dissonance are specified by a
simple extension of the previous proposition, as spelled out in Proposition 20:

**Proposition 20.** Given disagreement, the magnitude of x-dissonance can be reduced by

1. reducing the number and importance of dissonant cognitions:
   (a) reducing the number of people who disagree,
   (b) reducing the number and importance of dissonant cognitions corresponding to physical reality,
   (c) reducing the attractiveness of those who disagree,
   (d) reducing the importance of those who disagree,
   (e) reducing the expertness of those who disagree,
   (f) reducing the importance of the opinion to those who disagree,
   (g) reducing the magnitude of disagreement;

2. increasing the number and importance of consonant cognitions:
   (a) increasing the number of people who agree,
   (b) increasing the number and importance of consonant cognitions corresponding to physical reality,
   (c) increasing the attractiveness of those who agree,
   (d) increasing the importance of those who agree,
   (e) increasing the expertness of those who agree,
   (f) increasing the importance of the opinion to those who agree,
   (g) increasing the magnitude of agreement.
Elaborating on Proposition 20, dissonance reduction can be accomplished in at least four different ways: (1) changing the opinion cognitions, either one's own or the other's, (2) changing contact with others or the nonsocial reality, (3) changing cognitions about the other, and (4) changing the relevance bond linking the opinions. Changing the individual's own opinion so that it agrees with the other's is one possible way of reducing the number of people who disagree. However, it will be effective only when there are not a large number of people (and other consonant cognitions) in agreement with the original opinion. Changing the others' opinions can be accomplished in two major ways: (1) changing their actual opinions and (2) changing the cognitions corresponding to their opinion. Attempting to change the other's actual opinion is the method considered by Festinger. However, it also seems possible that the individual could simply change his cognitions corresponding to the other's opinion. Regardless how the change in own or other's opinion is accomplished, the change can take at least three forms. First, there can be the total change of the content of a cluster of cognitions so that the own and other's opinion become completely consonant. Second, there can be a change that will decrease the magnitude of disagreement--i.e., a change in some of the cognitions in the clusters. Third, there can be a change that decreases the importance of the opinion. Any of these changes has the potential for reducing dissonance.

Changing contact with others is still another way of changing
the number of people who agree and disagree. The individual can increase contact with those who agree--or who are likely to agree--and can decrease or avoid contact with those who disagree--or who are likely to disagree. This contact may be real, or it may be just a mental imagining of others who would agree and forgetting of those who disagree. It is also possible to change contact with aspects of the physical environment--increasing contact with consonant aspects and avoiding contact with dissonant aspects.

Changing cognitions about the other is still another way to reduce dissonance. The cognitions to change would be those related to his attractiveness, importance, or expertness.

The final way to reduce dissonance is by changing the relevance bond--i.e., by not believing that the other's opinion implies that individual A should believe the same thing (or that the other should believe as A). He can accomplish this by such means as believing that they are not really talking about the same thing or that different beliefs are appropriate for people in different situations.

Thus, dissonance can be reduced by changing the opinion cognitions, by changing contact, by changing cognitions about the other, and by changing the relevance bond. All these are methods of changing the number and importance of consonant and dissonant cognitions.
Proposition 21. The magnitude of x-dissonance can be reduced by

1. changing the opinion cognitions:
   (a) one's own,
   (b) the other's;
2. changing contact with reality:
   (a) with people,
   (b) with non-social elements;
3. changing cognitions about the other;
4. changing the relevance bond.

Effects

The greater the dissonance, the greater the pressure to reduce it. Therefore, putting together the propositions of the two preceding sections, it is possible to derive such propositions as the following:

1. The greater the attractiveness of another who disagrees, the greater the pressure to change one's own opinion.
2. The greater the attractiveness of an other who disagrees, the greater the pressure to reduce his attractiveness.
3. The greater the number of others who disagree, the greater the pressure to change one's own opinion.
4. Given disagreement, the fewer the number of others who agree, the greater the pressure to change one's own opinion.

Clearly, this is just a fraction of the over 200 propositions that
could be derived. The following discussion will be limited to those ideas specifically discussed by Festinger.

One of Festinger's primary concerns is the effect of disagreement dissonance on behavior—specifically behavior such as communicating with others. The basic idea is that, if a person has appreciable dissonance, he will initiate communication and influence processes with others in an attempt to reduce this dissonance. There are two types of communication possible: (1) He can attempt to influence the disagreeing others to change their opinions and (2) he can attempt to obtain social support from those who agree. Both these types of communication are likely to occur when an individual experiences dissonance.

Festinger, p. 189.

Festinger also tries to specify which others will be the object of communication, depending on the degree of dissonance. Specifically, he states that, with much dissonance, the individual will attempt to talk less with those who disagree and more with those who agree than when there is little dissonance (cf., Festinger, pp. 190, 225-226, 230). His explanation as to why this should be so is quite unclear. One possible way of explaining this selectivity might be as follows. Dissonance results in pressure not only to reduce dissonance but also to avoid increasing it. Communication with those who disagree always runs a risk of resulting in still greater dissonance. Therefore, the greater the dissonance, the greater the pressure to avoid talking with those who disagree. At the same time, the greater dissonance results in greater pressures to reduce it, with one way of reducing it being to talk more with those who agree. (This argument is loose and not completely convincing; a tight argument would seem to require assumptions beyond what is currently asserted by the theory.) Festinger also asserts that, when dissonance is low and influence attempts are exerted mainly toward those who disagree, these influence attempts will be directed mainly toward those who disagree most (Festinger, p. 190). His explanation is that "these greater disagreements correspond to the large dissonances in his cognition." Both the assertion that the influence attempt will be directed toward those who disagree and the assertion that it will be directed toward those who disagree
Festinger also relates dissonance to the topic of conversation. The basic idea is that dissonance results in more communication concerning content relevant to the cognitive elements involved in the dissonance. Similarly, after a reduction in dissonance, there is a lessening of discussion about these content areas.

Another of Festinger's major interests is in the effects of disagreement and influence processes on opinions. The basic ideas are (1) that change in opinion tends to be in a direction which reduces dissonance and (2) that change is more likely if there is a great deal of dissonance. For example, he states that, "Influence exerted on a person to change his opinion so that dissonance is reduced will be more successful in changing that opinion than influence which would produce an increase in dissonance." He also says that, when "the expression of disagreement creates or increases dissonance, whether or not opinions change...will, of course, depend upon whether the dissonance created becomes sufficiently large to overcome the resistance to change of the opinion." He also asserts that influence exerted to change an irrelevant cognition will be more successful than influence which would produce an increase of dissonance." Finally, he asserts that, since dissonance

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32 Festinger, p. 218.
33 Festinger, p. 190.
34 Festinger, p. 192.
35 Festinger, p. 191.
is greater when the group is attractive or considers the opinion important, disagreement in such groups would result in more change of opinion than in other groups.  

Festinger also considers the effects of dissonance in the area of mass phenomena. He is particularly interested in what happens when a large number of people all encounter the same dissonance-creating reality. In this situation, assuming that the dissonance is strong and the reality undeniable, there is strong pressure to add consonant elements to the belief system. Since others suffering from the same dissonance also want to add consonant elements, one of the easiest ways to accomplish this is to give each other social support. Another way is to persuade more and more people to agree with the belief system. Thus, Festinger predicts that, if both the belief cognition and the dissonance-producing reality cognition are difficult to change and if the dissonance is shared by many, there will be two observable manifestations of pressure to reduce dissonance: (1) an increase in gaining and giving social support among those suffering the dissonance, and (2) an increase in attempts to persuade new people that the beliefs are valid. This is the explanation Festinger uses to explain why disconfirmation of a religious belief frequently results in an increase in mass proselytizing, rather than in giving up the religious belief. The belief is likely to be discarded only if social support

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36 Festinger, p. 192.  
37 Festinger, pp. 201-202.  
38 Festinger, pp. 246-247.
is not easily obtainable.

Mass dissonance may also occur in the case of natural disasters. Festinger asserts that, if people feel fear, the cognition corresponding to this fear is dissonant with the belief that there is nothing to be afraid of. Dissonance can then be reduced by adding cognitions consonant with the fear cognition--i.e., by thinking of bad things that justify the fear. Given identical mass dissonance, this can result in general rumours of fearful things.

Festinger also relates dissonance to the influence of mass media. He asserts that mass media will be more effective with respect to content about which people do not talk readily than with respect to content which is frequently the topic of discussion. The reasoning is that, if a topic is discussed, the individual with dissonance created by the mass media will seek out social support for his original beliefs; assuming he is successful, this will reduce his dissonance, and make him more resistant to the mass media information. When the individual does not discuss the topic, however, the dissonance created may sometimes be sufficient to make the individual change his beliefs.

\[39\] Festinger, p. 235.

\[40\] Festinger asserts that adding cognitions consonant with the belief that there is nothing to be afraid of will not help. He does not explain why not. The theory would predict that adding cognitions consonant with either belief would reduce a type of dissonance. (See above, Chapter 2, note 14.)

\[41\] Festinger, pp. 231-232.
The above ideas of Festinger illustrate some of the ways dissonance can affect opinions and behavior in a wide range of empirical situations. These ideas are all derivable, in their essence, from dissonance theory. For the most part, they are variations of the theme that dissonance can be reduced by increasing the number of people who agree (Proposition 20.2.a).

Summary

The purpose of the present chapter has been to demonstrate that Festinger's propositions can be derived from a set of basic terms and axioms, with the aid of certain empirical assumptions. The six empirical assumptions employed were as follows:

**Empirical Assumption 1.** Positive aspects of x imply decision x' and not alternative decision -x'. Negative aspects of x imply alternative decision -x' and not decision x.

**Empirical Assumption 2.** Any cognition that implies an action other than the one taken is dissonant with the cognition(s) corresponding to the action taken; any cognition that implies the action taken is consonant with the cognition(s) corresponding to that action.

**Empirical Assumption 3.** The importance of cognitions corresponding to rewards and costs is a direct function of the magnitude of the rewards and costs.
Empirical Assumption 4. A cognition corresponding to a disagreeing opinion of another is dissonant with the individual's own opinion; a cognition corresponding to an agreeing opinion of another is consonant with the individual's own opinion.

Empirical Assumption 5. The importance of a cognition corresponding to an element of reality is a direct function of

1. characteristics of the source of the element:
   (a) attractiveness,
   (b) importance,
   (c) expertness;

2. the importance of the element to its source.

Empirical Assumption 6. The magnitude of disagreement between x and y is a direct function of the number and importance of the dissonant relations between cluster x and cluster y.

The primary method used to generate the propositions was very simple. First, since "magnitude of x-dissonance" is a key concept in the theory, each section began with an enumeration of some of the factors that can increase this magnitude. An argument was then made that these same factors provide the means for reducing dissonance. Finally, Axiom 2 was applied--an axiom that asserts a relationship between magnitude of dissonance and pressures to reduce it. Thus, it was possible to say that each of the factors that creates an increase in dissonance results in an increase in pressure toward each of the means of reducing dissonance. All in all, it was a
very simple—but nevertheless effective—way of discovering propositions implied by the basic assumptions.

Almost all the propositions depended primarily upon the first two axioms and the empirical assumptions. Many other propositions could also be derived by giving equal attention to the other axioms. For example, Axiom 4 ("The greater the pressure to change, the greater a resultant change") was used hardly at all. Logically, it could be related to almost all the previous propositions specifying means of reducing dissonance—e.g., The greater the pressure to change, the greater a resultant change in perceived attractiveness of the source, etc.

Numerous other methods could also be used to derive many more propositions; however, no attempt has been made to develop an exhaustive list. Rather, the purpose has been to demonstrate that Festinger's major propositions can be derived from basic terms, axioms, and empirical assumptions. In the process, it has been shown that only a few of the potentially derivable propositions are explicitly considered in Festinger's 1957 book. Thus, the basic axiomatic system here developed—i.e., the specified terms, axioms, and empirical assumptions—is capable of generating not only Festinger's major propositions but many other closely related propositions as well.
CHAPTER IV

THE AXIOMATIC THEORY AS A STARTING POINT

The above two chapters have attempted to develop a set of concepts and assertions that could represent the basic ideas of dissonance theory. First, there was an enumeration of basic terms--some defined, some undefined. Then a set of fundamental ideas was presented in six axioms. Finally, it was demonstrated that Festinger's basic propositions could be derived from the set of terms and axioms if certain empirical assumptions were made.

Thus, we have taken a major theory within social psychology and developed a set of basic concepts and assertions appropriate for it. This set of concepts and assertions gives us one possible base from which to develop a general theory of social psychology. This set encompasses a number of key concepts--e.g., pressure, change, importance, cognition--concepts central to much of social psychology. And it also makes a few simple assertions about these concepts. Clearly, this set does not specify all the concepts that might be useful in a theory of social psychology, and some concepts within this set may be relatively superfluous. Moreover, the assertions made are not necessarily true or easily testable; they are certainly not exhaustive of basic ideas in social psychology.
However, this set of concepts and assertions—i.e., the above axiomatization of dissonance theory—does give one possible starting point for developing a general theory of social psychology.

