MODELS OF ATTITUDE CHANGE IN THE PASSIVE COMMUNICATION PARADIGM: INFORMATION PROCESSING, SOCIAL JUDGMENT, DISSONANCE, BALANCE, AND CONGRUITY

Thesis for the Degree of Ph. D.
MICHIGAN STATE UNIVERSITY
STANLEY HYMIE COHEN
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ABSTRACT

MODELS OF ATTITUDE CHANGE IN THE PASSIVE COMMUNICATION PARADIGM: INFORMATION PROCESSING, SOCIAL JUDGMENT, DISSONANCE, BALANCE, AND CONGRUITY

By

Stanley Hymie Cohen

The content of contemporary social psychological theories of attitude change is so variegated that a detailed comparison of their predictions seems improbable. The present investigation attempted to circumvent this problem by considering the theories in only a single experimental context or paradigm: that of passive communication wherein the subject receives a message from some source about an object, and he is not required to respond in an active way or openly commit himself to any position. In this context the theories' representations of change in attitudes toward source and object reduce to explicit functions of only the premessage attitudes of the receiver toward source and object and the intensity of the message.

Families of mathematical models were constructed to represent three major classes of theory: information processing (constant change, linear discrepancy, and dissonance), social judgment (Sherif's nonlinear

discrepancy), and affective consistency (congruity and balance). Within each theory both the major and the minor postulates were formalized. The major postulates were always assumed and constituted the core of the theory. To test the theory in any given context, the minor or more technical assumptions were added to generate specific predictions.

The fit of the models was tested with data generated from a "dynamic interpersonal perception" experimental design. First, de novo attitudes toward five hypothetical stimulus-persons were formed through a series of preliminary printed sketches. Each stimulus person then gave a brief videotaped self portrait. Thus two messages and concommitant evaluations of the stimulus persons took place before the data to be analyzed for attitude change was gathered. In the attitude change materials each person delivered a message describing each of the other four persons. Hence the stimulus-persons appeared in the sketches as both the sources of and the objects of descriptive material about their interpersonal relationships. Attitudes of 213Ss toward these stimulus-persons were recorded after each sketch and thus generated twenty messages and twenty pre-post attitude designs.

The intensity and direction of the messages were scaled by independent groups of Ss in three scaling conditions: messages were read in context, read out of context, and viewed in context. The scaling studies yielded three sets of message values that were very highly correlated and had low within-message variance, i.e. the individual messages had uniform meaning across Ss.

The results of the experiment were not consistent with dissonance theory and were in total disagreement with congruity and balance theory. In particular, attitude change satisfied a simple linear discrepancy law with no source effect. The subject changed his attitude toward the object by a constant fraction of the distance to the position advocated in the message. Attitude change was independent of the subject's attitude toward the source (i.e., source credibility). If low "ego-involvement" is assumed, these results could be explained by social judgment theory as well.

No a priori model could account for the source change results. Instead source change satisfied a simple linear discrepancy law also. The subject's attitude toward the source changed in proportion to the difference between the subject's feeling toward the source and the affect

expressed in the source's message. Source change was independent of the subject's attitude toward the object and hence independent of whether or not the subject and source agreed or disagreed about the object. A post hoc model to explain these findings was derived from information processing theory.

In an era dominated by affective consistency theory and dissonance theory, the most provocative result was that source change and attitude change were completely independent. In the present situation, traditional information processing models were the only class of models that accounted for all of the results.

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By

Stanley Hymie Cohen

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To the memory of my mother

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CHAPTER I

INTRODUCTION

Theories of attitude change have been plagued by a proliferation of incompatible definitions of the word attitude. Attitudes have been seen as emotional states, behavioral dispositions, beliefs, and perceived social distances. Some of this has reflected the behavioristic deterioration in the meaning of terms from cognitive psychology (i.e., "generalized approach-avoidance responses," or "any response that has social significance," etc.). In this paper the word attitude will not be used for beliefs ("the sky is blue"), habits (smoking, etc.), perceptual phenomena ("numerosity of paratroopers," the "autokinetic phenomenon"), aesthetic preferences ("early American is prettier than Danish modern"), or simple tastes ("apples are better than oranges").

Even with this restricted definition of attitude, the theories are quite diverse in content. The spokesmen for theories of attitude change have traveled down rather distinct and different experimental tracks, and have

subsequently stressed different explanatory aspects of their theories. Dissonance theorists have studied lying, cheating, resistance to temptation, reward justification, and the effects of forced compliance, counterattitudinal role-playing, and committed choice on subsequent attitude change. Social judgment theorists (e.g. Sherif) have focused on the assimilation-contrast interpretations of persuasive messages as a function of the discrepancy between the position advocated in a communication and an individual's stand on the issue. Because judgments of social objects rarely have an immediately observable criterion, they tend to be referred to the judgments of significant others. So social judgment theorists were forced into an enduring interest in how the subject reacts to the actual or assumed judgments of others. Thus we see studies of authority, prestige, differential reference groups, peer pressure, etc.

Much of the difference in the content of these theories and much of the concomitant difficulty in comparing them stems from the fact that many of the variables considered by any one author do not function in the situations considered by another.

The present study attempts to sidestep this problem by considering all the theories in only one

experimental context or paradigm: that of passive communication. That is, the subject simply receives a message from some source about an object. The initial attitude toward the object may be positive or negative, the attitude toward the object may be positive or negative, and the message may be one of endorsement or castigation. The subject is not asked to respond to the message in any active way (argue, give money, risk life, etc.) or openly commit himself to a position that might be contrary to that taken by his peers or reference groups.

Passive communication is the paradigm exploited by the congruity theorists, balance theorists, and other affective-consistency theories. Brown (1962) has noted that dissonance may also be considered in this framework. However the Aronson, Turner and Carlsmith (1957) extension of dissonance to this paradigm is not without controversy. Finally we recall that this is the traditional paradigm for the information processing (Anderson, 1959, Hovland, Janis, and Kelley, 1953) and communications theorists (Katz and Lazarsfeld, 1955; Sherif, Sherif, and Nebergall, 1965). Furthermore, the vast bulk of the empirical work on attitude change has employed this paradigm.

This context has the advantage that many of the variables that are not common to the theories are absent

or present in only attenuated form.

The Passive Communication Paradigm For Attitude Change

A static analysis of the attitude change situation reveals five basic elements. A source (communicator) delivers messages (communications) to a receiver about some attitude object through some channel (medium). At any moment in time, it is assumed that one can measure on an affective or evaluative scale (1) the attitude of the receiver (toward the attitude object), (2) the evaluative content of the message, and (3) the receiver's affect toward the source.

These variables are dynamic and undergo change in value over time. For the present, the analysis will be restricted to two discrete points in time: immediately prior to and subsequent to the message presentation. If t denotes the time prior to message presentation and $t + 1$ denotes the time after the message presentation, then the situation is described by:

a_t = the attitude of the receiver toward the attitude object at time t

s_t = the attitude of the receiver toward the source at time t

m_t = the affective value of the message presented at time t

The phrase "attitude change" will be reserved for change in the receiver's attitude toward the object. The phrase "source change" will be used for the change in his attitude toward the source. Thus attitude change and source change are given by

$$\Delta a = a_{t+1} - a_t$$

$$\Delta s = s_{t+1} - s_t$$

To the extent that the other variables considered by various theories do not enter into the passive communication context, these theories reduce to

$$\Delta a = f\ (a,s,m)$$

$$\Delta s = g\ (a,s,m),$$

that is, attitude change and source change will be a function of only the attitudes of the receiver toward source and object and the value of the message at time t. Hence, the theories can be expressed and compared in terms of the restrictions that they place on the functions f and g.

Dynamics

Only the change produced by a single message will be considered below. However, once the equations are stated, they can be applied to situations involving

multiple messages. They then yield a dynamic theory of attitude change (e.g. Abelson, 1964; Cohen and Hunter, 1970).

Overview of the Study

The study below has two major subdivisions. First, there is a detailed mathematical development of five major theories of attitude change. Second, there is an experiment which seeks to test all five theories in one experimental context.

The five theories which will be considered fall into three categories. First, there are the information processing theorists who attempt to predict attitude change largely on the basis of the content of the message about the attitude object presented to the subject. There are two categories of information processing theorists. Those who assume that a positive message will produce positive attitude change and a negative message will produce negative change will be called "constant change theorists." Those who assume that the impact of a message and the subject's attitude will be called "discrepancy theorists." Second, there is Sherif's social judgment theory. Third, there are two broad classes of affective consistency theories: dissonance theory and congruity or balance theory. Each theory has a number of postulates:

major and minor. The major postulates are always assumed and constitute the substantive core of the theory. However, to test the theory in any given context, further (and more technical) assumptions must be added to the theory to generate specific predictions. These minor assumptions may or may not be made by the theorist in one context or another and thus constitute the main source of "ambiguities" in the interpretations of the theories in the literature. This will be reflected below in the fact that each theory will be represented not by a single mathematical model, but by a family of models. In each case, the dependence of the theory on these technical assumptions (as opposed to the core postulates) will thus be made as explicit as possible. Since the truth of these technical assumptions varies from experiment to experiment, it is not possible to select from the family of models a single model which is, for example, the dissonance model. On the other hand, when the technical assumptions are made explicit, the second generation of theories should provide an explicit basis for predicting which assumption is to be made in any given experiment.

There is a third level of assumption in construction of mathematical models: that of selecting particular algebraic forms for particular assertions. Thus

the theory may assert only that a certain function is monotone increasing. There are an infinity of mathematical representations of such an assumption. In each case below, the first model given always uses the simplest example possible which is usually linearity or proportionality. If other monotone functions give substantially the same results, no other example will be presented. On the other hand, if there are gross qualitative differences between alternate versions, a further selection of examples is given. The mathematically sophisticated reader is warned that no search for monotone functions that yield pathological results was made.

This paper implicitly recognizes the fundamental inconsistencies in the present attitude change literature. No theory can fit the results that now exist for all the different processes currently grouped under the rubric "attitude change." However, each of the theories below fits some portion of that literature. Thus no attempt below will be made to select or reject any of the theories as to their overall truth or falsity. Rather it is implicitly assumed that there are some unknown postulates which will subdivide the attitude change literature into those subcategories where one (or none) of them <u>will</u> fit.

An experiment was run with the intent of

generating a good test of all five theories in the same data set. Such a test requires gathering and analyzing data for the attitudes toward source and object before the message is presented and looking at the change in each attitude as a function of both pretests. Only one experiment was found in the literature where this could be done, Tannenbaum's (1953) dissertation, which will be discussed in a later chapter. Furthermore, Tannenbaum's study had two deficiencies. First, source and object were not entirely coordinate. In most cases "source" meant person or institution, while "object" meant issue or policy. Hence, differences between source change and attitude change in his study may reflect differences in the nature of the objects rather than differences in process. Second, and more seriously, the general level of attitude change and, especially, source change was rather low. This makes many of the fine details of the results too unstable statistically to compare some of the present theories.

This study attempted to remedy these deficiencies. To obtain greater attitude and source change, established attitudes toward source and objects were not used. Instead de novo attitudes were created and manipulated. To make sources and objects comparable, both were taken to

be hypothetical people. In fact, the design is such that the sources and objects are the same people. In the experiment the subjects form attitudes toward the five members of a hypothetical drama group. The messages are the twenty "sketches" obtained when each of the five members is asked to describe the other four. Note that each member of the club thus appears four times as source and four times as object of a message.