As a starting point, two of the chief functions of the axiomatization are to raise questions and to give a vocabulary for interrelating various ideas. For example, questions can be raised about each of the basic terms; e.g., What exactly does it mean? What are its causes and consequences? What are its important characteristics—the essential dimensions that differentiate various instances of it? How can they be combined with each other? Questions can also be raised about each of the basic assertions: e.g., Does an increase in $x$ always lead to an increase in $y$? To what extent does $x$ affect $y$? What factors besides $x$ affect $y$? Does $x$ affect anything besides $y$? Does the effect of $x$ on $y$ depend on $w$? What characteristics of $x$ and $y$ influence how $x$ affects $y$? Attempts to answer these and similar questions can then encourage the incorporation of ideas previously outside the theory. Thus, the axiomatization can serve as a starting point for a general theory both by raising questions and by facilitating the incorporation of "new" ideas.

Perhaps one of the most fruitful concepts to develop in the above axiomatization would be "pressure." It is a central concept in five of the six axioms and is the primary concept used in interrelating the various concepts. Therefore, to illustrate some of the questions suggested by the axiomatization, the remainder of this
chapter will be devoted to a speculative discussion of the concept "pressure."

Pressure  

Pressure is a kind of force. It is exerted (1) by something, (2) on something, (3) toward something, (4) with something. To be more specific, a pressure is characterized by (1) its source--what it is exerted by, (2) its object--what it is exerted on, (3) its direction--what it is exerted toward, and (4) its magnitude--what it is exerted with. Therefore, four important questions to ask with respect to "pressure" are the following:

1. What are its sources? What determines the sources?
2. What are its objects? What determines the objects?
3. What are its directions? What determines the directions?
4. What are its magnitudes? What determines the magnitudes?

The similarity between the present concept "pressure" and Kurt Lewin's "forces" is undoubtedly not accidental since the present conceptualization of pressure was derived from the axiomatization of Festinger's theory and Festinger was closely associated with Lewin's work. An important distinction between the present discussion and Lewin's is an emphasis in the present discussion on content within the context of an abstract scheme, rather than on an abstract scheme alone. This special emphasis on content is probably largely due to Festinger's own emphasis on content and empirical research, as related to his abstract theoretical scheme. The theoretical framework developed in this chapter would thus seem to have much of its significance in its attempt to help bridge the gap between the purely abstract and the purely empirical. Future development of this framework should therefore emphasize both (1) relating the framework to empirical data and (2) developing the abstract ideas.
It is also characteristic of "pressures" that they can be combined and that they have consequences. Therefore, two more important questions would be the following:

5. How are they combined?

6. What are their consequences?

The following discussion attempts to give some necessarily partial and speculative answers to these questions, answers drawn largely from the above axiomatization. The object is to illustrate one way the axiomatization can be used in theory development.

1. Sources

Seven possible sources of pressure are dissonance, reality, rewards, costs, cognitions, behavior, and other's opinions. These categories are not mutually exclusive, exhaustive, or even on the same level of abstraction--but consideration of these categories does give a possible starting point for an answer to the question, What are the sources of pressure?

Dissonance, in the above axiomatization, is seen as the source of two pressures: (1) pressure to reduce dissonance and (2) pressure to avoid increases in dissonance. Both these pressures depend upon the existence of dissonance. Without dissonance, neither of these pressures exists; i.e., there is neither pressure to reduce dissonance nor pressure to avoid it. On the other hand, whenever dissonance does exist, these two pressures always exist.

Reality is a second source of pressure, the pressure on
cognitions to be in (or come into) correspondence with reality. Apparently, reality exerts its pressure on an individual's cognitions only when the individual is exposed to the reality. Without exposure, there is no pressure.

**Potential rewards** serve as a source of two pressures: (1) pressure toward what will facilitate obtaining the rewards, and (2) pressure against what will hinder obtaining the rewards. Rewards exert their pressures only when the individual has a belief—a belief that something is likely to help (or hinder) the obtaining of a reward.

**Potential costs** also are a source of two pressures: (1) pressure against what is likely to increase the probability of acquiring the costs, and (2) pressure toward what is likely to reduce the probability of acquiring the cost. Like rewards, costs exert pressure only when the individual has a belief; namely, a belief that something is likely to increase (or decrease) the probability of obtaining a cost.

**Cognitions** may also be conceptualized as a source of pressures. They would seem capable of exerting (1) pressure toward certain behaviors, (2) pressure against certain behaviors, (3) pressure toward certain cognitions, and (4) pressure against certain cognitions. Whether or not a cognition would exert pressures would seem to depend, once again, on a belief; specifically, a belief that certain behaviors and cognitions "follow from" (or follow not from) the given cognition. In other words, a cognition exerts pressure toward certain behaviors
and cognitions if the cognition is believed to imply these behaviors and cognitions; a cognition exerts pressure against certain behaviors and cognitions if the cognition is believed to imply not these behaviors and cognitions.

Behavior may also be responsible for pressures. In one sense, behavior may be viewed as an element of reality, and thus exert pressures on cognitions to be in correspondence with the behavior; i.e., there would be pressure toward a mental representation of the behavior. This type of pressure would depend only on exposure, or awareness, of the behavior. In another sense, behavior may be viewed as the source of pressure (1) toward certain cognitions and (2) against certain cognitions. In this case, the exertion of pressures would depend upon a belief that the behavior implied (or implied not) certain cognitions.

Others' opinions, like behavior, may be viewed as exerting pressures in two senses. First, others' opinions may be seen as elements of reality that exert pressure toward a mental representation of the opinions. This pressure would depend only on exposure. Second, others' opinions may be viewed as a source of pressure toward and/or against certain cognitions. In this case the pressure would be toward agreeing cognitions of individual A and against disagreeing cognitions. This pressure may depend simply upon exposure, or it may require an accompanying belief that a cognition is implied (or implied not) by the other's opinion.²

²Some of the literature on conformity would seem to suggest that
Thus, seven possible sources of pressure are dissonance, reality, rewards, costs, cognitions, behavior, and others' opinions. Whether the individual experiences the pressure depends on such factors as (1) mere existence of the source, (2) exposure to the source, and (3) certain beliefs. The necessary beliefs seem to be of two types. First, as with rewards and costs, there is pressure toward $x$ if $x$ is seen as helping (or hindering) the acquisition of the reward or cost. In other words there is pressure toward the means of reaching the goal, or toward an antecedent of the reward or cost. Second, as with cognition (and perhaps behavior and others' opinion), there is pressure toward $x$ if $x$ is implied by the cognition. That is, there is pressure toward $x$ when $x$ "follows from" the given cognition, or is (in a sense) a consequent of the cognition.

Consideration of the above seven sources gives a starting point for developing an understanding of the sources of pressure, but a number of questions remain. For example, what other possible sources of pressure are there? What determinants do they suggest besides existence, exposure, and beliefs? What kinds of beliefs are important? To what extent must beliefs be conscious? These are some of the many questions still to be answered.

Simply exposure may be necessary; e.g., merely exposure to total disagreement creates marked discomfort. However, the literature on balance would suggest that the evaluation of the other is crucial in determining whether there is pressure toward an agreeing opinion; e.g., disagreement with a disliked other would be balanced.
2. Objects

Dissonance theory is primarily concerned with saying something about cognition, which is evidenced by the fact that all seven of the above possible sources of pressure may be said to exert pressure on cognitions. Of much less central importance to the theory—but nonetheless clearly in evidence—four of these sources (dissonance, rewards, costs, cognitions) may also be said to exert pressure on behaviors. Thus, dissonance theory suggests that two possible objects of pressure are cognitions and behaviors.

Cognitions. All seven of the above sources can exert their pressure on cognitions. One question to ask is, What determines which cognitions will be the recipients of pressure? Dissonance exerts pressure on any cognition that, by some sort of change, will reduce dissonance. It also exerts pressure on any cognition that will help avoid an increase in dissonance. Reality exerts pressure on any cognition that is supposed to represent that reality. Rewards exert pressure on cognitions that affect the probability of getting the reward (and perhaps also those that affect the value of the reward). Costs, in a similar manner, exert pressure on cognitions that affect the probability of getting the cost (and perhaps those that affect its value). Cognitions exert pressure on any cognitions that are implied (or implied not) by the initial cognition; that is, if x implies (or implies not) y, x exerts pressure on y. Behaviors exert pressures on cognitions representing those behaviors and on cognitions implied by those behaviors. Others'
opinions exert pressure on cognitions representing the others' opinions and on cognitions of the individual's own corresponding opinion. Thus, a cognition will be the object of pressure if any of the following things are true about it:

1. it affects the magnitude of dissonance;
2. it represents an element of reality;
3. it affects the probability of getting a reward (and perhaps if it affects the value of the reward);
4. it affects the probability of getting a cost (and perhaps if it affects the value of the cost);
5. it is implied (or implied not) by another cognition;
6. it represents or is implied (or implied not) by a behavior;
7. it represents or is corresponding to another's opinion.

Behaviors. A behavior can be the object of pressure from dissonance, rewards, costs, and cognitions in much the same way that a cognition can be the object of such pressures. Dissonance exerts pressure on any behavior that will reduce, or avoid an increase in, dissonance. Rewards and costs exert pressure on any behavior that affects the probability of getting the reward or cost. Cognitions exert pressure on any behavior that is implied (or implied not) by the behavior. Thus a behavior will be the object of pressure if any of the following things are true about it:

1. it affects the magnitude of dissonance;
2. it affects the probability of getting a reward;
3. it affects the probability of getting a cost;
4. It is implied (or implied not) by a cognition.

In sum, it seems possible that, under the above specified conditions, cognitions and behaviors will be objects of pressure. However, a number of unanswered questions remain. For example, what other things can be the objects of pressure? Under what other conditions are cognitions and behaviors objects of pressure? Is there such a thing as a cognition or behavior that is not the object of pressure? To what extent are there pressures on "non-existent" cognitions and behaviors? What exactly is a cognition? a behavior? These are some of the unanswered questions about the objects of pressure.

3. Direction

In the axiomatized theory above, pressure seems to be exerted in two basic directions: (1) toward its object and (2) against its object. In other words, pressure can be exerted toward a specific cognition or behavior or against a specific cognition or behavior. Often the pressures come in pairs; e.g., a pressure toward one cognition is accompanied by a pressure against another cognition. Two factors that seem to be particularly important in determining the direction of a pressure are (1) the object of the pressure and (2) the source of the pressure.

Pressure toward. Pressure toward a cognition (or behavior)

3To avoid further complicating an already over-complicated argument, there will be no explicit discussion of pressure toward behaviors. However, an argument similar to that for cognitions could be made.
can be differentiated into types. First, there can be pressure toward the object of the pressure; i.e., it can be toward the same cognition it is on. For example, the pressure toward a particular belief may be exerted on an identical belief the individual already holds. Second, there can be pressure toward a cognition other than the object of the pressure; i.e., it can be toward a different cognition than it is on. For example, the pressure toward a particular belief may be exerted on a somewhat contradictory belief the individual already holds. What are some of the "pressures toward" of either type that can be exerted by the various sources?

As mentioned above, dissonance exerts pressure on the various cognitions that affect the magnitude of dissonance. Moreover, it may also be said that dissonance exerts its pressure toward cognitions that can reduce the magnitude of dissonance. For example, suppose Allan believes that all blonds are dumb. For some reason, Allan encounters a bright blond and, therefore, experiences dissonance. This dissonance would then exert pressure on Allan's original belief that all blonds are dumb in the direction of--or toward--a belief that some blonds are bright.

Reality pressures are also exerted not only on cognitions but also toward cognitions. For example, suppose Allan believes that Horace is honest. If Allan should encounter Horace behaving dishonestly, there would be pressure on Allan's belief that Horace is honest in the direction of--or toward--the belief that Horace is sometimes dishonest. In contrast, if Allan should encounter Horace
behaving honestly, there would be pressure on Allan's belief that Horace is honest in the direction of--or toward--the original belief (i.e., that Horace is honest).

In a similar manner, rewards, costs, cognitions, behaviors, and others' opinions all exert pressures toward cognitions as well as on cognitions. Sometimes, these pressures may be toward different cognitions than they are on. Other times, they may be toward the same cognition they are on.

Pressure against. Pressures can also be conceptualized as being exerted against, rather than toward, certain cognitions. These pressures against are exerted against the object they are exerted on. For example, pressure against a belief is exerted on that belief.

Pressure against a belief can be exerted by all seven sources. For example, dissonance results in pressure against cognitions contributing dissonance. Reality results in pressure against cognitions in conflict with reality. Rewards result in pressure

4To a certain extent, a pressure toward a different belief is quite similar to a pressure against the belief. However, there does seem to be a difference which may--or may not--be of crucial significance. Pressure against a belief does not necessarily imply pressure toward any other specific belief. Pressure against a belief may imply a sort of diffuse pressure toward all possible alternative beliefs or may simply not imply any pressures toward alternatives. For example, assume that negative aspects of a decision alternative exert pressure against that decision alternative. These negative aspects may, or may not, exert pressure toward other decision alternatives. They may weaken the pressure toward the original decision alternative, but they do not necessarily increase the pressure toward the other alternatives. Thus, it may be important in theory development to differentiate between pressure toward a different belief and pressure against a belief.
against cognitions interfering with rewards. Costs result in pressure against cognitions resulting in costs. Behaviors result in pressure against cognitions in conflict with the behavior. And others' opinions result in pressure against cognitions in conflict with the opinions.

Thus, there are three types of direction in which pressures may be exerted on a cognition:

1. toward the same cognition,
2. toward a different cognition, and
3. against the cognition.