The main constraint on the generality of the results is precisely the feature that distinguishes it from Tannenbaum's study. It is not a study of the change in established social or political attitudes, but a study of the "passive acquaintance process." On the other hand, this distinction has no explicit relevance to any of the theories considered here except Sherif's. As will be noted, Sherif makes "ego involvement" predictions which may interact with the variables manipulated here.

CHAPTER II

INFORMATION-PROCESSING MODELS

The class of models described in this chapter are characterized by the emphasis they place on the message. Messages, like attitudes, have an affective value. If attitudes are laid out on a continuum, then every message advocates some position on this scale. Thus, a message is a representation of an attitudinal position. This measurement model was proposed by Thurstone (1929).

The receiver assimilates the message and this processing changes his attitude toward the object. Traditionally, information processing theories assume negligible source change.

Constant Attitude Change

Suppose that all receivers react in the same degree and direction to the message. A positive message would induce positive change in all receivers; that is, after the message, all receivers would be more favorable toward the object as a consequence of the message. A negative message would yield the same results except

attitude change would shift in the direction of a more negative attitude toward the object.

The amount of change is assumed to be a function of the strength of the message. This in turn is assumed to be a function of its affective value. Thus attitude change should be a monotone function of message value. The simplest such function is obtained if attitude change is directly proportional to message value. Formally this model is

$$\Delta a = \alpha m, \quad \alpha > 0 \qquad (1)$$

The constant change model is graphed in Figure 1.

Let a′ denote the attitude after the message (i.e. a_{t+1}) and a the premessage attitude (i.e. a_t). Then Equation 1 can be rewritten as

$$a' = a + \alpha m$$

Since the magnitude of attitude change is the same for every receiver and postmessage attitude differs from premessage attitude by a constant, the correlation between premessage and postmessage attitudes (corrected for attentuation) would be one. Because attitude change is identical for all receivers (zero variance), premessage attitude would correlate zero with attitude change. Mean attitude change is αm and is independent of the distribution of initial attitudes.

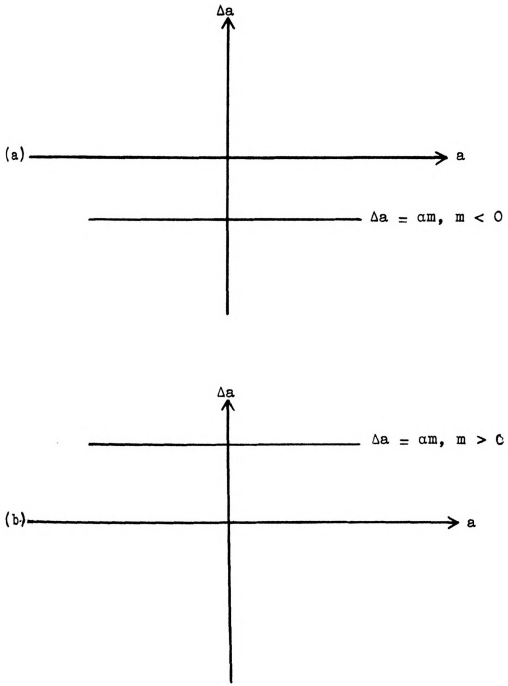


Figure 1. The relationship between attitude change and premessage attitude for the constant change model.

Although the constant change model might seem simplistic, or even "naive," it is tacitly adopted whenever the results of attitude change studies are summarized in terms of only overall mean change statistics. This statement will be more cogent after other models are studied.

Polarity and the Constant Attitude Change Model

If the assumption that all individuals change by the same amount seems unreasonable, one might well ask which receivers would be least affected. Several studies (Cantril, 1944; Cantril, 1946; Hutchinson, 1949; Riland, 1959; Weksel and Hennes, 1965) have presented evidence that individuals with more polarized or extreme attitudes feel more intensely about the object. If subjects who feel more intensely are more resistant to the message, then attitude change will be inversely related to attitude polarity (i.e., the absolute magnitude of the attitude irrespective of sign). Attitude change is still proportional to message strength; but the message has rapidly diminishing impact on receivers with extreme attitudes. One model with this property is

$$\Delta a = \frac{\alpha m}{1+\alpha^2} \qquad (2)$$

The graph of the polarity model is presented in Figure 2. If the distribution of initial attitude scores is symmetrical about a = 0, the premessage-postmessage attitude correlation is highly positive (but less than one) due to the slight curvilinearity introduced into the regression curve by the polarity effect. The correlation between initial attitude and attitude change depends on the nature and range of the distribution of initial attitudes. When the distribution is symmetrical about a + 0, the correlation is zero--the regression curve is U-shaped. If the initial attitudes are mostly positive, $r_{a,\Delta a}$ is approximately -1. If the initial attitudes are mostly negative, $r_{a,\Delta a}$ is approximately +1. Thus as the distribution of initial attitude is varied, every possible value for the correlation between initial attitude and attitude change is obtained.

The polarity effect also obscures the overall mean attitude change by reducing the level of observed mean change. That is, $\bar{\Delta}a$ will be less than or equal to αm. The greater the variance, skewness, or absolute mean value of initial attitudes, the smaller will be the magnitude of average attitude change. Moreover, overall mean attitude change statistics would not adequately discriminate between situations where the message is weak and situations with a strong polarity effect. When the message is

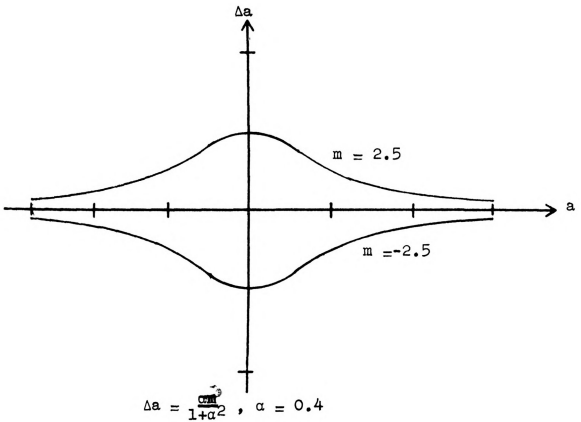


Figure 2. Attitude change for the constant change model with polarity effects.

weak, the constant change model and constant change-with-polarity model yield almost identical results.

The Discrepancy Hypothesis

The first two models assumed that a person responds to the message in absolute terms. That is, a positive message will seem positive to a subject regardless of his own attitude. Suppose instead that a subject perceives messages relatively, i.e. a message seems "positive" only if it is more positive than the subject's own attitude. Then the impact of the message will depend on the discrepancy between the position advocated in the message and the position held by the receiver. In the models below it is this relative difference that determines the ultimate accomodation of the individual to the message. Thus the amount of attitude change is dictated by how much change the message advocates rather than its absolute position. The basic postulate for this class of models can be represented by the expression

$$\Delta a = f\,(m-a)$$

Linear Discrepancy Hypothesis or Proportional Change

Early studies of attitude change and social influence indicated that the magnitude of obtained attitude change induced by a message tended to be proportional to

the amount of change suggested (French, 1956; Hovland and Pritzker, 1957). Anderson (1959) and Anderson and Hovland (1957) proposed a "distance-proportional" model with the conditions that (1) the magnitude of change is proportional to the discrepancy between the receiver's attitude and the position advocated by the message and (2) the change is always in the direction advocated by the message. These postulates take the form:

$$\Delta a = \alpha(m-a),\ 0<\alpha<1 \qquad (4)$$

or

$$\Delta a = -\alpha a + \alpha m \qquad (5)$$

The graph for the linear discrepancy model is illustrated in Figure 3. The sign of Δa is positive if the receiver's initial position is below the message and negative otherwise. Thus, if the receiver's attitude is below the message, he shifts up; if his attitude is above, he shifts down. He always shifts toward the position advocated by the message, and, the greater the distance from the message, the greater the change.

This model is formally equivalent to the simple linear servomechanism or homeostat of cybernetics. The message is analagous to input from the environment and the receiver adjusts his position towards the input value.

As in the constant change model, the correlation between pre and postattitude scores is approximately one

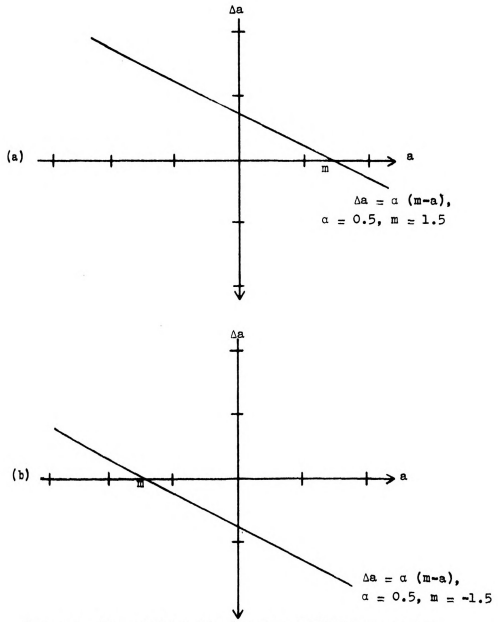


Figure 3. The relationship between attitude change and pre-message attitude for the linear discrepancy model.

(corrected for attenuation), since

$$a' = (1-\alpha)\ a + \alpha m$$

But, the correlation between attitude change and initial attitude is minus one (properly corrected for attenuation) because

$$\Delta a = -\alpha a + \alpha m$$

Thus attitude change is an exact linear function of a with the negative slope coefficient determining the sign of the correlation. Equation 5 also provides a contrast between the linear discrepancy model and the constant change model. In the discrepancy model the change in attitude is the sum of <u>two</u> components--the message and the receiver's prior attitude--while the constant change model has only αm. The two models are more clearly differentiated by variances than means. The constant change model predicts equal pre and post variances, while discrepancy theory predicts a decrease in variance by a factor $(1-\alpha)^2$. In particular, the greater the attitude change, the greater the decrease in the variance.

The expression for mean attitude change is

$$\overline{\Delta a} = \alpha(m-\overline{a}) \qquad (6)$$

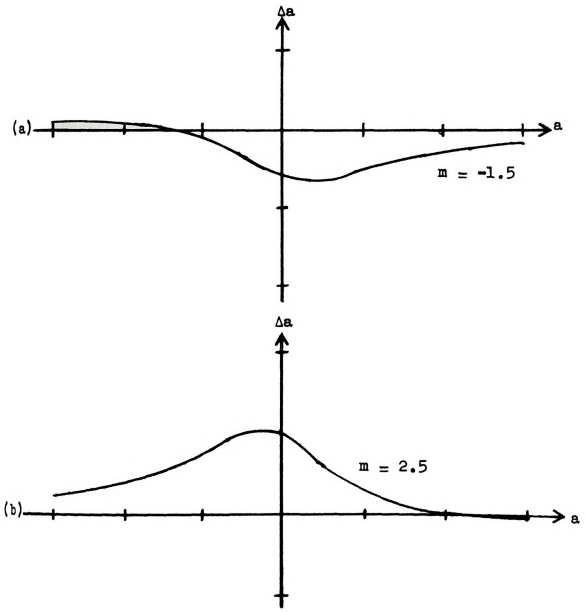
which is zero if $\overline{a} = m$. If the distribution of attitude scores were initially centered at the message value then a one-way analysis of variance with repeated measures

would yield "discouraging" results. The size of the main effect, time (the interpolated message), would be zero while the error term (the subject-by-time interaction) would be large. Paradoxically, the greater the attitude change (say $\alpha = 1$), the greater the relative magnitude of the "error" (the interaction) to the main effect (which stays 0)!

The proportional change model can also be modified to account for a reduction in persuasibility for receivers who held extreme attitudes. For example,

$$\Delta a = \frac{\alpha(m-a)}{1 + a^2} \qquad (7)$$

assumes that attitude change is reduced in proportion to the square of polarity and is graphed in Figure 4. The striking feature of this model is the asymmetry of change around the message. That is, equal attitude-message discrepancy differences do not produce the same amount of change in both directions. As discrepancy from the message increases, polarity ultimately also increases and so attitude change tends to zero. This model yields very similar predictions to the social judgment models discussed in Chapter III, although its premises are quite different.



$$\Delta a = \frac{\alpha\,(m-a)}{1 + a^2}\,, \quad \alpha = 0.4$$

Figure 4. Attitude change for the linear discrepancy with polarity model.

Source Credibility

Up to this point, the subject's attitude toward the source has not been considered. For example, one would expect "credible" sources to be more persuasive and elicit more attitude change. The classic studies of prestige suggestion were reviewed in Tannenbaum (1953) and Hovland (1954). Since the studies done by Hovland and his associates (1953), most theorists have assumed that source credibility serves as a "multiplier" of attitude change. Sources which are deemed trustworthy, likable, or knowledgeable seem to enhance the degree of attitude change. At the other end of the scale, a "perfectly incredible" source might either be simply so weak as to produce no change or might be negatively credible and produce a change in the opposite direction or "boomerang."

Is source credibility a bipolar quantity ranging from negative to positive or is it strictly positive? A theory with only positive source credibility would merely have sources ranging from weak to strong. A theory with bipolar credibility would predict "boomerang" effects for negative credibility. This distinction will be referred to below as "with or without boomerang."

In either case, credibility acts in a

multiplicative manner and the change in attitude would be given by

$$\Delta a = \text{credibility} \cdot f(s,m,a). \qquad (8)$$

The source characteristic which defines source credibility differs from context to context (McGuire, 1969). Thus in one context it may be expertise; in another it may be bias; in sociometric contexts it may be popularity. This thesis will be restricted to either situations in which expertise and bias do not function or situations where they are perfectly correlated with how well the source is liked.

In such situations credibility is a function of how much the receiver likes the source and Equation 8 becomes

$$\Delta a = g(s) \cdot f(s,m,a) \qquad (9)$$

where g(s) is the credibility of the source. If the subject's attitude toward the source affects only the credibility of the source, Equation 9 becomes

$$\Delta a = g(s) \cdot f(m,a). \qquad (10)$$

In a strong-weak model of source effect, "credibility" is usually the fraction of possible change realized. Thus the multiplier g(s) would be 0 for a perfectly incredible source and 1 for a perfectly credible source. Hence, in the present models, the function g(s)

would increase from 0 at $s = -\infty$ to 1 at $s = +\infty$. That is, $g(s)$ is an ogival function. Figure 5 presents the ogive

$$g(s) = \frac{e^s}{1+e^s} \qquad (11)$$

which was also chosen to be "symmetric" with respect to affect.

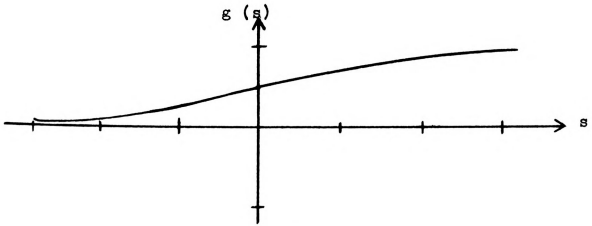
If there is to be change in the direction opposite to the message, the multiplier would be a negative fraction. Thus if $g(s)$ takes on the full range of possible values it would increase from -1 at $s = -\infty$ to +1 at $s = +\infty$. The point at which this ogive crosses the s-axis is the source affect required for zero credibility. In the models with boomerang below, it will be assumed that credibility is positive if and only if s is positive. One model in which credibility is symmetric with respect to source affect is

$$g(s) = \frac{s}{\sqrt{1+s^2}} \qquad (12)$$

which is displayed in Figure 6.

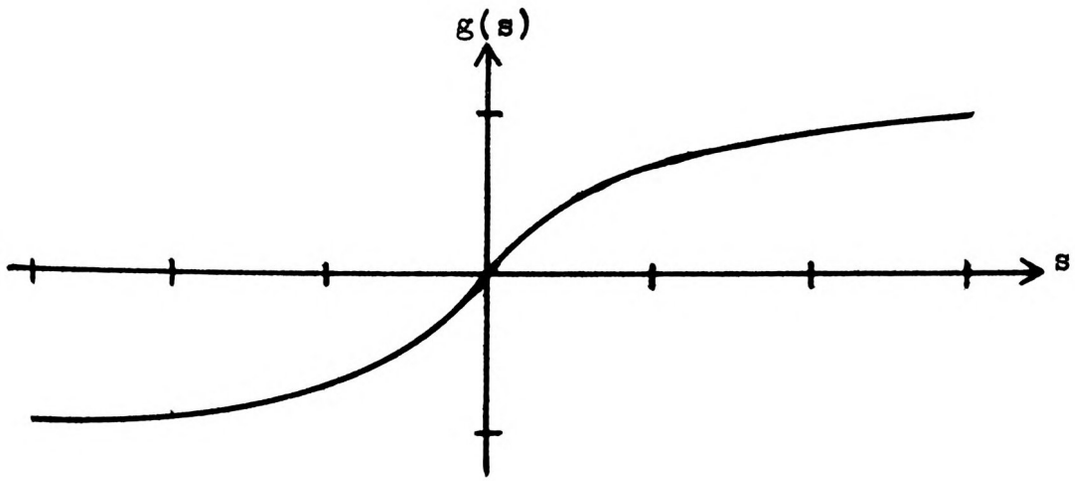
Credibility and the Constant Change Models

The major premise of the constant change models (with or without a polarity factor) involves message strength. Weak messages yield less attitude change; strong messages exert more influence. A boomerang in attitude



$$g(s) = \frac{e^s}{1 + e^s}$$

Figure 5. Source credibility without boomerang as a function of attitude toward the source.



$$g(s) = \frac{s}{\sqrt{1 + s^2}}$$

Figure 6. Source credibility with boomerang as a function of attitude toward the source.

would not be possible since change is always in accord with the message.

One interpretation of the constant change theorists would argue for a source interaction effect. The full impact of the message ($\Delta a = \alpha m$) is only realized from a perfectly credible source. If the source is not perfectly credible, the change would be less ($\Delta a < \alpha m$). One such model is

$$\Delta a = \frac{e^s}{1 + e^s} \cdot \alpha m \qquad (13)$$

The graph of Δa on a with s parameterized is presented in Figure 7. Attitude change increases with message strength and credibility. For the same message, credible sources are more persuasive than incredible sources.

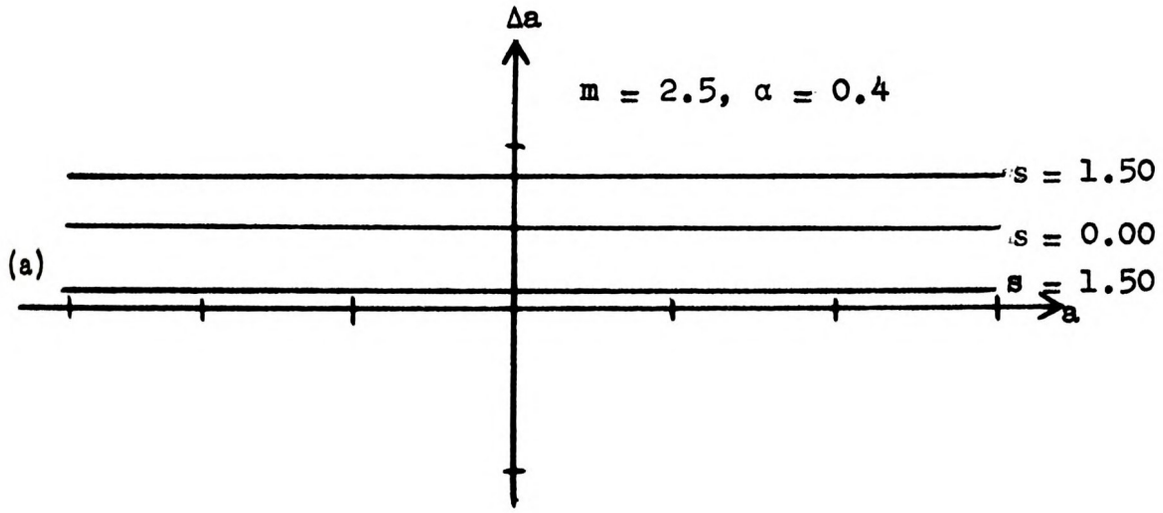
On the other hand, consider a source of "average" credibility and assume that $\Delta a = \alpha m$ for this "average" source. Sources of greater credibility yield greater change to the extent that their credibility is greater than average. Thus if $\bar{c}$ is the "average" credibility and c the comparative credibility,

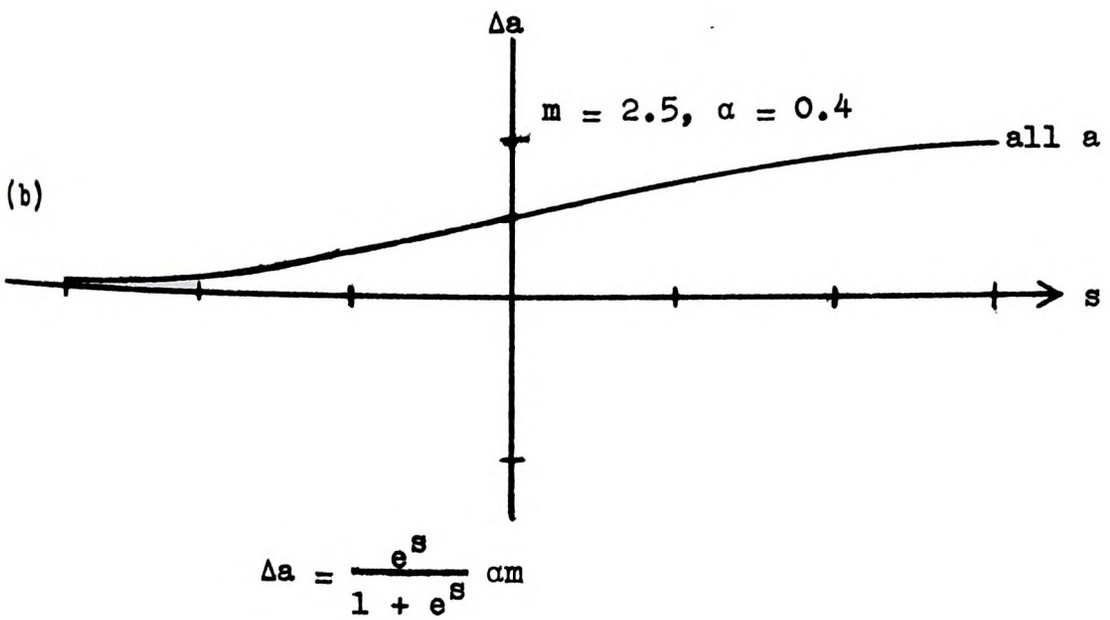
$$\Delta a = \frac{c}{\bar{c}} \cdot \alpha m \qquad (14)$$

Let

$$\beta = \frac{\alpha}{\bar{c}}, \text{ then } \quad \Delta a = \beta \cdot c \cdot m$$

$$= \beta \cdot \frac{e^s}{1 + e^s} \cdot m \qquad (15)$$





$$\Delta a = \frac{e^{s}}{1 + e^{s}} \alpha m$$

Figure 7. Attitude change for the constant change with source credibility model.

which is the same model with α renamed.