Some further questions to ask about the direction of pressures would include the following: Are there other types of direction that are also important? How are these three types interrelated? Is a differentiation between object and direction really necessary? These are a few of the questions that remain unanswered.

4. Magnitude

The magnitude, or strength, of a pressure is one of its most significant characteristics. What are some of the factors that may be important in determining the magnitude of the various pressures?

Dissonance. In the above axiomatic theory, the magnitude of dissonance pressures is a function of the magnitude of existing dissonance. The greater the dissonance, the greater the pressure it exerts.

It seems possible, however, that other factors could also affect the magnitude of dissonance pressure. For example, it may
be the potential decrease in dissonance--rather than its currently existing magnitude--that affects the strength of the pressures: The greater the potential decrease in dissonance expected from a change, the greater the pressure directed toward that change. Similarly, it may be the potential increase in dissonance that determines the magnitude of pressure against a change; i.e., The greater the potential increase in dissonance expected from a change, the greater the pressure directed against that change. In other words, the amount of increase or decrease in dissonance expected may be crucial in determining the magnitude of pressure.

Another possible determinant is the probability that the magnitude of dissonance will be affected by the change. For example, it may be that the greater the probability that a change will result in a decrease in dissonance, the greater the magnitude of pressure exerted toward that change. By illustration, suppose Jack recently bought a VW and is seeking cognitions consonant with that decision. Although there are many ways he might be able to find consonant cognitions, one of his potential sources most likely to aid in dissonance reduction is friends who also own and love VW's. Thus, Jack's pressure to reduce dissonance will be directed more toward seeking out such friends than toward seeking out other sources less likely to contribute consonant cognitions. A parallel assertion for the avoidance of dissonance would be the following: The greater the probability that a change will result in an increase in dissonance, the greater the magnitude of pressure directed against that change.
Still another possible determinant of the magnitude of pressures directed toward a change is the probability that a change will occur. In the preceding paragraph, the emphasis is on the probability that dissonance would be affected if the change actually did take place. Now, the emphasis is on the probability that the change will take place. In other words, it may be that the less stable the cognition or behavior to be changed—i.e., the easier it is to change it—, the greater the pressure to change it. In contrast, when the cognition or behavior is very stable, less pressure may be exerted toward changing it. In other words, pressure will be greatest on the weakest links in a set of dissonant elements.

Thus, four possible determinants of the magnitude of dissonance pressure are the following:

1. the magnitude of dissonance,
2. the amount of change in magnitude of dissonance expected,
3. the probability that the magnitude of dissonance will be affected by the change,
4. the probability that a change will occur.

Reality. The above axiomatization does not really specify what determines the magnitude of reality pressures. However, this is a crucial problem that needs careful consideration. Three types of factors that may be important are (1) characteristics of the

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5The literature on such problems as exposure, perception, memory, attention focus, physiological arousal, norms, goals, roles, etc., may be quite useful in connection with this problem.
reality element (e.g., abstractness, concreteness, probable validity, consistency, source, consequences, clarity, complexity);

(2) characteristics of the exposure (e.g., duration and intensity, time since exposure, other reality elements also in the exposure context) and (3) characteristics of the individual (e.g., personal experience prior, during, and after the exposure; perception habits, physiological arousal).

Potential rewards. In the axiomatization above, the magnitude of pressure exerted by a reward is a function of the magnitude of the reward, i.e., the value of the reward. It also seems possible that the magnitude of pressure is affected by the amount of change in the probability that the reward will occur. In other words, there will be greater pressure toward a behavior that greatly increases the probability of obtaining the reward than toward a behavior that only slightly increases the probability. A third possibility is that the magnitude of pressure is affected by the strength of the belief that the cognition or behavior increases the probability of obtaining the reward.

Potential costs. The above axiomatization asserts that the magnitude of pressure exerted by a cost is a function of the magnitude of the cost. As with rewards above, it also seems possible that the

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6 The literature on rewards and costs, reinforcement and punishment, goals, etc., would be relevant in searching for solutions to this general problem of reward (and cost) pressures. The related problem of what determines the magnitude—or value—of a reward (or cost) also is in need of careful development. Concepts such as expectations, alternatives, diminishing utility, cause, and consequence might be useful here.
magnitude of pressure may be affected by (1) the amount of change in the probability that the cost will occur and/or (2) the strength of the belief that the cognition or behavior will help in avoiding the cost.

Cognitions. The primary factor in the axiomatization that would affect the magnitude of pressures exerted by cognitions is the importance of the source cognitions. The more important a cognition, the greater the pressure it exerts. A second factor that is likely to affect the magnitude of pressure is the strength (or importance?) of the belief that the object cognitions and behaviors do "follow from" the cognition.

Behaviors. One of the factors affecting the magnitude of behavior pressures suggested by the axiomatization is the source of the behavior, which can be of two types: self and other. It may be that behavior of the self exerts more pressure than behavior of the other. The various factors mentioned above in the discussions of "reality" and "cognitions" may also affect the behavior pressures.

Others' Opinions. Pressure from others' opinions also emphasizes the importance of a self-other distinction and, perhaps,

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7 The question of what makes a cognition "important" would seem to be of crucial significance. The concept pervades the entire axiomatization but is never precisely dealt with. However, careful development of the concept of "importance" would seem to be potentially very fruitful.

8 Factors affecting the strength of the "follow from" belief might include such things as clarity and simplicity of source cognitions, past learning, stability or commitment to source cognitions, degree of similarity of source and object cognitions, etc. Such literature as Rosenberg's discussion of psycho-logic would be particularly relevant here.
suggests that one factor affecting the magnitude of pressure exerted by the other's opinion may be the degree of separateness of the other from the self. In other words, it may be that the self-other distinction may not be a pure dichotomy but, in a sense, a continuum. For example, such others as family, close friends, and people very similar to the self may be "less separate" from the self and, therefore, exert greater pressure. A second somewhat related factor that is suggested by the axiomatization and that may also affect the magnitude of pressure is the importance of the other. Exactly what "importance" means in this context is not clear and should be developed; it would seem to include such factors as high status, expertise, central role in the situation, etc.

One of the primary variables emphasized by dissonance theory is the magnitude of pressure. Much of the significance of the theory—including the research applications—stems from this emphasis. The magnitude of dissonance has been of central importance to the theory because it is seen as affecting the magnitude of pressure. The above discussion has attempted to bring into the same context other factors that may also be affecting the magnitude of pressure. Obviously, the discussion has not presented an integrated, organized, and exhaustive list of significant factors. Rather, it has simply tried to suggest, albeit in sketchy fashion, a few factors that seem worth consideration. In the process it has also tried to show that much of the literature of social psychology may be interpretable as concerned with the general problem of the magnitude of pressures...
and is therefore likely to contain numerous ideas useful in this context.

5. Combination

The above discussion has concentrated on the single pressure: its source, its object, its direction, its magnitude. Without too much imagination, it is easy to visualize an individual standing in the midst of thousands and thousands of small, medium, and large pressures. The obvious question becomes how can these various pressures be organized? What are some of the possible bases on which pressures can be meaningfully grouped? The following discussion will attempt to identify two possibly important ways for grouping pressures: object and source. These two ways would seem to be major ways used by the individual for grouping and, therefore, two ways likely to be useful for the researcher and theorist.

Object. So simple that it could be easily overlooked, pressures can be grouped by object. For example, all the various pressures being exerted on a specific cognition could be considered as a group. This group would include both the pressures toward and the pressures against the specified cognition. Thus, every cognition (and behavior) could be identified by the group of pressures exerted on it.

Given a group of pressures exerted on a specified cognition, there are a number of ways these pressures might be combined. For example, it would be possible to add the magnitudes of the various pressures to obtain a sum of all the pressures on that cognition that
are against the cognition or toward other cognitions. There could also be a ratio of the sum of pressures against and toward other cognitions, relative to the sum of all pressures. A fourth possibility would be to consider the directions of the pressures and determine the average direction. These are only a few of the many possible ways pressures may be significantly combined after they have been grouped by the specific object.

A simple extension of the idea of grouping by object suggests another possibility: grouping by object areas (or clusters). In other words, it may be possible to look at groups of objects--e.g., all the cognitions related to the same topic or concerning the same issue--and consider as a group of pressures all those pressures being exerted on this group of cognitions.

Thus, two possible ways of grouping pressures by object are

1. by specific object,
2. by group of objects.

Source. It may also be possible to group pressures by source. For example, all the pressures being exerted by a specific cognition could be considered as a group. Thus, every cognition, behavior,

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9 This possibility is parallel to the definition of magnitude of x-dissonance in the above axiomatization; i.e., the sum of dissonant cognitions relative to the sum of all relevant cognitions.

10 Cf., Festinger's use of the concept "cluster of cognitions."

11 Or there might be concern with the group of pressures being exerted between the cognitions in the cognition group. The sum (or a ratio) of the on group and between group pressures might be a way of relating these two sets of pressures.
reality element, etc., could be identified by the pressures it exerts.

Given a group of pressures exerted by a specified cognition, there are two possible ways of combining them that come immediately to mind. First, their magnitudes can be added to get a simple sum of the total magnitude of pressure exerted by this cognition. Second, the number of pressures exerted could be counted to determine how many different pressures it exerts. Various other ways of combining the pressures grouped by specific source probably also exist.

It may also be useful to consider as a group those pressures exerted by a specified group of sources. For example, it may sometimes be useful to consider as a group all those pressures exerted by a multi-faceted attitude or reality situation.

There may even be some use in grouping pressures by such broad types of sources as dissonance and reality. For example, there may be some usefulness in knowing the total amount of dissonance pressure being exerted; or, perhaps, in knowing the total amount of reality pressure.

Thus, three possible ways to group pressures by source would seem to be by

1. specific source,
2. group of sources,
3. type of source.
6. Consequences

We have spent a number of pages discussing "pressure." We have talked about such things as possible sources, objects, and directions. We have considered factors affecting their magnitudes and some of the ways in which they can be grouped and combined. So what? What consequences can pressures possibly have that make them worth so much time and attention? What makes them so important?

Pressures are important because they are the agents for change and stability. Thus, a better understanding of pressures can lead to a better understanding of change and stability.

What are the basic rules by which pressures result in change and stability? What are some of the things that pressure can affect?

Pressure would seem to affect at least four different aspects of change: (1) the occurrence of change, (2) the direction of change, (3) the amount of change, and (4) stability. The following discussion will focus on how pressures affect these four aspects of change with respect to a cognition.

The occurrence of change. Pressures on a cognition can be divided into two groups: (1) pressures toward that cognition and (2) pressures not toward that cognition. The pressures toward the cognition may be called pressures toward stability—or pressures against change. The pressures not toward the cognition may be called the pressures against stability—or the pressures toward change. Whether change occurs is determined by the relationship
between these two groups of pressures. 12

The group of pressures toward stability includes all the pressures on the cognition that are also toward it. The axiomatization (cf., Axiom 3) suggests that these pressures may be combined by summing their magnitudes. Other means of combining them may also be possible.

The group of pressures toward change includes all the pressures on the cognition that are not toward it. Once again, the axiomatization suggests that these pressures may be combined by summing their magnitudes. This summing, however, seems to be more of a problem than with the pressures toward stability because the pressures toward change may be directed toward various different—and incompatible—changes. It would seem that a quite different situation exists when all the pressures toward change are exerted toward the same change than when they are split between two opposing changes. Thus, any sum of magnitudes—or other method of combination—should take into account the specific direction of the pressures to change.

Finally, these two groups of pressures—toward stability and toward change—must be related. In the axiomatization, this relationship requires only that the two groups of pressures be compared to determine which is the larger. If the sum of the pressures toward change is greater than the sum of the pressures

12 In addition to the traditional pressures discussed by dissonance theory, it seems likely that some pressure should be included representing inertia—i.e., a tendency to persist in its present state. The magnitude of this pressure may be a function of the importance of the cognition.
toward stability, there will be change. If not, change will not take place. If a probability model were to be used—instead of a threshold model—a ratio of the pressures toward change relative to the pressures toward stability might be more appropriate. In this case, the larger the ratio, the greater the probability of change; the smaller the ratio, the greater the probability of stability. With a degree model, this same ratio might also be appropriate. In this case, any increase in the ratio would result in a change; lack of an increase would result in stability.

The general change model here discussed—and assumed in the axiomatization—specifies that change in a cognition depends on the pressures exerted on that one cognition. Whether change takes place depends on the relationship between the pressures toward change and the pressures toward stability. An alternative change model could be based on the relationship between pressures on two or more cognitions. In other words, rather than looking at the relationship between pressures on one cognition, attention would be focussed on the relationship between pressures on different cognitions. For example, the pressures on cognition A (which the individual already holds) could be compared to the pressures on cognition B (which is an alternative to A). If the sum of the pressures on and toward B (perhaps after subtracting the pressures against B) were greater than the sum of the pressures on and toward A (after subtracting

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13A brief description of these three models of change—threshold, probability, and degree—may be found above in the discussion preceding Axiom 3.
the pressures against A), change from A to B would occur. Otherwise, it would not. Thus, an alternative change model to the one underlying the axiomatization would depend on the relationship between pressures on two or more cognitions.