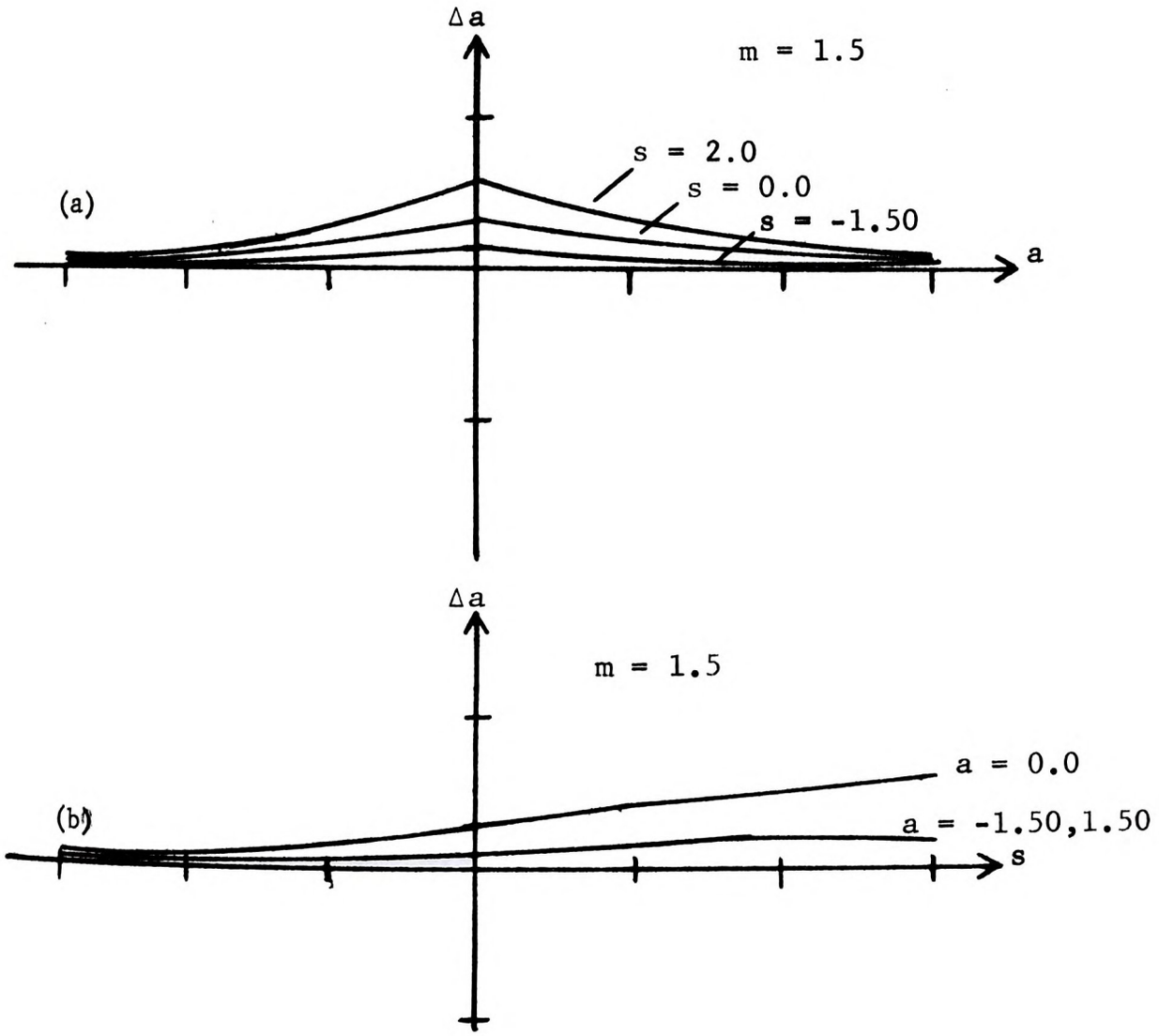
If individuals with extreme attitudes are more resistant to change, then a constant change with polarity and source effect would be:

$$\Delta a = \frac{e^s}{1+e^s} \cdot \frac{\alpha m}{1+a^2} \qquad (16)$$

This model is graphed in Figure 8 as a function of a and s. For source credibility fixed, the model makes predictions identical to Equation 2, the constant change with polarity model.

Source Credibility and the Linear Discrepancy Hypothesis

For discrepancy theory, source effects follow directly from the basic assumptions. Since message discrepancy is a necessary condition for attitude change, source credibility would not cause any accomodation to the message unless the receiver's attitude and the position advocated by the message were different. Hence, discrepancy must enter the equation for attitude change as a multiplicative factor. Now let $\alpha(m-a)$ be the effect of a perfectly credible source. The change elicited by an imperfectly credible source will be less. Since m-a must remain a factor of the new expression, the new expression must be a fraction times the old, that is,



$$\Delta a = \frac{e^s}{1 + e^s} \cdot \frac{\alpha m}{1 + a^2}, \quad \alpha = 0.4$$

Figure 8. Attitude change as a function of pre-message attitudes toward source and object for the constant change with source credibility and polarity model.

$$\Delta a = \text{credibility} \cdot \alpha\,(m-a)$$

which is the multiplicative model.

The theory does not prohibit boomerang effects so both types of models are possible. An example of a model without boomerang is

$$\Delta a = \frac{e^s}{1+e^s} \cdot \alpha\,(m-a) \qquad (17)$$

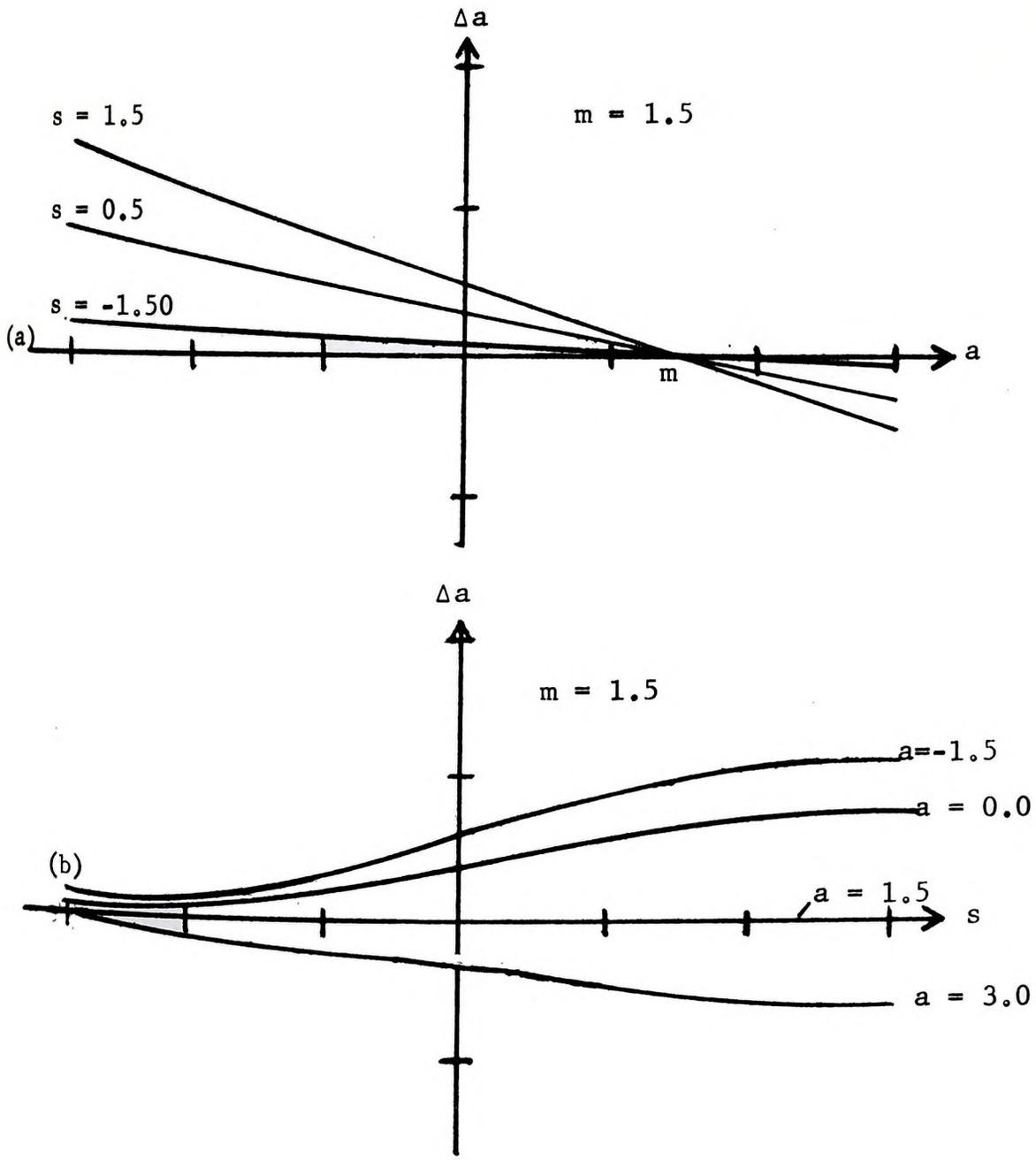
which is shown in Figure 9. For fixed source credibility this is the simple linear discrepancy model, and the general properties are much the same. If the receiver's attitude toward the source were infinitely negative, the source would be perfectly incredible and there would be no attitude change at any discrepancy.

An example of a model with boomerang is

$$\Delta a = \frac{s}{\sqrt{1+s^2}} \cdot \alpha\,(m-a) \qquad (18)$$

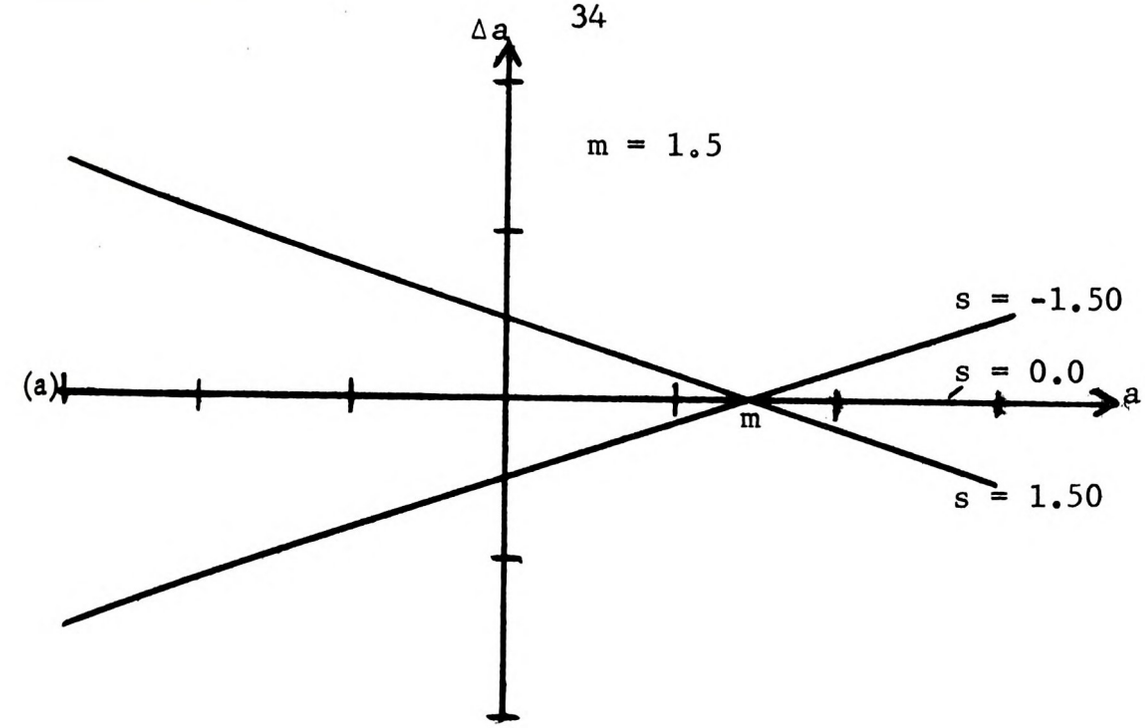
which is shown in Figure 10. Thus if the attitude toward the source were fixed at some moderately positive value, this would be the linear discrepancy model with movement toward the message. If $s = 0$, then there is no attitude change. If s is negative there is a boomerang away from the message. The size of the boomerang is proportional to the discrepancy.

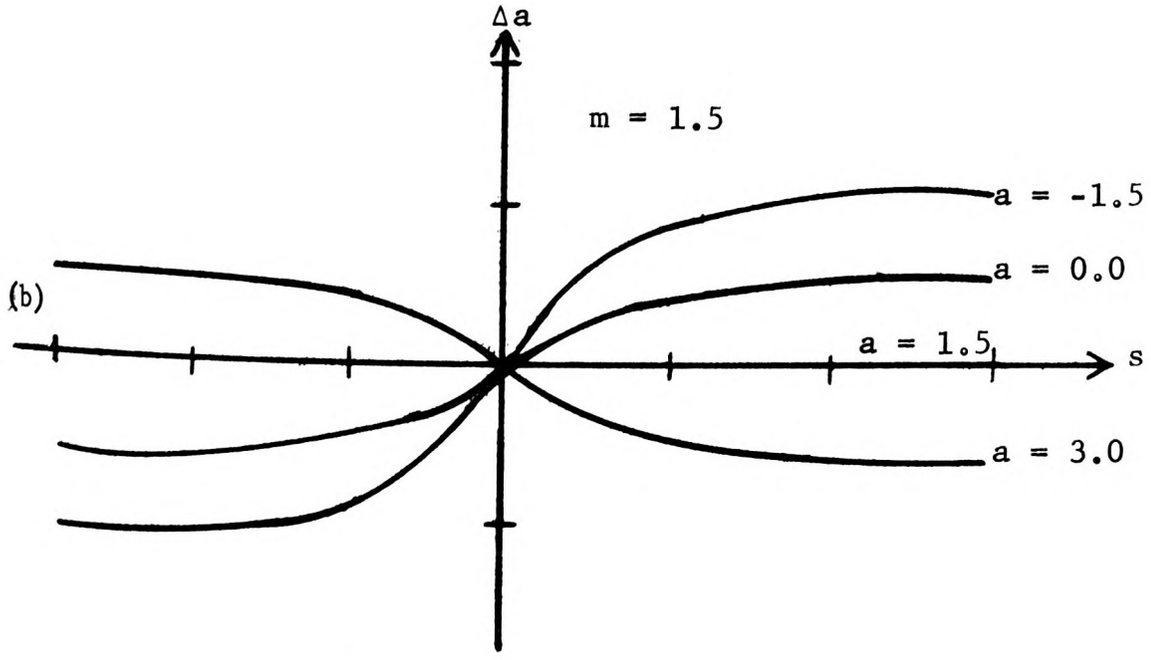
The linear discrepancy models with or without



$$\Delta a = \frac{e^s}{1 + e^s} \alpha \ (m-a), \ \alpha = 0.4$$

Figure 9. Attitude change as a function of pre-message attitude toward source and object for the linear discrepancy with no boomerang credibility model.





$$\Delta a = \frac{s}{\sqrt{1+s^2}} \alpha \ (m-a), \ \alpha = 0.4$$

Figure 10. Attitude change as a function of pre-message attitudes toward source and object for the linear discrepancy with boomerang credibility model.

boomerang effects can also be "adjusted" to account for polarity phenomena. These models would be:

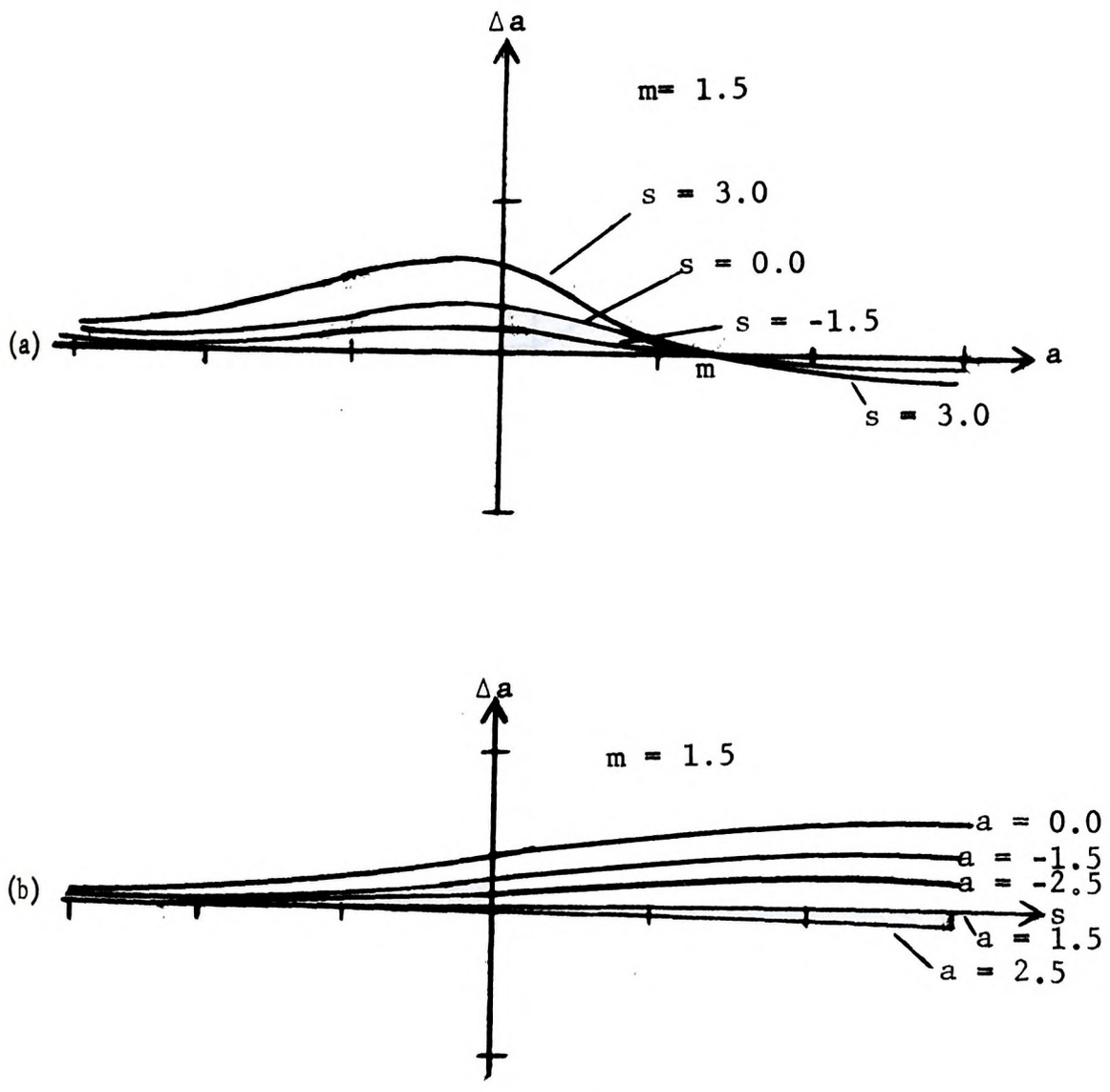
$$\Delta a = \frac{e^{s}}{1+e^{s}} \cdot \alpha \frac{(m-a)}{1+a^{2}} \qquad (19)$$

Which is graphed in Figure 11, and

$$\Delta a = \frac{s}{\sqrt{1+s^{2}}} \cdot \frac{\alpha(m-a)}{1+a^{2}} \qquad (20)$$

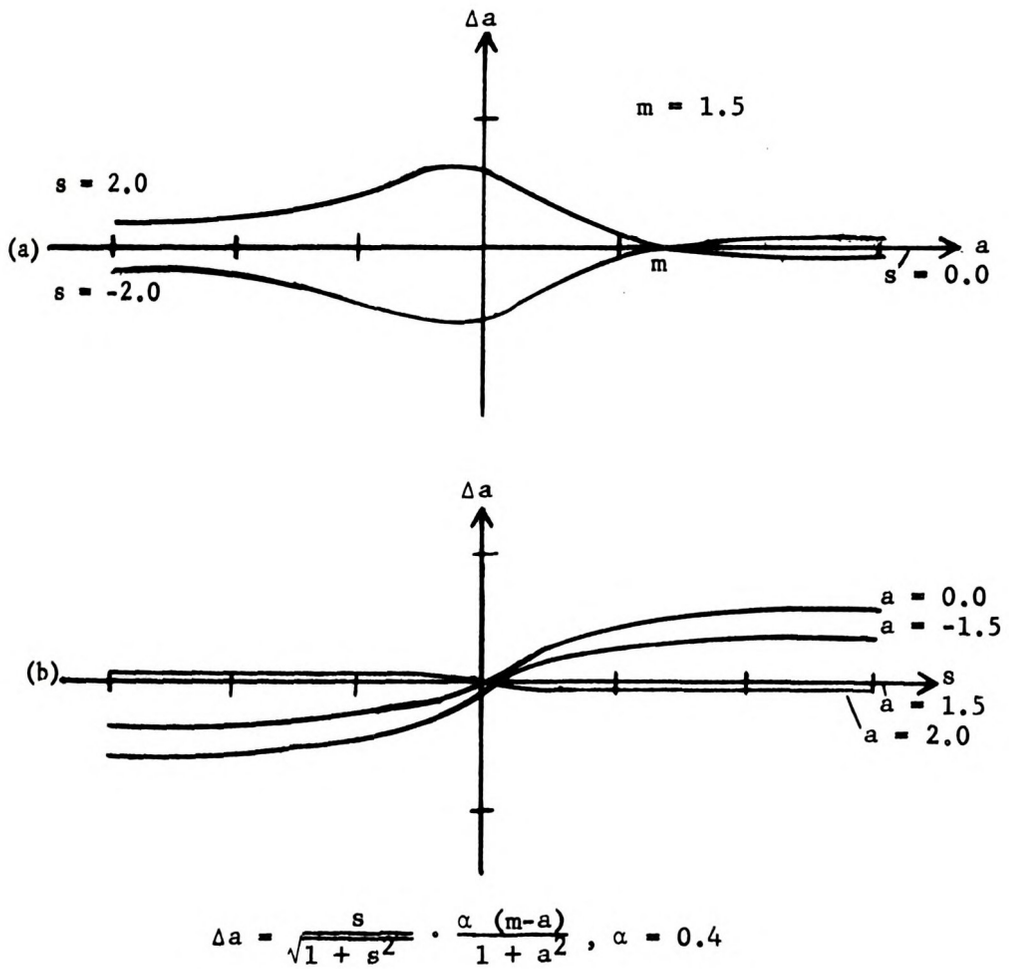
which is graphed in Figure 12.