The direction of change. The specific direction of change can also be viewed either as a function of the pressures on the one cognition or as a function of the pressures on various cognitions. For example, consider the case when cognition A changes to cognition B, and not to cognition C. Viewing the change as a function of the pressures on cognition A, the pressures to be considered are those on cognition A but toward other cognitions. One possible determinant of the direction of the specific change might be the average direction of these pressures; another possibility is that the direction of the change would be the direction of the strongest pressure. On the other hand, viewing the change as a function of pressures on various cognitions, the pressures to be considered would be those on cognitions B and C--the alternatives to cognition A. One possible determinant of the direction of the change in this case might be a comparison of the pressures on and toward B relative to those on and toward C; the change would be toward B if and only if B's pressures were stronger than C's. Another possibility might incorporate not only the pressures on and toward B and C but also the pressures on and not toward B and C. For example, a sum of the pressures on and toward B minus the pressures on and not toward B could be compared to a similar index of the pressures on C.
The amount of change. In addition to specifying the direction of change, it is also important to specify how much change will occur. The axiomatization suggests that the amount of change depends on the amount—or magnitude—of pressure. Thus, it becomes important to identify the group of pressures involved and how these pressures are combined. In the axiomatization, the group of pressures includes all the pressures toward change; it ignores the pressures toward stability. The amount of change is simply a function of the magnitudes of the pressures toward change. The pressures toward stability enter in only in determining if a change will take place; the resultant amount of change is determined solely by the pressures toward change. An obvious alternative would be to consider both the pressures toward change and those toward stability in considering how much change will take place.

The next problem is how these pressures are combined. A sum of the magnitudes of the pressures toward change—making some sort of allowance for their specific directions—might give one solution if only the pressures toward change are considered. A ratio or difference between the pressures toward change and those toward stability might be appropriate if both types of pressure were to be considered.

Stability. The two above sections have focused on two characteristics of a change: the direction and the amount. An equally important question involves what happens when there is no change—i.e., no change in cognitive content. How do pressures affect a stable cognition? One obvious answer is that pressures
affect the stability of the cognition. The pressures on and toward a cognition increase its stability; the pressures on and not toward a cognition decrease its stability. To a certain extent, this says nothing more than the above discussion on the occurrence of change: The more stable a cognition is, the less likely it is to change. However, it may be that stability has other consequences as well. For example, it may be that an increase in the stability of a cognition results in a decrease in the magnitude of pressures to change it. In other words, not only is the cognition less likely to change but the pressures to change it may actually be reduced. For example, suppose cognitions A and B are both resulting in x-dissonance. There should then be pressure to change on both A and B. However, suppose cognition A is quite stable relative to cognition B. If stability decreases the magnitude of pressures to change, there should be greater pressure to change on B than on A, the stable cognition. Moreover, increasing the stability of A may actually increase the pressure to change on B. This would happen if the pressure to reduce x-dissonance remained constant and the stability of A resulted in the pressure being directed toward other cognitions, i.e., B. There may also be other things that stability of a cognition can affect. For example, since cognitions are not only objects of pressure but also sources of pressure, increasing the stability of a cognition may increase the magnitude of the pressures exerted by it.\textsuperscript{14}

\textsuperscript{14}The literature on commitment and also the vast literature on reinforcement would be useful in developing this concept of stability.
On the other side of the coin from stability, there is instability. There would seem to be two types of instability. The first type would be related to high pressures to change the cognition; the second would be related to a low pressure toward the cognition. Do these two types of instability have different consequences? For example, could the first type be associated with such concepts as stress, tension, etc.? And could the second type be associated with such things as extinction, simple forgetting, boredom, etc.?\textsuperscript{15}

One more question. What is the relationship between "stability" and "importance"? Are they two words for the same set of phenomena, or are they two distinct concepts? It seems possible to look at stability as a function of the pressures exerted on a cognition. In contrast, it seems possible to look at importance as a function of the pressures exerted by a cognition; in simple terms, the importance of a cognition is a function of its consequences. On the surface, these "definitions" seem to have possibilities. However, there are problems: e.g., Does importance of the source determine the magnitude of pressure, or does the magnitude of pressure exerted determine the importance? Does stability lead to importance, or does importance lead to stability? Under what conditions, if any, does stability differ from importance? In sum, the problem of the relationship between stability, importance, and pressure would seem

\textsuperscript{15}The literature on stress, memory, extinction, etc., may be useful here.
to be highly significant and still unsolved.

Conclusion

The above discussion of pressure has been an attempt to illustrate how the axiomatization can be used as a take-off point for theory development. Using the concept of pressure—one of the central terms in the axiomatic theory--, an attempt has been made to identify, and elaborate upon, some of the basic problems suggested by the theory. Attention has been focused on the problems raised, with secondary attention given to possible alternative solutions to these problems.

This discussion of pressure may be viewed from two perspectives. In one sense, it is a type of summary and critique of the underlying assumptions of dissonance theory as specified in the axiomatization. It points out what sorts of problems the theory is concerned with. It identifies the solutions given by the theory in the context of other possible solutions to the same problem. And it points out some of the problems that are not precisely dealt with. Thus, the discussion works to clarify both what is in the theory and what is not.

In another sense, this discussion of pressure is building a framework for the development of a new theory. It specifies a set of basic problems to be solved. It indicates some of the possible solutions. And it suggests some of the possible places to look for relevant ideas in the existing literature.
Thus, the above discussion of pressure can serve both as a source of ideas for developing the fundamental assumptions of dissonance theory and as the initial step in the development of a new theory.
CHAPTER V

SUMMARY AND CONCLUSIONS

The long-range goal, toward which this study has been directed, is the development of a set of concepts, together with a set of statements interrelating these concepts, that can be useful for social psychology. This study, as one step toward this goal, had as its first objective the development of a set of concepts and interrelating statements appropriate for one of the major theories within the field of social psychology—namely, Festinger's theory of cognitive dissonance. Starting with this set of concepts and statements, there was then an attempt to show (1) that this set is indeed appropriate for, and potentially useful to, the theory of cognitive dissonance and (2) that this set can suggest a framework for the development of a new, more general theory.

The development of this study occurred in four overlapping, but distinguishable, phases: (I) propositional inventory, (II) axiomatic reduction, (III) derivation of propositions, and (IV) development of a framework for a new theory. Phase I, propositional inventory, began with Festinger's A Theory of Cognitive Dissonance and resulted in a list of about 250 theoretical assertions of various types. Phase II, axiomatic reduction,
started with this list and developed a set of basic terms and assumptions. The object was to develop this set of terms and assumptions such that (1) the list of propositions from Phase I could be derived from it and (2) assertions that contradicted, or went far beyond the scope of, these propositions could not be derived. Phase III involved the derivation of propositions from the set of basic terms and assumptions developed in Phase II, with primary attention placed on demonstrating that the assertions from Phase I—i.e., Festinger's propositions—could be derived. Phase IV was devoted to the development of a framework for a new theory, based on the set of terms and assumptions developed in Phase II and focussing on the term "pressure." Thus, the study may be conceptualized as having moved from Festinger's theory, to an axiomatic theory, and toward a general theory of pressures.

Three general, and important, conclusions can be drawn from this study. First, Festinger's theory of cognitive dissonance can be axiomatized. It is possible to organize his various major assertions into a single, unified, deductive system. His major assertions are consistent and derivable from a small set of basic terms and assumptions.

Second, Festinger's theory can be improved. Many of the basic terms are vague and ambiguous. The empirical assumptions comprise a loose group of ad hoc, and generally implicit, assumptions that are very much in need of conscious development. The pressures other than those resulting from dissonance need to be integrated
into the theory in a more rigorous manner. Factors possibly affecting the magnitude of dissonance pressure other than simply the existing amount of dissonance should be considered. These, and many similar, features of Festinger's theory evidence room for improvement.

The third important conclusion that can be drawn from this study is that axiomatization is useful. It is useful in two ways. First, it makes it easier to see what is there. It focuses attention on the basic ideas; it places non-essential and secondary ideas in the background; and it brings into the open hidden, but essential, assumptions. Second, it makes it easier to manipulate what is there. It facilitates the deriving of propositions. It makes it easier to discover the consequences of different assumptions and definitions. And it encourages the development of alternative formulations.

Finally, there are at least four potential contributions of the preceding axiomatization to sociology/social psychology. First, in the area of dissonance theory, it suggests crucial aspects of the theory that should have priority in testing. For example, the question arises whether the dissonance relation should be treated as symmetric or asymmetric. Since the dissonance relation is central to the theory, a clarification as to its exact nature would seem to be very important. Another aspect of dissonance

1Proposition 7 makes four predictions that should be true if and only if the dissonance relation is symmetric. On an abstract level, the question is, given decision x', does a cognition y have
theory that should have priority in testing involves Axiom 2, which
specifies that the magnitude of pressure to reduce and avoid
x-dissonance is a function of the magnitude of existing x-dissonance.
As alternatives, in Chapter IV it is suggested that the magnitude
of pressure may instead (or in addition) be a function of (1) the
amount of change in the magnitude of dissonance expected, (2) the
probability that the magnitude of dissonance will be affected by
the change, and/or (3) the probability that a change will occur.
Experiments are needed to compare these various possible explanations.
A third area in dissonance theory that the above axiomatization
suggests should have priority in testing involves the empirical
assumptions made in applying the theory. These assumptions are
crucial, but are generally simply taken for granted. Thus, one of
the primary contributions of the above axiomatization is to point
out central aspects of the theory that need to be tested and
developed.

Second, the above axiomatization serves as an example of the
axiomatic process of theory development. As such an example, it

the same effect regardless whether it is seen as a cause of the
decision (i.e., $y \rightarrow x'$) or as a consequent (i.e., $x' \rightarrow y$). An
experiment by Jones and Cooper (cf., E. E. Jones and H. B. Gerard,
suggests that there is a major difference between these two
conditions, with the dissonance predictions holding only when the
decision can be viewed as a consequent. Thus, their experiment
suggests that it may be best to view dissonance as an asymmetric
relation. (Viewing dissonance as an asymmetric relation would
seem to hold promise for both simplifying and extending the theory.
The dissonance relation could be transformed into a unidirectional
"pressure-to-change" force; and the concept of "x-dissonance" could
then be treated as a summary measure of all the pressures on x.)
illust rates a method of theory construction that seems potentially very useful in sociology/social psychology.

Third, the above axiomatization potentially facilitates comparison of dissonance theory with other major theories. It explicitly states the various terms and assumptions central to the theory, so that it becomes easier to systematically compare and contrast it with other theories.

Fourth, the above axiomatization presents a theoretical nucleus of basic concepts and assumptions. This nucleus seems potentially capable of serving as an integrating framework for much of sociology/social psychology. It touches upon many basic issues--such as, the nature of relevance, importance, change, and stability--and it specifies a general vocabulary for bringing together empirical and theoretical contributions of many types.

Thus, the above axiomatization of Festinger's theory can be viewed both as an end and as a beginning. It is an end to the extent that it summarizes and clarifies the essence of Festinger's theory by presenting it in axiomatic form. It is a beginning to the extent that it points out where improvements in Festinger's theory are needed and suggests directions for development of future theory.
APPENDIX A

AN ALTERNATIVE FORMULATION

Zajonc asserts that the entire theory of cognitive dissonance can be stated in the following nine propositions:

1. Cognitive dissonance is a noxious state.

2. In the case of cognitive dissonance the individual attempts to reduce or eliminate it and he acts so as to avoid events that will increase it.

3. In the case of consonance the individual acts so as to avoid dissonance-producing events.

4. The severity or the intensity of cognitive dissonance varies with (a) the importance of the cognitions involved and (b) the relative number of cognitions standing in dissonant relation to one another.

5. The strength of the tendencies enumerated in (2) and (3) is a direct function of the severity of dissonance.

6. Cognitive dissonance can be reduced or eliminated only by (a) adding new cognitions or (b) changing existing ones.

7. Adding new cognitions reduces dissonance if (a) the new cognitions add weight to one side and thus decrease the proportion of cognitive elements which are dissonant, or (b) the new cognitions change the importance of the cognitive elements that are in dissonant relation with one another.

8. Changing existing cognitions reduces dissonance if (a) their new content makes them less contradictory with others, or (b) their importance is reduced.

9. If new cognitions cannot be added or the existing ones changed by means of a passive process, behaviors which have cognitive consequences favoring consonance will be recruited. Seeking new information is an example of such behavior.

APPENDIX B

PROPOSITIONAL INVENTORY: QUOTATIONS FROM FESTINGER

The first step in developing the axiomatic theory was a careful reading of Festinger's *A Theory of Cognitive Dissonance* to develop a list of his theoretical assertions. This list--the propositional inventory--consisted of a list of selected quotations from Festinger's book. Quotations, rather than paraphrasings, were used in order to reduce the possibility of distorting Festinger by the changing of terminology. Effort was made to include any statements that seemed to contain possible theoretical assertions. This list is here presented, grouped into six rough categories: (1) decisions, (2) behavioral compliance, (3) avoiding and seeking, (4) disagreement, (5) influence, (6) concepts and miscellaneous.