Experimental studies have usually found no boomerang. (See Cohen, 1964 for a review of this literature). Boomerang, however, has been observed when the source is highly incredible (Cohen, 1962). The equivocality of these findings may be due to the nature of source "credibility." If, in the particular persuasion situation, credibility is equated to "expertness," then an incredible source would be regarded as an incompetent, the message would be ignored, and there would be no change. Where credibility corresponds to "trustworthiness," the receiver might project some devious intent into an incredible source and boomerang to a position opposite to that advocated by him. So, the persuasion context would determine the appropriate source effect.



$$\Delta a = \frac{e^{s}}{1 + e^{s}} \cdot \frac{\alpha\ (m-a)}{1 + a^{2}}\ ,\ \alpha = 0.4$$

Figure 11. Attitude change as a function of pre-message attitude toward source and object for the linear discrepancy model with no credibility boomerang and with polarity.



$$\Delta a = \frac{s}{\sqrt{1 + s^2}} \cdot \frac{\alpha\ (m-a)}{1 + a^2}\ ,\ \alpha = 0.4$$

Figure 12. Attitude change as a function of pre-message attitude toward source and object for the linear discrepancy model with boomerang credibility and with polarity.

Source as a Dynamic Variable

The primary objective of the communicator in the attitude change situation is, of course, to change the receiver's attitude about the object. But, in the process, does the receiver reevaluate his opinion of the source? The early investigations of attitude change and prestige suggestion make no reference to (or attempt to assess) any modification in the source's prestige resulting from his actions. Later, with the advent of balance and dissonance theory (see Chapter IV and V), change in attitude toward the source was considered in great detail. Indeed, change in attitude toward the source determined, or was a consequence of, attitude change.

Within the information processing framework, there exist no formal statements about source change. From the theory, one might propose the following extrapolation. The extent of source change depends upon (1) the receiver's attitude toward the object and (2) the position advocated by the source. For example, if the source advocates a position that is a stronger version of the receiver's, the message is "music to his ears" and his attitude toward the source will become more positive. That is, depending on the context, the source should sound "loyal," or "concerned," or "committed," or etc. When the source

advocates a weaker position in the same direction, the receiver might label the source as "wish-washy" or "disloyal," etc. and there would be a mild derogation of the source. In short, for $a<m<0$, the receiver perceives the source as declaring that the object is "not <u>that</u> bad;" and, for $0<m<a$, the object is "not <u>that</u> good." When the message is in a direction opposite to the receiver, the source would appear to be hostile and, therefore, would be strongly disparaged by the receiver.

These statements imply that

$$\Delta s > 0 \text{ if } \left\{ \begin{array}{l} m>a \text{ for } a>0 \text{ or } (m-a>0 \text{ and } a>0) \\ m<a \text{ for } a<0 \text{ or } (m-a<0 \text{ and } a<0) \end{array} \right\} \text{ or } a(m-a)>0$$

$$\Delta s < 0, \text{ otherwise}$$

Hence, in terms of sign, the following equation is fine.

$$\Delta s = \beta a\,(m-a),\quad 0<\beta<1 \tag{21}$$

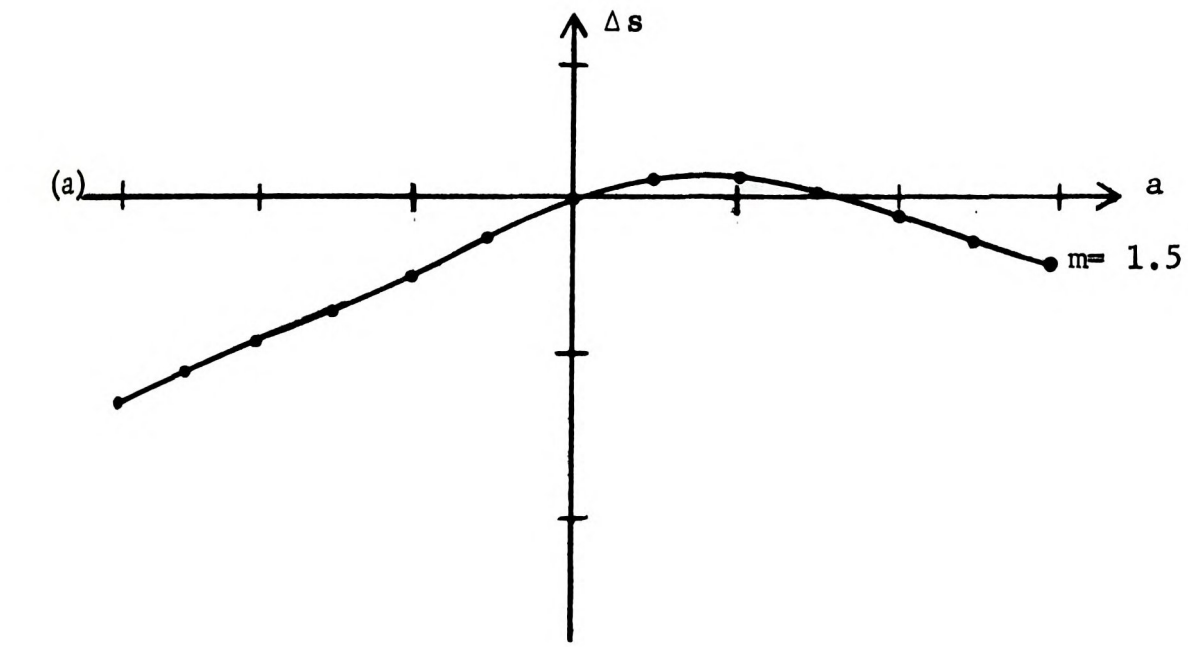
However in a difference equation, quadratic terms become pathological. Since the theory above specifies only the sign and not the magnitude of source change, modification by a positive multiplicative factor yields an equally plausible model. Thus, the quadratic could be "tamed" by some sort of simple damping function. For example,

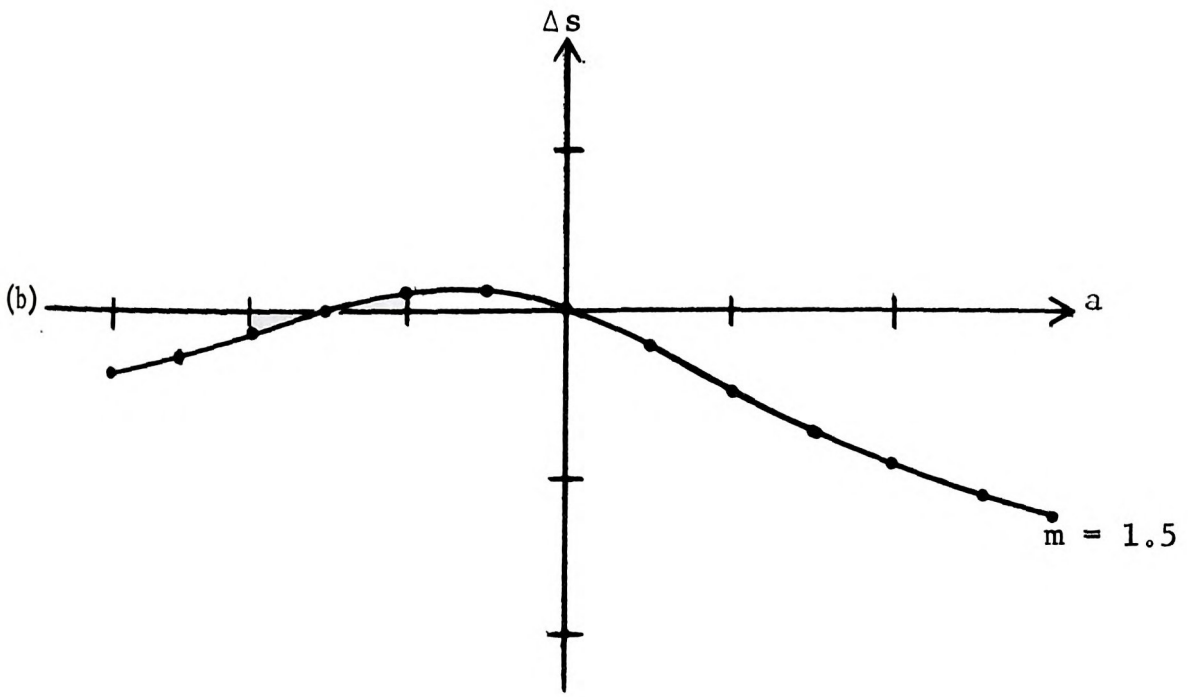
$$\Delta s = \beta \frac{a\,(m-a)}{\sqrt{1+a^2}} \tag{22}$$

would have the same sign as equation 21, have the same magnitude for "small" values of a; and yet be asymptotically linear. The graph of this model is shown in Figure 13.

The model has two interesting predictions. First, consider a political speaker. He is doomed to lose his opponents anyway, so the only people that he needs to consider are those on the same side. Thus he will maximize his impact (in terms of improving his image) by delivering a message more extreme than any of his adherents. He will of course, incur the enduring hatred of his opponents if he continues in this way.

Second, the greatest degree of source enhancement is from a receiver whose attitude toward the object is midway between neutrality and the message position. This is the point where the message is distinctly stronger than the receiver's attitude but, at the same time, is neither "old hat" ($m \leq a$) nor antagonistic ($m = -a$).





$$\Delta s = \frac{\beta a\ (m-a)}{\sqrt{1+a^2}}\ ,\ \beta = 0.3$$

Figure 13. Source change for the information processing model.

CHAPTER III

THE SOCIAL JUDGMENT APPROACH

Attitude Change

Sherif: Nonlinear Discrepancy Hypothesis

Many researchers have noted that the linear discrepancy model sometimes fails. An excellent summary of these findings is reported in Whittaker (1967). Over a variety of experimental conditions, extreme message discrepancy has yielded, in some cases, boomerang and, in others, negligible change toward the message.

Sherif, Sherif, and Nebergall (1965) proposed a theoretical scheme that accounts for these results. They assume that subjects endorse a range of alternative positions on an attitude issue, centered about a most acceptable position. Statements or messages introduced in the context of an attitude change paradigm either fall into an individual's region of acceptance (the endorsed alternative positions), the region of rejection (positions repudiated), or the region of noncommitment.

Messages in the region of acceptance are

assimilated and judged as factual and unbiased. Within this region, attitude change is proportional to the magnitude of the communication discrepancy and direction of the message. Persuasive messages in the region of rejection evoke a contrast reaction and are judged to be objectionable and propogandistic. In the region of rejection, such messages yield diminishing degrees of attitude change with increasing communication discrepancy. Highly divergent messages cause the receiver to become even more retrenched in his own stand or to change in a direction away from the message.

Figure 14 displays these assumptions in graph form. Thus, if we start upwards to attitudes more positive than the message, change will be toward the message, i.e. negative. The change will be greater and greater until theboundary of the latitude of acceptance is reached. At this point change is macimal (the function has a minimum). The amount of change, then decreases until the message is not longer assimilated. Past this point the message has a reverse effect, i.e. the subject boomerangs and attitude change is positive. If we proceed from the message toward attitudes more negative than the message, similar statements apply. However, below the message, assimilation means that attitude change will be positive while boomerang yields negative change.

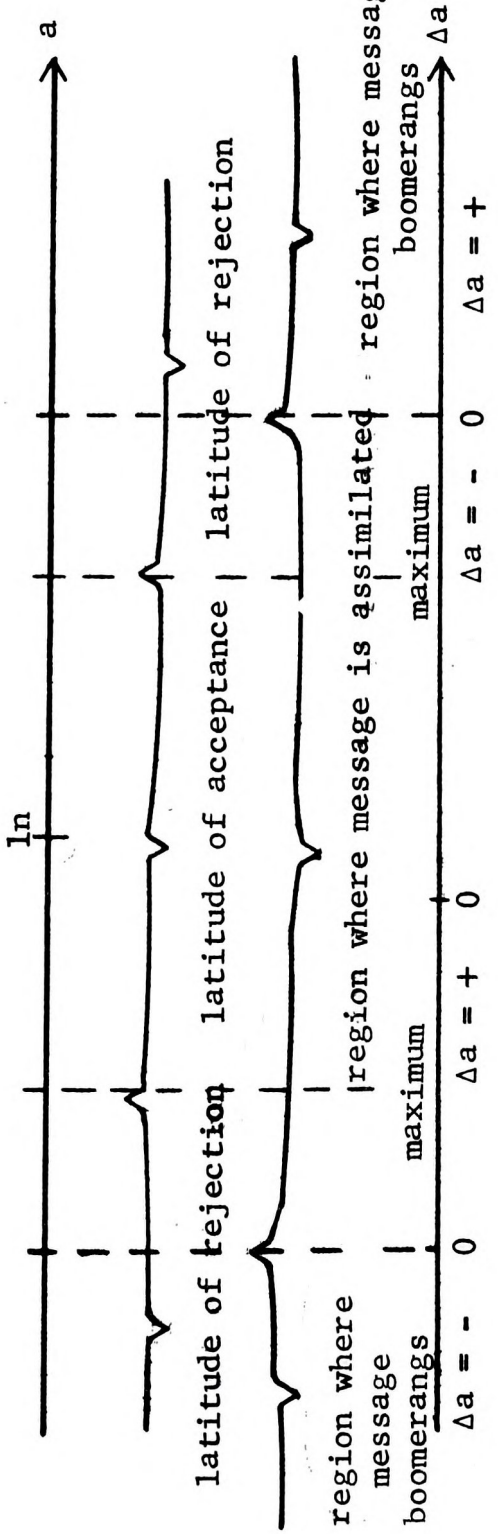


Figure 14. Graphic form of the social judgment assumptions for attitude change.

Thus the function Δa has three zeroes and four sign regions. The simplest such function is a cubic. A cubic would be symmetric about the message, but this is in fact assumed by Sherif. This cubic is given by

$$\Delta a = \left(\frac{\alpha}{1+\beta^2}\right) (a-m+\beta)\ (a-m)\ (a-m-\beta) \qquad (23)$$

which is displayed in factored form to show the derivation from the zeroes. A form which shows its relation to the linear discrepancy model is

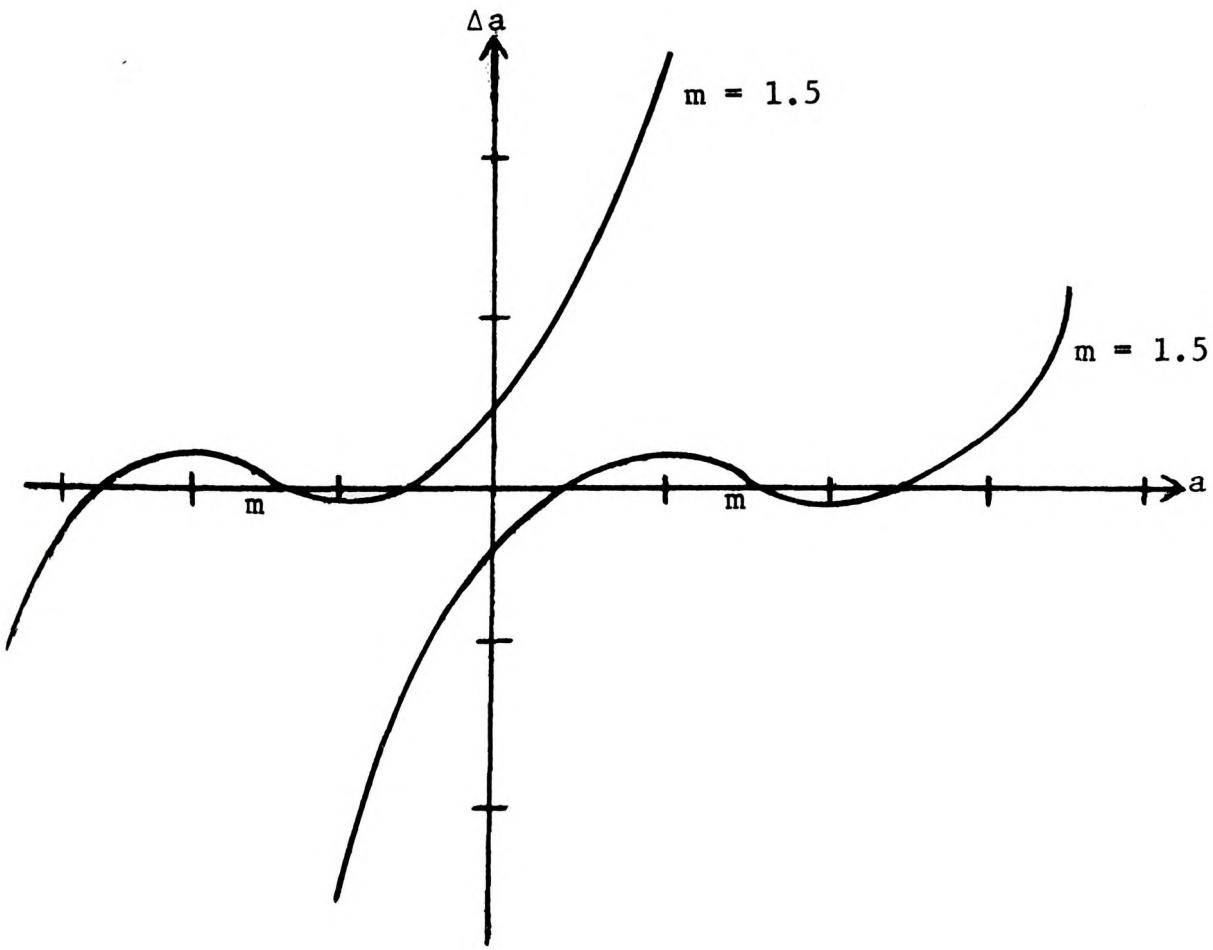
$$\Delta a = \frac{\beta^2 - (m-a)^2}{\beta^2 + 1} \cdot \alpha(m-a) \qquad (24)$$

where $0 < \alpha < 1$, $\beta \geq 0$.

The first term in this product can be regarded as a complex manipulation of the sign of the parameter α. The graph of the model is shown in Figure 15.

The parameter β specifies the width of the region of assimilation, i.e. the region where attitude change is in the direction of the message. The width of the latitude of acceptance is indirectly specified by β and can be directly obtained by computing the maximum and minimum of the cubic. The interval is from $m - \frac{1}{\sqrt{3}}\beta$ to $m + \frac{1}{\sqrt{3}}\beta$ and has length $\frac{2}{\sqrt{3}}\beta$.

This model implicitly assumes that (1) the size



$$\Delta a = \frac{\beta^2 - (m-a)^2}{\beta^2 + 1} \alpha \ (m-a), \ \beta = 1, \ \alpha = 0.4$$

Figure 15. Attitude change as a function of pre-message attitude toward the object for the Sherif with cubic boomerang model.

of the region of indifference is "zero" and (2) the width of the latitude of acceptance is the same for everyone. Assumption 1 may be untenable in certain experimental situations. Sherif has found that, while the latitude of acceptance is constant across the range of attitudes toward the object, the width of the region where the subject neither marks accept nor marks reject (the latitude of noncommitment) shrinks with polarity of attitude. This is most marked if the object has personal importance to the individual.

If the latitude of noncomittment is regarded as a region of mild rejection and hence added to the latitude of rejection, the assumptions of the model are in accord with Sherif's findings.

Since the function for attitude change is symmetrical about the message value, m, the model could be expressed in discrepancy units rather than attitude units. The origin would now be at the message value, and not at $a = 0$. Defining $d \equiv m - a$ and substituting into Equation 24, the new expression is

$$\Delta a = \frac{\beta^2 - d^2}{\beta^2 + 1} \cdot \alpha \; d \qquad (25)$$

where $d > 0$ implies the message is more favorable than the attitude and $d < 0$, otherwise. Its graph is presented

in Figure 16.

The two limiting cases of the model occur when the width of the region of acceptance is either zero or infinite. As $\beta \rightarrow +\infty$, $\Delta a \rightarrow \alpha d$. That is, the Sherif model reduces to the linear discrepancy model. Since the region of acceptance is infinite in width, any message must be within the region and, hence, attitude change is proportional to message discrepancy. Suppose the region of rejection is infinitely wide. Then, $\beta \rightarrow 0$ and $\Delta a \rightarrow -\alpha d^3$. Every message evokes a boomerang in attitude with magnitude proportional to the cube of discrepancy.