**Decisions**

"With the creation of dissonance following a decision, the pressures to reduce this dissonance lead to stabilizing the decision." (p. 77)

"In the indifference type of decision one would expect little dissonance, little pressure to reduce dissonance, and little difficulty in reversing the decision. In the conflict type of decision, however, one would expect that following the decision there would be considerable dissonance... If, following such a successful process of reducing dissonance, the subject were asked to reverse the decision, one would expect to find that he had considerable difficulty in doing this." (p. 77)
"Following a decision there is an increase in the confidence in the decision." (p. 83)

"The successful reduction of postdecision dissonance is further shown in the difficulty of reversing a decision once it is made and in the implication which changed cognition has for future relevant action." (p. 83)

"In general, if dissonance exists between two elements, this dissonance can be eliminated by changing one of those elements." (p. 18)

"Postdecision dissonance can be reduced...[in] three main ways..., namely, (a) changing or revoking the decision, (b) changing the attractiveness of the alternatives involved in the choice, and (c) establishing cognitive overlap among the alternatives involved in the choice." (pp. 42-43)

"Once dissonance exists following a decision, the pressure to reduce it will manifest itself in attempts to increase the relative attractiveness of the chosen alternative, to decrease the relative attractiveness of the unchosen alternative, to establish cognitive overlap, or possibly to revoke the decision psychologically."(p. 47)

"When the dissonance under consideration is between an element corresponding to some knowledge concerning environment (environmental element) and a behavioral element, the dissonance can, of course, be eliminated in such a way that it is consonant with the environmental element. The simplest and easiest way in which this may be accomplished is to change the action or feeling which the behavioral element represents." (p. 19)

"Just as it is possible to change a behavioral cognitive element by changing the behavior which this element mirrors, it is sometimes possible to change an environmental cognitive element by changing the situation to which that element corresponds. This, of course, is much more difficult than changing one's behavior, for one must have a sufficient degree of control over one's environment--a relatively rare occurrence." (p. 20)

"Changing the environment itself in order to reduce dissonance is more feasible when the social environment is in question than when the physical environment is involved." (p. 20)

"In general, establishing a social reality by gaining the agreement and support of other people is one of the major ways in which a cognition can be changed when the pressures to change it are present." (p. 21)
"It is clear that in order to eliminate a dissonance completely, some cognitive element must be changed." (p. 21)

"It is possible to reduce the total magnitude of dissonance by adding new cognitive elements." (p. 21)

"Having then added the cognition that the danger from smoking is negligible compared to the danger he runs driving a car, his dissonance would also have been somewhat reduced. Here the total dissonance is reduced by reducing the importance of the existing dissonance." (p. 22)

"The above discussion has pointed to the possibility of reducing the total dissonance with some element by reducing the proportion of dissonant as compared with consonant relations involving that element." (p. 22)

"This is the most direct and probably most usual manner of reducing postdecision dissonance. Since the dissonance exists in the first place because there were cognitive elements corresponding to favorable characteristics of the unchosen alternative and also cognitive elements corresponding to unfavorable characteristics of the chosen alternative, it can be materially reduced by eliminating some of these elements or by adding new ones that are consonant with the knowledge of the action taken." (p. 44)

"It would still be possible to reduce the dissonance by what amounts to adding a new cognitive element, but of a different kind. He can admit to himself and to others, that he was wrong to purchase the car and that if he had it to do over again, he would buy a different kind. This process of divorcing himself psychologically from the action can and does materially reduce the dissonance. Sometimes, however, the resistances against this are quite strong. The maximum dissonance which could exist would, in such circumstances, be determined by the resistance to admitting that he had been wrong or foolish." (p. 29)

"It is possible, however, to reduce or even eliminate dissonance by revoking the decision psychologically. This would consist of admitting to having made the wrong choice or insisting that really no choice had been made for which the person had any responsibility. ...These are probably not usual types of solutions to the existence of dissonance. In essence they put the person back in conflict, that is, in the choice making situation, although the choice need not, or perhaps cannot, be remade; or else it puts the person in a situation where he does not accept responsibility for what he does. These last two factors probably account in large measure for the rarity of this mode of eliminating dissonance." (p. 44)
"Postdecision dissonance may be reduced by decreasing the importance of various aspects of the decision." (p. 264)

"He may now be able to magnify the importance of the good points associated with the chosen alternative." (p. 45)

"It is also possible to add a new cognitive element which, in a sense, "reconciles" two elements that are dissonant." (p. 22)

"As a result of this third belief, the knowledge of the aggressive behavior of children is no longer dissonant with the belief that people are good. It is not the children who behave aggressively--it's the malevolent ghosts." (p. 23)

"There are three major ways in which this [reduction of dissonance] may be done.
   "1. By changing one or more of the elements involved in dissonant relations.
   "2. By adding new cognitive elements that are consonant with already existing cognition.
   "3. By decreasing the importance of the elements involved in dissonant relations." (p. 264)

"The greater the cognitive overlap between the two alternatives, that is, the less the qualitative distinction between them, the smaller the dissonance that exists after the choice has been made." (p. 41)

"Postdecision dissonance can...be reduced by establishing or inventing cognitive overlap." (p. 46)

"One way of establishing cognitive overlap is to take elements corresponding to each of the alternatives and to put them in a context where they lead to the same end result. If this is accomplished, some cognitive elements are identical in this larger context, and dissonance is reduced." (p. 46)

"Cognitive overlap may be established by discovering or creating elements corresponding to the chosen alternative that are identical with favorable elements that already exist for the corresponding unchosen alternative." (p. 46)

"Postdecision dissonance may be reduced by perceiving some characteristic of the chosen and unchosen alternatives as identical." (p. 264)

"For any given relative attractiveness of the unchosen alternative, the more important the decision or the greater the attractiveness of the chosen alternative, the greater would be the resulting dissonance. As the relative attractiveness of the unchosen alternative decreases, the resulting dissonance also decreases." (p. 38)
"Following a decision there is an increase in the confidence in the decision or an increase in the discrepancy in attractiveness between the alternatives involved in the choice, or both." (p. 83)

"Postdecision dissonance may be reduced by increasing the attractiveness of the chosen alternative, decreasing the attractiveness of the unchosen alternative, or both." (p. 264)

"The more alternatives that are involved in a decision (other factors held constant), the greater will be the dissonance following the decision." (p. 54)

"The magnitude of postdecision dissonance is an increasing function of the general importance of the decision." (p. 262)

"The importance of the decision will affect the magnitude of the dissonance that exists after the decision has been made. Other things being equal, the more important the decision, the stronger will be the dissonance. Thus, a decision to buy one automobile rather than another will result in more dissonance than a decision to buy one brand of soap rather than another." (p. 37)

"Reduction of dissonance by lowering the importance of the whole matter...can and does occur. Our hunch is that it is not a major manifestation of the pressure to reduce postdecision dissonance." (p. 47)

"As the relative attractiveness of the unchosen alternative decreases, resulting dissonance also decreases." (p. 38)

"The theory states that the more cognitive elements there are corresponding to desirable features of the rejected alternative, the greater would be the dissonance following the decision and, hence, the greater the pressure to reduce dissonance." (p. 66)

"The magnitude of postdecision dissonance is an increasing function...of the relative attractiveness of the unchosen alternatives." (p. 262)

"The greater the relative attractiveness of the unchosen alternatives to the chosen alternative, the greater will be the proportion of relevant elements that are dissonant with the cognition corresponding to the action." (pp. 37-38)

"For any given relative attractiveness of the unchosen alternative, the more important the decision or the greater the attractiveness of the chosen alternative, the greater would be the resulting dissonance. As the relative attractiveness of the unchosen alternative decreases, the resulting dissonance also decreases." (p. 38)
"All the figure is intended to convey is the existence of steadily increasing functions." (p. 39)

"There will be some cognitive elements corresponding to the positive aspects of the unchosen alternative and some elements corresponding to the negative aspects of the chosen alternative which will be dissonant with the cognition of having chosen one particular alternative." (p. 36)

"All those elements that, considered alone, would lead to action other than the one taken are dissonant with the cognitive elements corresponding to the action taken." (in italics; p. 36)

"The greater the cognitive overlap between the two alternatives, that is, the less the qualitative distinction between them, the smaller the dissonance that exists after the choice has been made." (p. 41)

"The magnitude of postdecision dissonance decreases as the number of cognitive elements corresponding identically to characteristics of chosen and unchosen alternative increases." (p. 262)
Behavioral Compliance

"The more important the opinions or behavior involved, the greater will be the magnitude of dissonance accompanying forced compliance. In other words, holding constant the weighted proportion of dissonant elements, the greater the importance of the situation, the greater will be the magnitude of dissonance." (p. 92)

![Graph showing dissonance as a function of the magnitude of reward or punishment.](image)

Fig. 2: "Forced Compliance" Dissonance As a Function of the Magnitude of Reward or Punishment.

The solid portions of every curve refer to situations where forced compliance has occurred; the dashed portions refer to situations where forced compliance has not occurred. (p. 93)

"The higher the importance of the opinions involved, the greater is the magnitude of reward or punishment necessary to elicit forced compliance and the greater is the magnitude of dissonance that is created." (p. 93)

"The maximum possible dissonance would be created if the reward, or punishment, was just barely enough to elicit the desired overt behavior or expression." (p. 91)

"Here, of course, the dissonance will be greatest if the reward or punishment just barely fails to elicit the compliant behavior." (p. 92)

"As the promised reward, or threatened punishment, becomes smaller in importance, the dissonance resulting from compliance increases." (p. 91)
"The magnitude of the dissonance resulting from an attempt to elicit forced compliance is greatest if the promised reward or threatened punishment is either just sufficient to elicit the overt behavior or is just barely not sufficient to elicit it." (p. 263)

"If forced compliance is elicited, the magnitude of the dissonance decreases as the magnitude of the reward or punishment increases." (p. 263)

"If forced compliance fails to be elicited, the magnitude of the dissonance increases as the magnitude of the reward or punishment increases." (p. 263)

"The magnitude of the reward or punishment, that is the attractiveness and desirability of the offered reward or the unpleasantness and undesirability of the threatened punishment, is an important determinant of the magnitude of dissonance which exists once compliance is exhibited. Too great a reward or punishment will result in only little dissonance." (p. 91)

"From this point on, the weaker the reward or punishment, the less will be the dissonance." (p. 92)

"When the compliant behavior is not elicited, the higher the importance of the opinion or belief involved, the lower is the magnitude of dissonance for any specific magnitude of reward or punishment." (p. 94)

"Given that a cognition is responsive to 'reality'... if the behavior of the organism changes, the cognitive element or elements corresponding to this behavior will likewise change." (p. 19)

"Dissonance from attempts to elicit forced compliance, the magnitude of which will be a function of the importance of the opinions involved and of the magnitude of the punishment or reward, may be reduced in either of two ways:

1. Subsequent change of private opinion to make it more consonant with the overt behavior.

2. Magnification of the reward or punishment to increase the consonance with the overt compliant behavior." (p. 97)

"Dissonance follows from situations which elicit forced compliance and... this dissonance may be reduced by change of private opinion." (p. 122)

"If the reward or punishment was not sufficient to elicit the compliant behavior, the dissonance may be reduced by minimizing the importance of the reward or punishment." (p. 96)
"If forced compliance fails to be elicited, dissonance may be reduced by intensifying the original private opinion or by minimizing the reward or punishment involved." (p. 264)

"If forced compliance has been elicited, the number of consonant relations may be increased by magnifying the importance of the reward obtained or of the punishment avoided." (p. 96)

"If forced compliance has been elicited, the dissonance may be reduced by intensifying the original private opinion or by magnifying the amount of reward or punishment involved." (p. 264)

"When some of the cognitive elements involved in a dissonance are cognitions about one's own behavior, the dissonance can be reduced by changing the behavior, thus directly changing the cognitive elements." (p. 265)

"The offer of reward or punishment which is not sufficient to elicit the overt behavior may be worse than nothing in that it serves to impel the person to increase his original conviction." (p. 96)

"If one wanted to obtain private change in addition to mere public compliance, the best way to do this would be to offer just enough reward or punishment to elicit the overt compliance." (p. 95)

"'Once a change in behavior has occurred, a change in beliefs is likely to follow.'" (p. 121)

"The theory would imply that in those areas where compliance is obtained, that is, desegregation of schools is carried out, there would occur gradual opinion change toward favoring desegregation among the people. On the other hand, the theory similarly implies that in any area which does not comply, that is successfully resists desegregation of its schools, attitudes would change in the opposite direction--toward greater favoring of segregation." (p. 122)

"Those who had to make up an argument showed more change than those who simply listened and read the outline....'The active participants who presented Communication C seemed to engage in less improvisation than those who presented the other two communications' [and showed much less opinion change than A or B. Those who rated themselves as having done a good job on C, showed much more opinion change than those who gave selves poor ratings.]" (p. 111)

"Attitude or opinion change is facilitated if a person finds himself in a situation where, by showing compliant behavior, he is engaged in actions which are dissonant with his private opinions." (p. 112)
"If the threatened punishment is stronger than whatever resistance he has to showing compliance, he will overtly change his behavior or statements." (p. 85)

"If the reward is sufficiently attractive to overcome the existing resistance, the individual may comply overtly in order to obtain the promised reward." (p. 85)

**Avoiding and Seeking**

"Following a decision there is active seeking out of information which produces cognition consonant with the action taken." (p. 83)

"If little or no dissonance exists, there would be no motivation (considering this source of motivation alone) to seek out new and additional information....There would also be little or no motivation to avoid any particular source of information." (p. 127)

"When dissonance is present, in addition to trying to reduce it, the person will actively avoid situations and information which would likely increase the dissonance." (p. 3)

"Under certain circumstances there are also strong and important tendencies to avoid increases of dissonance or to avoid the occurrence of dissonance altogether." (p. 30)

"The avoidance of an increase in dissonance comes about, of course, as a result of the existence of dissonance. This avoidance is especially important where, in the process of attempting to reduce dissonance, support is sought for a new cognitive element to replace an existing one or where new cognitive elements are to be added. In both these circumstances, the seeking of support and the seeking of new information must be done in a highly selective manner....A person would expose himself to sources of information which he expected would add new elements which would increase consonance but would certainly avoid sources which would increase dissonance." (p. 30)

"If there is little or no dissonance existing, we would not expect the same kind of selectivity in exposure to sources of support or sources of information. In fact, where no dissonance exists there should be a relative absence of motivation to seek support or new information at all. This will be true in general, but there are important exceptions. Past experience may lead a person to fear, and hence to avoid, the initial occurrence of dissonance....The operation of a fear of dissonance may also lead to a reluctance to commit oneself behaviorally....When decision and action cannot be
indefinitely delayed, the taking of action may be accompanied by a
cognitive negation of the action. Thus, for example, a person who
buys a new car and is very afraid of dissonance may, immediately
following the purchase, announce his conviction that he did the
wrong thing." (p. 31)

"The greater the dissonance, the greater will be the intensity of
the action to reduce the dissonance and the greater the avoidance of
situations that would increase the dissonance." (p. 18)

"In the presence of such dissonance, then, a person might be
expected to actively seek new information that would reduce the
total dissonance and, at the same time, to avoid new information
that might increase the existing dissonance." (p. 22)

"In the presence of dissonance, one would observe the seeking out
of information which might reduce the existing dissonance." (p. 126)

"The presence of dissonance leads to seeking new information which
will provide cognition consonant with existing cognitive elements
and to avoid those sources of new information which would be likely
to increase the existing dissonance." (p. 264)

"In the presence of a dissonance, one will be able to observe the
attempts to change it." (p. 24)

"The existence of appreciable dissonance and the consequent pressure
to reduce it will lead to the seeking out of information which will
introduce consonances and to the avoidance of information which
will increase the already existing dissonance." (p. 128)

"When faced with a potential source of information, a person
usually does not know the exact nature of the cognition which he
would acquire from exposure to this information source. He must
then react in terms of expectations about it." (p. 128)

"The review here will restrict itself to consideration of dissonance
between knowledge of what one is doing and other cognitions under
circumstances where behavioral cognition is resistant to change
because the behavior itself is difficult to change. The following
would be expected:

1. If existing cognition is wholly or mostly consonant with
the knowledge about behavior in question, there will be no motivation
(from this source) to acquire information. In these circumstances,
then, one should observe little or no voluntary exposure to information.
On the other hand, there should be no active avoidance of information
either.

2. If there is appreciable dissonance between general
cognition and the behavioral elements in question, there should be
active effort to reduce the dissonance and to avoid increase of
dissonance....
"3. If the dissonance becomes greater than the resistance to change of the behavior, the behavior should change.... If the dissonance is so large that it is almost sufficient to overcome the resistance to changing the behavior, one may expect that the easiest way to eliminate the dissonance is temporarily to increase it sufficiently so as to change the behavior. Under these circumstances one would expect persons to expose themselves to dissonance-increasing information. However, this would occur only in instances of extremely large, near maximum, dissonance." (p. 163)

"If he is led, for one reason or another, to expect it will produce cognitions which will increase consonance, he will expose himself to the information source. If the expectation is that the cognition acquired through this source would increase dissonance, he will avoid it." (p. 128)

"If the expectation is that the new information will probably increase dissonance, there is mostly avoidance of exposure except at very low dissonance and at the limits of dissonance. If the expectation is that the new information will decrease dissonance, there is increasing inclination to seek out that information as dissonance increases until, again, it approaches the limit." (p. 131)

"What may one say concerning the seeking out of new information on the part of a person whose dissonance is near to the limit which can exist? Under such circumstances a person may actively seek out, and expose himself to, dissonance increasing information. If he can increase the dissonance to the point where it is greater than the resistance to change of one or another cluster of cognitions, he will then change the cognitive elements involved, thus markedly reducing or perhaps even wholly eliminating the dissonance which now is so great." (p. 129)

Fig. 4. Relation between Magnitude of Dissonance and Active Seeking of New Information. (p. 130)
"The descending portion of the curve is not implied by, or derived from, any of the previously stated theory but is stated here as an additional hypothesis. In essence I am conjecturing that if the dissonance is so high as to be near the limit of possible dissonance in the situation, then even if some new information were to reduce this dissonance somewhat, the person would still be left with a large, uncomfortable amount to deal with. This procedure of adding new consonant elements is, hence, not a very satisfactory procedure for such extreme magnitudes of dissonance. There will, then, be little active seeking out of such new consonance-producing elements. It may be noticed that it is not hypothesized that there will be an avoidance of such new information. The descending portion has been drawn only down to the zero point, namely, indifference--neither active seeking nor active avoidance." (p. 131)

"At the initial moment of impact of the new dissonant cognition, effective processes could be initiated which would prevent the dissonant elements from ever being firmly established cognitively. One might expect to observe such things as attempts to escape or avoid further exposure, erroneous interpretation or perception of the material, or any other technique or maneuver which will help to abolish the newly introduced dissonance and to prevent the further introduction of dissonance." (p. 134)

"The following are the ways they list in which these persons, in an experimental situation, avoid the introduction of dissonance:

1. Initial understanding of a propaganda message followed by a circuitous line of reasoning which ends in misunderstanding....

2. Making the total propaganda message invalid. This process apparently occurs most frequently when the initially correct perception has been stated too openly and too distinctly by the subject to permit effective distortion or subsequent misunderstanding....

3. Initial misperception in line with existing cognition. Here there is no expression by the subject of the initial correct understanding....This type of reaction, as contrasted to the first two where the subject does exhibit correct initial understanding, would be shown mainly by persons who already have some dissonance in this opinion area. With already existing dissonance they would be more alert to prevent increase of dissonance and would, hence, perhaps react in this instantaneous manner." (p. 136)

"To the extent that the processes described above operate effectively, they should make for the relative ineffectiveness of information or propaganda to which a person is forcibly exposed. Indeed, the forced exposure may succeed in simply marshalling and alerting his defenses against increasing dissonance." (p. 136)

"There are set up quick defensive processes which prevent the new cognition from ever becoming firmly established." (p. 137)
"The quickest and probably the most effective way to deal with the introduction of dissonance when forcibly exposed to new information is to misperceive or avoid cognizing the stimuli which impinge. It is, of course, well known that people cognize and interpret information to fit what they already believe." (p. 150)

"Even if new information to which a person has been involuntarily exposed is cognized, it is frequently possible to minimize immediately the dissonance thus introduced by invalidating the information in one way or another. Probably the easiest way to do this is simply not to accept the new information as factual." (p. 153)

"Remember: the greater the dissonance, the greater the tendency to avoid dissonant information. Thus, it is the strength of the dissonance and not the firmness of the personal belief that should lead to misinterpretation. This is quite different than proving simply that people avoid dissonant cognitions. (personal comment)

"Since much of the publicity concerning the matter stressed that heavy smokers were the most vulnerable to lung cancer, one would also expect that the more they smoke, the less they should believe it." (p. 155)

"The more people smoked, the more they refused to accept information which would have been dissonant with smoking and the greater the tendency to have a definite opinion on the matter." (p. 155)

"Forgetting the dissonance-producing information. This is probably not an easy thing to do since the dissonance-producing information is likely to be salient for the person because of the very fact that it does introduce dissonance. But if the exposure to the new information is relatively brief, and if there are not other reminders of this information in the daily experiences of the subject, one would expect to observe some indication of such selective forgetting." (p. 156)

"Forced or accidental exposure to new information which tends to increase dissonance will frequently result in misinterpretation and misperception of the new information by the person thus exposed in an effort to avoid a dissonance increase." (p. 265)
"The magnitude of the dissonance introduced by the expression of disagreement by others decreases as the number of existing cognitive elements consonant with the opinion increases. These latter elements may correspond either to objective nonsocial items of information or to the knowledge that some other people hold the same opinion." (p. 263)

"The larger the number of people that one knows already agree with a given opinion which he holds, the less will be the magnitude of dissonance introduced by some other person's expression of disagreement. Since knowing that someone else holds the same opinion is consonant with holding that opinion oneself, the more people who agree with an opinion, the more cognitive elements there are which are consonant with the cognition corresponding to that opinion. If, then, one member in a group disagrees with a person's opinion while there are several who agree, the magnitude of the total dissonance created for the person will be less than if only the disagreement existed." (p. 179)

"The larger the number of existing cognitive elements which are consonant with an opinion, the less is the magnitude of total dissonance introduced by the knowledge that someone else disagrees." (p. 187)

"Where the content of the opinion concerns 'testable physical reality,' there will be little dissonance created by social disagreement. If a person believes that glass is fragile, there are so many cognitive elements, acquired experientially which are consonant with this belief that there will be relatively little dissonance if someone else utters a contrary view." (p. 179)

"The larger the number of consonant relations involving this opinion, the less will be the magnitude of the dissonance introduced by the disagreement." (p. 178)

"To the extent that objective, nonsocial, cognitive elements exist which are consonant with a given opinion, belief, or knowledge, the expression of disagreement will produce a lesser magnitude of dissonance." (p. 179)

"The magnitude of the dissonance introduced by disagreement from others increases with increase in the importance of the opinion to the person, in the relevance of the opinion to those voicing disagreement, and in the attractiveness of those voicing disagreement." (p. 263)
"If the person voicing disagreement is seen as an expert or very knowledgeable on such matters, the dissonance between knowledge of his contrary opinion and one's own opinion will be greater." (p. 180)

"Another variable which clearly will affect the importance of the cognitive elements, and hence the magnitude of the dissonance, is the attractiveness of the person voicing the disagreement or of the group within which it is voiced....It is plausible to assume that the dissonance between one's own opinion and knowledge of a contrary opinion voiced by some other person is greater if the other person is important to one in some sense or if the group is important or attractive." (pp. 180-181)

"If the opinion on which disagreement is voiced is important to, or especially relevant to the group in which the disagreement is voiced, the dissonance will likewise be greater. Relevance here means that the opinion is within the realm of content matter with which the group usually concerns itself." (p. 180)

"The magnitude of dissonance and the manifestations of the pressure to reduce the dissonance increase as the extremity of the disagreement increases." (p. 180)

"Three methods for reducing dissonance stemming from social disagreement readily suggest themselves.

1. The dissonance may be reduced, or perhaps even eliminated completely, by changing one's own opinion so that it corresponds more closely with one's knowledge of what others believe. Changing one's own opinion will effectively reduce dissonance only, of course, if there are not many persons who already agree with one's original opinion....

2. Another way of reducing the dissonance would be to influence those persons who disagree to change their opinion so that it more closely corresponds to one's own....These first two methods, taken together, represent the usual sort of influence process which results in movement toward uniformity in groups in the presence of disagreement. Thus, recasting the theory of influence processes in terms of dissonance theory makes it quite easy to derive movement toward uniformity.

3. Another way of reducing dissonance between one's own opinion and the knowledge that someone else holds a different opinion is to make the other person, in some manner, not comparable to oneself. Such an allegation can take a number of forms. One can attribute different characteristics, experiences, or motives to the other person or one can even reject him and derogate him." (pp. 181-182)

"Since all three of these processes, namely, changing one's own opinion, attempting to influence others, and attributing noncomparability to others, may potentially reduce dissonance, one would expect to see all of them intensified in degree as the magnitude of the
dissonance increased." (p. 183)

"Thus, as the magnitude of difference of opinion increased, as the attraction to the group increased, and as the number of other cognitive elements consonant with the opinion decreased, one would expect greater tendencies to change one's own opinion in response to disagreement, greater effort expended at influencing those who disagreed (especially those who disagreed most), and a greater tendency to make those who disagreed noncomparable." (p. 183)

"In the presence of disagreement in a group, increasing the attraction of the members to the group increases the attempts on the part of the members to reduce the dissonance occasioned by the disagreement." (p. 183-184)

"Both the tendency to change one's own opinion and the degree to which one tries to influence others increase as the attraction of the members to the group increases." (p. 184)

"There was evidence that reduction of dissonance was attempted through rejection of the person who voiced disagreement and that the extent to which this occurred depended upon the magnitude of the dissonance created by this disagreement." (p. 187)

"When the issue is largely irrelevant to the group, and hence the magnitude of dissonance created by expression of disagreement is less, there is less rejection of the persistent deviant." (p. 187)

"Dissonance introduced by disagreement expressed by other persons may be reduced by changing one's own opinion, by influencing the others to change their opinion, and by rejecting those who disagree." (p. 265)

"One other factor which will affect the magnitude of the dissonance must be mentioned here, namely, the extent of the disagreement itself... We are actually dealing here with dissonance between clusters of cognitive elements. The larger the number of dissonant relations between the elements in the two clusters, the greater will be the total dissonance." (p. 181)

"The existence of dissonance leads to the initiation of, and modification of, influence and communication processes." (p. 204)

"The existence of dissonance in a person leads to a process of social communication by which he attempts to reduce the dissonance. He will try to find persons who agree (or try to influence persons to agree) with those cognitions he would like to acquire in order to reduce the dissonance." (p. 204)
"One would expect the existence of cognitive dissonance to be accompanied by heightened communication concerning content relevant to the cognitive elements involved in the dissonance." (p. 218)

"One would also expect the reduction of dissonance to be accompanied by a lessening of discussion and communication about these content areas." (p. 218)

"The existence of dissonance will lead to seeking out others who already agree with a cognition that one wants to establish or maintain and will also lead to the initiation of communication and influence processes in an effort to obtain more social support." (p. 265)

"On the one hand, the dissonances produced by the open expression of disagreement from others may be reduced by attempting to influence those who disagree; but on the other hand, the already existing cognitive dissonance may be reduced in magnitude by communication from those who already agree with the opinion in question, thus adding more cognitive elements consonant with the opinion." (p. 190)

"When there is appreciable dissonance among the relevant cognitions, there will be tendencies to communicate with, especially to listen to, those who already agree with the opinion one holds." (p. 190)

"The greater the difference between the opinion of the person and the opinion of the one voicing disagreement, and hence, the greater the number of elements which are dissonant between the cognitive clusters corresponding to the two opinions, the greater will be the magnitude of dissonance." (p. 263)

"If, except for the dissonance produced by disagreement from others, most of the cognitions relevant to a certain opinion are consonant with that opinion, a person's communication and attempted influence will be exerted mainly toward changing the opinions of those who have voiced disagreement. Furthermore, these influence attempts will be directed mainly toward those persons within a group who disagree most, since these greater disagreements correspond to the large dissonances in his cognition." (p. 190)

"Not considering the dissonance introduced by the expression of disagreement in a group, when the relevant cognitions are largely consonant, communication (attempted influence) would be directed mainly at those who disagree with one." (p. 190)

"The attempt to reduce dissonance by changing the opinions of those who disagreed were strongest in the direction of those disagreements which created the greatest dissonance." (p. 188)
"If a person has appreciable dissonance between two clusters of cognitive elements, he would initiate communication and influence processes with other persons in an attempt to reduce this dissonance. He might attempt to obtain knowledge that others agree with his opinion, thereby adding new consonant cognitive elements. He could do this by finding others who already agree, or by influencing others who already agree, or by influencing others to agree. At any rate the existence of dissonance in persons would be one of the determinants of what issues and topics are brought up in social interactions and thus become relevant issues to groups." (p. 189)

"When the dissonance is mainly between cognition corresponding to one's own opinion and the knowledge that others hold a contrary opinion, the direction of communication is clear. Under these circumstances one way to reduce the dissonance is to change the opinions of those who disagree. When, however, in addition to the above dissonance there also exists dissonance between the cognition corresponding to the opinion the person holds and other information which does not fit with this opinion, then the situation is more complex. The latter dissonance can be reduced by discussing the matter with persons who already agree with the opinion one holds. Thus one would expect, on theoretical grounds, that given a largely consonant set of cognitions corresponding to a given opinion, the presence of disagreement will lead mainly to communicating with those who disagree. Given already existing serious dissonance among the cognitions corresponding to the opinion, however, the presence of disagreement in a group will lead to tendencies to talk to those who agree as well as to those who disagree. One would thus expect, in the latter case, to find a higher incidence of initiating communications with those who already agree." (pp. 225-226)

"The greater the magnitude of dissonance already existing when one is made aware of disagreement within the group, the greater is the tendency to seek support from those who already agree with one's own opinion." (p. 230)

"The existence of disagreement among members of a group on some issue or some opinion, if perceived by the members, certainly produces cognitive dissonance....The cognitive elements corresponding to some opinion the person holds would be dissonant with knowing that another person holds a contrary opinion....Designation of the relations between such cognitive elements as dissonant is, of course, consistent with the conceptual definition of dissonance. The cognition that another person says a particular patch of grass is brown would not follow from one's seeing it as green." (p. 178)
Influence

"The direct impact on a person of a persuasive communication via the mass media is probably seldom strong enough to cause a complete about-face on an opinion which he holds. More often the direct impact is to create some doubts in the mind of the person. To the extent that this person talks about the matter to selected others following his exposure to the mass media, it is quite likely that his doubts will be erased. The mass media may be expected to be most effective under circumstances where there is something to prevent the ready reduction of the dissonance which is created by the exposure to these media. Thus, for example, one would expect the mass media to be more effective with respect to content about which people do not talk readily than with respect to content which is frequently the subject of discussion. Similarly, one would expect the mass media to be more effective with persons who are relatively isolated socially than with those who have many social contacts." (pp. 231-232)

"Social support is particularly easy to obtain when a rather large number of persons who associate together are all in the same situation—that is, they all have the same dissonance between cognitions which can be reduced in the same manner." (p. 192)

"In situations where many persons who associate with one another all suffer from the identical dissonance, dissonance reduction by obtaining social support is very easy to accomplish." (p. 265)

"Sometimes an event may occur which is so compelling in its nature as to produce almost identical reaction or behavior in everyone for whom the event has relevance. At the same time, many persons may have existing cognition which is dissonant with the cognitions corresponding to their reaction to the compelling event. If such a circumstance arises, there will then be a large number of people having almost exactly the same cognitive dissonance. Natural disasters or the threat of such, for example, can produce such uniform reactions." (p. 193)

"Uniform dissonance in a large number of people may also be created if undeniable and incontrovertible information impinges which is dissonant with a very widely held belief or opinion." (p. 194)

"Groups and organizations sometimes commit themselves to a certain course of action." (p. 194)

"Under such special conditions a number of manifestations of pressure to reduce dissonance occur which are unique to this kind of situation. These manifestations are usually labeled as mass phenomena." (p. 196)
"There must be something that will impel this person to tell it to someone else or to several other people. For the rumor to continue spreading and become widespread, it is furthermore necessary that a sufficient number of the hearers of the rumor also feel impelled to tell others about it....

"Imagine that some undeniable information has impinged on the cognition of many people creating dissonance in all of them between the cognitive elements corresponding to this information and some opinion or belief which they all hold. If the opinion or belief is not very resistant to change, it may simply be discarded in favor of a different opinion or belief, thus eliminating the dissonance. If, for one reason or another, there is strong resistance to changing the belief, then there are two ways in which the dissonance may be reduced. Persons may attempt to change the cognitive elements corresponding to the new information (in essence, denying the validity of it), or they may attempt to acquire additional cognition consonant with the belief in question. Any attempt in either of these two directions that is reasonably satisfactory will during discussions with others having the same dissonance, meet with social support. This social support enables the new cognition which is consonant with the belief to be accepted by the persons, thus reducing the dissonance." (pp. 197-198)

"If a person has a strong reaction of fear which persists, the cognition corresponding to this reaction would be dissonant with the cognition that 'there is nothing to be afraid of.' If such dissonance exists for a person, the pressure to reduce the dissonance will frequently be manifested by an attempt to acquire some cognitive elements which are consonant with the fear reaction." (p. 235)

"Disaster rumors of the type so prevalent outside of the area of destruction should, consequently, have been absent inside the area of destruction." (p. 239)

"Let us imagine a person who has some cognition which is both highly important to him and also highly resistant to change. This might be a belief system which pervades an appreciable part of his life and which is so consonant with many other cognitions that changing the belief system would introduce enormous dissonance. Or it could be a cluster of cognitive elements corresponding to some very important action the person has taken, an action to which he has committed himself in such a way that changing the action is almost impossible. Let us further imagine that an event occurs and impinges on this person's cognition creating strong dissonance with the existing cognition. If, under these circumstances, attempts at reduction of dissonance by acquiring new cognitive elements consonant with the original cognition are unsuccessful, one would expect an attempt to be made to deny the validity of the event which gave rise to dissonance." (p. 199)
"Under what conditions will the attempts at dissonance reduction focus on denying the evidence of reality rather than on discarding the belief?...One would expect this to happen under the following circumstances: the belief is difficult to change, and there are a sufficient number of persons with the identical dissonance so that social support is easily obtainable." (p. 244)

"Let us again consider a situation where a number of persons who associate with one another hold a set of beliefs which are, for one reason or another, very important to them and highly resistant to change. And, once more, let us consider the set which arises if an event occurs or some information impinges on the cognition of these persons which creates a very powerful dissonance with the belief system, a dissonance which is, however, not strong enough to cause the entire belief system to be discarded. Let us further specify that the information creating the dissonance is unequivocal and undeniable—that is, so compelling in its nature that the validity cannot be denied. In short, we have postulated the existence of an extremely strong dissonance between two clusters of cognitive elements, each cluster being highly resistant to change and, hence, remaining unchanged. In other words, the dissonance under these conditions cannot be reduced by changing the elements of cognition which are involved in the dissonance. It can only be reduced by adding new cognitive elements consonant with the belief system.

"As stated previously, one would expect persons with such a dissonance to seek out others suffering from the same dissonance in an attempt to obtain support for new cognitions consonant with the belief system. In the unhappy event that a person with such a dissonance is surrounded by persons who will not support these attempts at reducing dissonance, the dissonance may very likely be increased by these nonbelievers to the point where the person discards the belief system. If however, he is surrounded by fellow believers with the same dissonance, this dissonance will be reduced to some extent and the belief will be retained.

"If the initial dissonance is, as we have postulated, extremely strong, it is not likely that the dissonance will have been reduced to any pronounced degree by the above procedures. The ingenuity of the human being in devising explanations, rationalizations, new "evidence," and the like, while great, is still limited. The dissonance between the belief system and the undeniable event, although smaller in relation to all the new relevant consonant cognitions, will still remain. How, then, may still more elements of cognition be added which are consonant with the belief system so as to still further reduce the dissonance? Clearly, this may be done by persuading more and more persons that the belief system is true, that is, by proselyting and obtaining converts. Thus, under such circumstances one would expect to observe more or less large-scale proselyting to manifest itself in attempting to reduce dissonance." (pp. 201-202)
"If the belief is very difficult to discard, and if the cognition dissonant with the belief is also very difficult to discard, obtaining social support will be one of the major means of reducing the magnitude of the dissonance. Under such circumstances, the introduction of an identical dissonance into the cognitions of many people will lead to two observable manifestations of the pressure to reduce the dissonance by obtaining social support. First, there will be an increase in giving and obtaining support among those suffering the identical dissonance. Second, there will be an increase in the attempts to persuade new people that the belief is, after all, valid." (pp. 246-247)

"After being exposed to evidence of one's own senses which unequivocally demonstrates a belief system to be wrong, people proceed to proselyte more vigorously for the belief system." (p. 247)

"Without easily obtainable social support with which to begin reducing the dissonance, this dissonance was sufficient to cause the belief to be discarded in spite of the commitment to it." (p. 258)

"In general, establishing a social reality by gaining the agreement and support of other people is one of the major ways in which a cognition can be changed when the pressures to change it are present." (p. 21)

"Opinion change which occurs in the presence of social communication is predominantly of a nature which reduces dissonance." (p. 204)

"Obtaining agreement from others is one of the major ways in which such dissonance reduction may be accomplished." (p. 208)

"One of the major determinants of whether or not change of opinion in the direction of dissonance reduction occurs would be the availability of other persons who could support the new and consonant opinion." (p. 208)

"A person with many social contacts, being able to find such others more easily, should more frequently be able to change his opinion so as to reduce the existing dissonance." (p. 209)

"A person with many social contacts, being able to find such others more easily, should more frequently be able to change his opinion so as to reduce the existing dissonance." (p. 209)

"Attempted influence is more effective on persons for whom it reduces dissonance." (p. 217)
"Influence exerted on a person to change his opinion so that dissonance is reduced will be more successful in changing that opinion than influence which would produce an increase in dissonance." (p. 190)

"Influence exerted on a person will be more effective in producing opinion change to the extent that the indicated change of opinion reduces dissonance for that person." (p. 265)

"If it should happen that the opinion brought up is quite irrelevant to existing cognition in these other persons,...little or no dissonance is introduced for the other persons and the resistance on their part to changing their opinion should not be very great." (p. 191)

"The greatest resistance to changing their own opinion should exist in those persons for whom the expression of disagreement creates or increases dissonance." (p. 142)

"Since the dissonance created by such disagreement is greater when the groups are more attractive and when the opinion is relevant to the group, one would expect more change of opinion in such groups than others." (p. 192)

"If a person had two opinions which were dissonant with one another, it is more likely that one of these two opinions would change than if the two opinions were consonant with each other." (p. 204)

"Shifts of opinion which do occur over time tend to be in a direction which reduces dissonance." (p. 207)

"[When] the expression of disagreement creates or increases dissonance, whether or not opinions change...will, of course, depend upon whether the dissonance created becomes sufficiently large to overcome the resistance to change of the opinion." (p. 192)

"Whose opinion changes will likewise depend upon the magnitude of the dissonance in each person's cognition." (p. 192)
"Dissonance, that is, the existence of nonfitting relations among cognitions, is a motivating factor in its own right." (p. 3)

"Cognitive dissonance can be seen as an antecedent condition which leads to activity oriented toward dissonance reduction." (p. 3)

"The definition of dissonance will disregard the existence of all the other cognitive elements that are relevant to either or both of the two under consideration and simply deal with these two alone. These two elements are in a dissonant relation if, considering these two alone, the obverse of one element would follow from the other. To state it a bit more formally, \( x \) and \( y \) are dissonant if \( \text{not-}x \) follows from \( y \)." (p. 13)

"The dissonance might exist because of what the person has learned or come to expect, because of what is considered appropriate or usual, or for any of a number of other reasons." (p. 13)

"Motivations and desired consequences may also be factors in determining whether or not two elements are dissonant." (p. 13)

"It may be helpful to give a series of examples where dissonance between two cognitive elements stems from different sources, that is, where the two elements are dissonant because of different meanings of the phrase "follow from" in the definition of dissonance given above.

"1. Dissonance could arise from logical inconsistency....The obverse of one follows from the other on logical grounds in the person's own thinking processes.

"2. Dissonance could arise because of cultural mores....The dissonance exists simply because the culture defines what is consonant and what is not.

"3. Dissonance may arise because one specific opinion is sometimes included, by definition, in a more general opinion....

"4. Dissonance may arise because of past experience...." (pp. 13-14)

"It is clear, of course, that in any of these situations, there might exist many other elements of cognition that are consonant with either of the two elements under consideration. Nevertheless, the relation between the two elements is dissonant if, disregarding the others, the one does not, or would not be expected to, follow from the other." (p. 15)
"If, considering a pair of elements, either one does follow from the other, then the relation between them is consonant. If neither the existing element nor its obverse follows from the other element of the pair, then the relation between them is irrelevant." (p. 15)

"The conceptual definitions of dissonance and consonance present some serious measurement difficulties. If the theory of dissonance is to have relevance for empirical data, one must be able to identify dissonances and consonances unequivocally. But... In many cases, however, the a priori determination of dissonance is clear and easy." (p. 15)

"By the term cognition... I mean any knowledge, opinion, or belief about the environment, about oneself, or about one's behavior." (p. 3)

"cognition, that is, the things a person knows about himself, about his behavior, and about his surroundings....'knowledges'.... A person does not hold an opinion unless he thinks it is correct, and so, psychologically, it is not different from a 'knowledge.' The same is true of beliefs, values, or attitudes, which function as 'knowledges' for our purposes." (p. 10)

"When is an 'element of cognition' one element, or a group of elements?... This is, at present, an unanswerable question. Indeed, it may be a question which does not need answering. As will be seen in those chapters where data are presented and discussed, this unanswered question does not present a problem in connection with measurement." (p. 10)

"It seems clear that the person may encounter difficulties in trying to change either his behavior or his knowledge. And this, of course, is precisely the reason that dissonance, once created, may persist. There is no guarantee that the person will be able to reduce or remove the dissonance.... If this turns out to be the case, however, his efforts to reduce the dissonance will not cease." (p. 6)

"Indeed, there are some areas of cognition where the existence of major dissonance is customary. This may occur when two or more established beliefs or values, all relevant to the area of cognition in question, are inconsistent. That is, no opinion can be held, and no behavior engaged in, that will not be dissonant with at least one of these established beliefs." (pp. 6-7)

"the relations which may exist between pairs of elements. There are three such relations, namely, irrelevance, dissonance, and consonance." (p. 11)
"Two elements may simply have nothing to do with one another. That is, under such circumstances where one cognitive element implies nothing at all concerning some other element, these two elements are irrelevant to one another." (p. 11)

"In many instances, however, it becomes quite a problem to decide a priori whether or not two elements are irrelevant. It is often impossible to decide this without reference to other cognitions of the person involved." (p. 12)

"It may be well to stress again the special nature certain cognitive elements have--usually those cognitive elements which correspond to behavior. Such a 'behavioral' element, by being relevant to each of two irrelevant cognitive elements, may make them in fact relevant to each other." (p. 12)

"New events may happen or new information may become known to a person, creating at least a momentary dissonance with existing knowledge, opinion, or cognition concerning behavior." (p. 4)

"Thus, for example, a person may plan to go on a picnic with complete confidence that the weather will be warm and sunny. Nevertheless, just before he is due to start, it may begin to rain. The knowledge that it is now raining is dissonant with his confidence in a sunny day and with his planning to go to a picnic." (p. 4)

"Or, as another example, a person who is quite certain in his knowledge that automatic transmissions on automobiles are inefficient may accidentally come across an article praising automatic transmissions. Again, at least a momentary dissonance is created." (p. 5)

"Even in the absence of new, unforeseen events or information, the existence of dissonance is undoubtedly an everyday condition." (p. 5)

"Where an opinion must be formed or a decision taken, some dissonance is almost unavoidably created between the cognition of the action taken and those opinions or knowledges which tend to point to a different action." (p. 5)

"It is probably safe to assume that it is rare for no dissonance at all to exist within any cluster of cognitive elements. For almost any action a person might take, for almost any feeling he might have, there will most likely be at least one cognitive element dissonant with this 'behavioral' element....In short, there are generally so many other cognitive elements relevant to any given element that some dissonance is the usual state of affairs." (p. 17)
"Dissonance then will be a result of the simple act of having made a decision." (p. 35)

"Dissonance is an almost inevitable consequence of a decision." (p. 36)

"The major sources of resistance to change for a cognitive element are the responsiveness of such cognitive elements to 'reality' and the extent to which an element exists in consonant relations with many other elements." (p. 266)

"The effectiveness of efforts to reduce dissonance will depend upon the resistance to change of the cognitive elements involved in the dissonance and on the availability of information which will provide, or of other persons who will supply, new cognitive elements which will be consonant with existing cognition." (p. 265)

"To the extent that the element is consonant with a large number of other elements and to the extent that changing it would replace these consonances by dissonances, the element will be resistant to change." (p. 27)

"The maximum dissonance that can possibly exist between any two elements is equal to the total resistance to change of the less resistant element. The magnitude of dissonance cannot exceed this amount because, at this point of maximum possible dissonance, the less resistant element would change, thus eliminating the dissonance." (in italics; p. 28)

'If dissonance exists between one cluster of elements and another cluster, this dissonance cannot exceed in magnitude the resistance to change of the least resistant parts of the clusters. If the dissonance becomes greater than the resistance to change, then the least resistant elements of cognition will be changed, thus reducing the dissonance." (p. 129)

"The maximum dissonance which can exist between two elements is equal to the resistance to change of the less resistant of the two elements. If the dissonance exceeds this magnitude, the less resistant cognitive element will be changed, thus reducing the dissonance." (p. 266)

"The existence of dissonance, being psychologically uncomfortable, will motivate the person to try to reduce the dissonance and achieve consonance." (p. 3)

"To the extent that the element is consonant with a large number of other elements and to the extent that changing it would replace these consonances by dissonances, the element will be resistant to change." (p. 27)
"If two elements are dissonant with one another, the magnitude of the dissonance will be a function of the importance of the elements." (in italics, p. 16)

"One obvious determinant of the magnitude of dissonance lies in the characteristics of the elements between which the relation of dissonance holds." (p. 16)

"The more these elements are important to, or valued by, the person, the greater will be the magnitude of a dissonant relation between them. Thus, for example, if a person gives ten cents to a beggar, knowing full well that the beggar is not really in need, the dissonance which exists between these two elements is rather weak. Neither of the two cognitive elements involved is very important or very consequential to the person." (p. 16)

"The magnitude of the dissonance (or consonance) increases as the importance or value of the elements increases." (p. 18)

"One must then, in the context of social disagreement, identify the variables that will affect the importance of the cognitive elements corresponding to knowledge of what others believe.

"One such variable is, of course, the relevance of the disagreeing person, or the group in which the disagreement is voiced, to the opinion at issue. The more relevant the person or group to the opinion, the more important will be the cognitive elements corresponding to knowledge about the opinions of these others, and the greater will be the dissonance set up by the expression of disagreement. If the person voicing disagreement is seen as expert or very knowledgeable on such matters, the dissonance between knowledge of his contrary opinion and one's own opinion will be greater. If the opinion on which disagreement is voiced is important to, or especially relevant to, the group in which the disagreement is voiced, the dissonance will likewise be greater. Relevance here means that the opinion is within the realm of content matter with which the group usually concerns itself.

Another variable which clearly will affect the importance of the cognitive elements, and hence the magnitude of the dissonance, is the attractiveness of the person voicing the disagreement or of the group within which it is voiced. This variable, when referring to the group has frequently been called cohesiveness, denoting the sum total of attractions that pull the members to, and keep them in, the group. It is plausible to assume that the dissonance between one's own opinion and knowledge of a contrary opinion voiced by some other person is greater if the other person is important to one in some sense or if the group is important or attractive." (pp. 180-181)
"What, then, are the circumstances that make it difficult for the person to change his actions?

1. The change may be painful or involve loss....The magnitude of this resistance to change will be determined by the extent of pain or loss which must be endured.

2. The present behavior may be otherwise satisfying....In such instances, of course, the resistance to change would be a function of the satisfaction obtained from the present behavior.

3. Making the change may simply not be possible....Some behavior, especially emotional reactions, may not be under the voluntary control of the person....Also, it might not be possible to consummate a change simply because the new behavior may not be in the behavior repertory of the person....A third circumstance which could make it impossible to change is the irrevocable nature of certain actions....The resistance to change which the cognitive element possesses can, of course, not be greater than the pressure to respond to reality." (pp. 25-26)

"How are they formed and what determines their content? At this point we want to emphasize the single most important determinant of the content of these elements, namely, reality. These elements of cognition are responsive to reality. By and large they mirror, or map, reality. This reality may be physical or social or psychological, but in any case the cognition more or less maps it. ...Indeed, when someone is 'out of touch with reality,' it becomes very noticeable." (p. 10)

"In other words, elements of cognition correspond for the most part with what the person actually does or feels or with what actually exists in the environment. In the case of opinions, beliefs, and values, the reality may be what others think or do; in other instances the reality may be what is encountered experientially or what others have told him." (p. 11)

"But let us here object and say that persons frequently have cognitive elements which deviate markedly from reality, at least as we see it. Consequently, the major point to be made is that the reality which impinges on a person will exert pressures in the direction of bringing the appropriate cognitive elements into correspondence with that reality. This does not mean that the existing cognitive elements will always correspond. Indeed, one of the important consequences of the theory of dissonance is that it will help us understand some circumstances where the cognitive elements do not correspond with reality. But it does mean that if the cognitive elements do not correspond with a certain reality which impinges, certain pressures must exist. We should therefore be able to observe some manifestations of these pressures." (p. 11)
"The first and foremost source of resistance to change for any cognitive element is the responsiveness of such elements to reality." (p. 24)

"Given this strong and sometimes overwhelming responsiveness to reality, the problem of changing a behavioral cognitive element becomes the problem of changing the behavior which is being mapped by the element. Consequently, the resistance to change of the cognitive element is identical with the resistance to change of the behavior reflected by that element, assuming that the person maintains contact with reality." (p. 25)

"Here again...the major source of resistance to change lies in the responsiveness of these elements to reality....When there is a clear and unequivocal reality corresponding to some cognitive element, the possibilities of change are almost nil...."In many instances, however, the reality corresponding to the cognitive element is by no means so clear and unambiguous. When the reality is basically a social one, that is, when it is established by agreement with other people, the resistance to change would be determined by the difficulty of finding persons to support the new cognition." (p. 27)

"If a cognitive element that is responsive to reality is to be changed without changing the corresponding reality, some means of ignoring or counteracting the real situation must be used." (p. 21)

"The important factor in the attempt to eliminate the dissonance by changing an element is the total amount of resistance to change; the source of the resistance is immaterial." (p. 28)

"The weighted proportion of dissonant elements cannot be greater than 50 per cent. Presumably the expected reward or punishment had to be sufficient, in relation to the resistance to change, to produce the compliant behavior in the first place. Consequently, it is a reasonable inference to suppose that the sum of consonant relations is greater than the sum of dissonant relations." (pp. 90-91)

"Assuming momentarily, for the sake of definition, that all the elements relevant to the one in question are equally important, the total amount of dissonance between this element and the remainder of the person's cognition will depend on the proportion of relevant elements that are dissonant with the one in question. Thus, if the overwhelming majority of relevant elements are consonant with, say, a behavioral element, then the dissonance with this behavioral element is slight. If in relation to the number of elements consonant with the behavioral element the number of dissonant elements is large, the total dissonance will be of appreciable magnitude. Of course, the magnitude of the total dissonance will also depend on the importance or value of those relevant elements which exist in
consonant or dissonant relations with the one being considered.

"The above statement can of course be easily generalized to
deal with the magnitude of dissonance which exists between two
clusters of cognitive elements. This magnitude would depend on the
proportion of the relevant relations between elements in the two
clusters that were dissonant and, of course, on the importance of
the elements." (p. 17)  

"The total amount of dissonance that exists between two clusters of
cognitive elements is a function of the weighted proportion of all
relevant relations between the two clusters that are dissonant.
The term "weighted proportion" is used because each relevant relation
would be weighted according to the importance of the elements
involved in that relation." (p. 18)  

"The strength of the pressures to reduce the dissonance is a function
of the magnitude of the dissonance." (p. 18)  

"The greater the dissonance, the greater will be the intensity of
the action to reduce the dissonance and the greater the avoidance
of situations that would increase the dissonance." (p. 18)  

"The strength of the pressure to reduce dissonance is a function of
the magnitude of the existing dissonance." (p. 263)  

"There is pressure to produce consonant relations among cognitions
and to avoid and reduce dissonance." (p. 9)  

"The presence of dissonance gives rise to pressures to reduce or
eliminate the dissonance." (p. 18)  

"The presence of dissonance gives rise to pressures to reduce that
dissonance." (p. 263)
BIBLIOGRAPHY