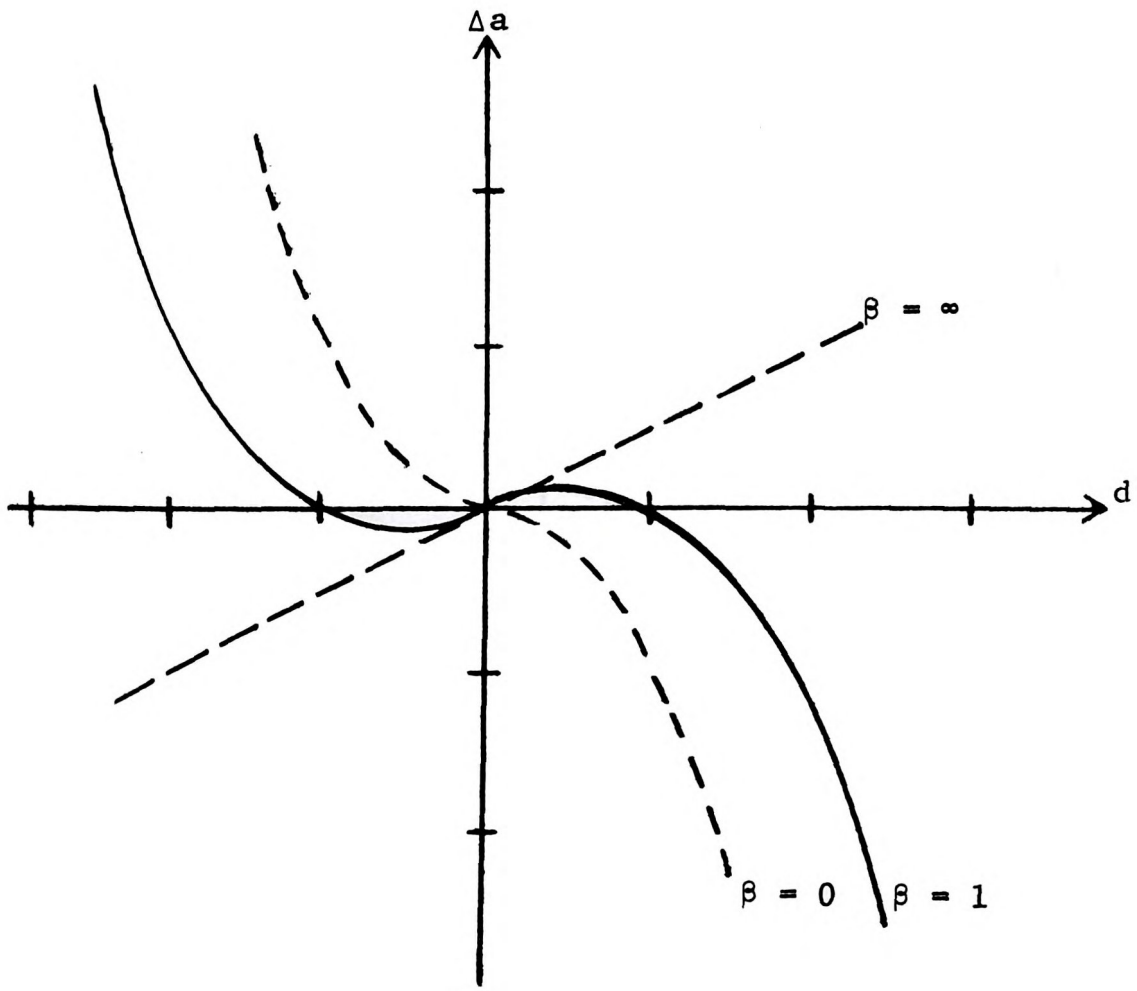
Variations on the Sherif Model

The cubic growth rate of boomerang in the previous model might seem unrealistic. The boomerang can be tamed by modifying Equation 25 to read

$$\Delta a = \frac{\beta^2 - d^2}{\beta^2 + d^2} \cdot \alpha d \qquad (26)$$

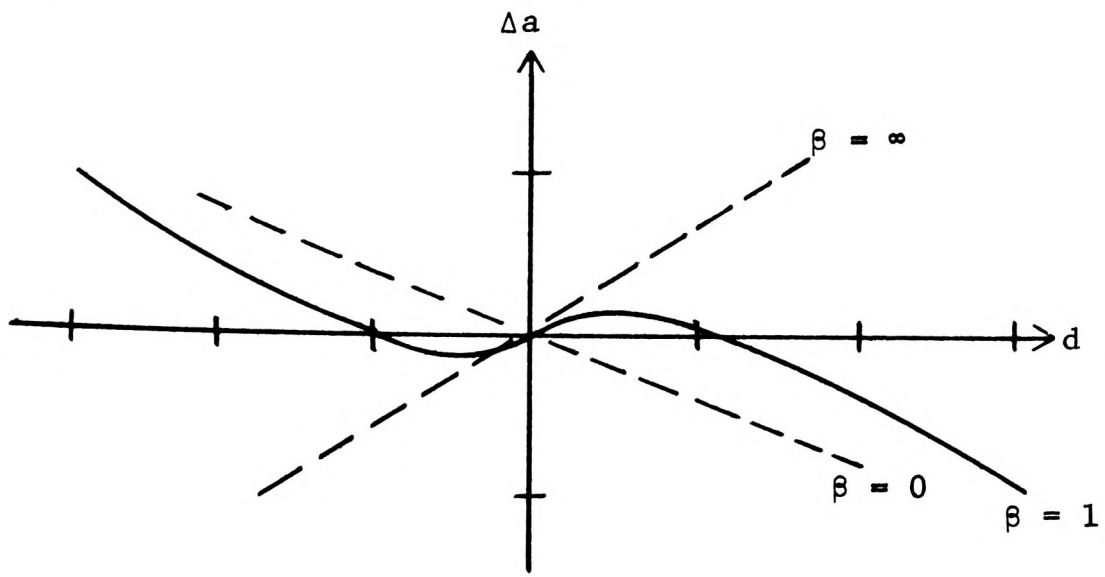
The essential behavior of the original model is intact, but boomerang is, asymptotically, linearly related to discrepancy (see Figure 17).

As before, when $\beta \rightarrow \infty$, $\Delta a \rightarrow \alpha d$. But, because of the modification, as $\beta \rightarrow 0$, $\Delta a \rightarrow -\alpha d$. That is, with an infinitely wide region of rejection, boomerang is also



$$\Delta a = \frac{\beta^2 - d^2}{\beta^2 + 1} \alpha d, \quad \alpha = 0.4$$

Figure 16. Attitude change as a function of message discrepancy for the Sherif with cubic boomerang model.



$$\Delta a = \frac{\beta^2 - d^2}{\beta^2 + d^2} \alpha d, \quad \alpha = 0.4$$

Figure 17. Attitude change as a function of message discrepancy for the Sherif with linear boomerang model.

proportional to message discrepancy.

This last model still assumes that boomerang increases without bound. Instead, boomerang might only increase up to a point and then level off for larger discrepancies. For example,

$$\Delta a = \frac{\beta^2 - d^2}{\beta^2+1+\gamma|d|^3} \cdot \alpha d \qquad (27)$$

This model is graphed in Figure 18.

The limiting cases for the region of acceptance are not surprising. With an infinitely wide latitude of acceptance, $\beta \to +\infty$, $\Delta a \to \alpha d$. With pure boomerang (infinitely wide region of rejection) $\beta \to 0$ and $\Delta a \to -\frac{\alpha}{\gamma}$ for $d > 0$ and $+\frac{\alpha}{\gamma}$ for $d < 0$.

Alternately, at some extreme discrepancy, the receiver might simply reject the message and undergo no attitude change. For example,

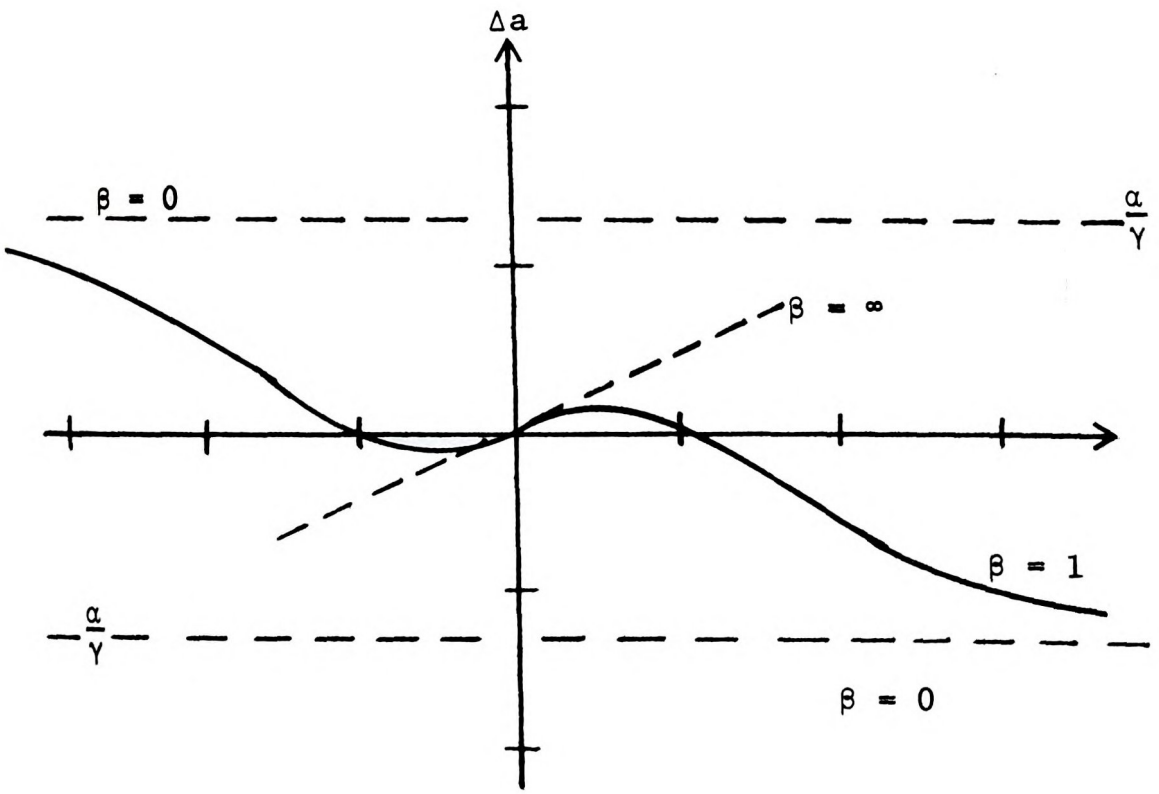
$$\Delta a = \frac{\beta^2 - d^2}{\beta^2+1+d^4} \cdot \alpha d \qquad (28)$$

Figure 19 presents the graph for this model.

As $\beta \to \infty$, $\Delta a \to \alpha d$ or the linear discrepancy model. As $\beta \to 0$,

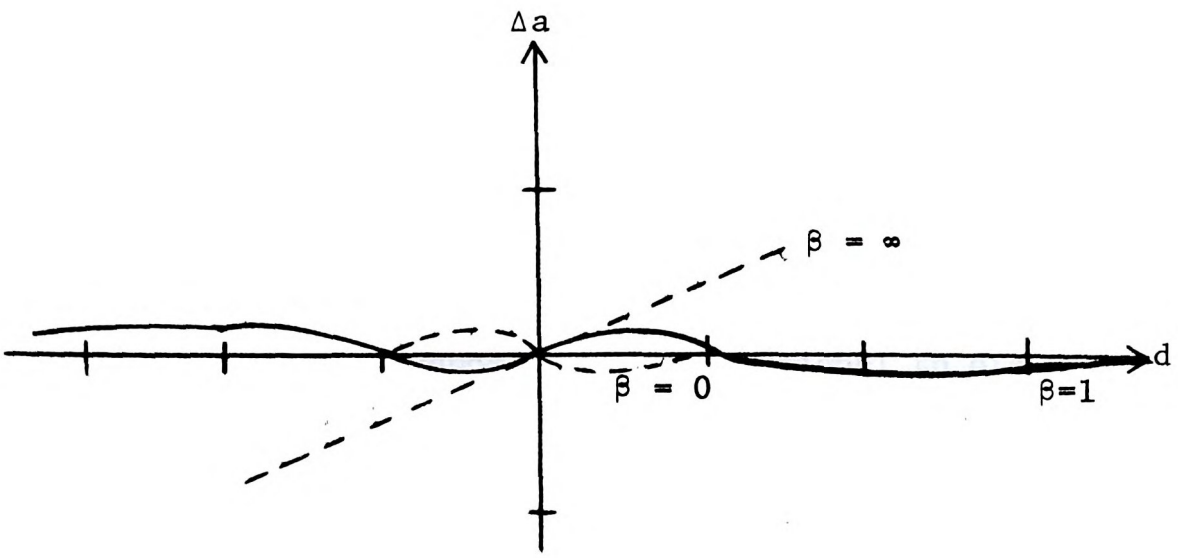
$$\Delta a \to \frac{-\alpha d^3}{1+d^4} .$$

Thus boomerang first increases with discrepancy, then



$$\Delta a = \frac{\beta^2 - d^2}{\beta^2 + 1 + \gamma |d|^3} \quad \alpha d,\ \alpha = 0.4$$

Figure 18. Attitude change as a function of discrepancy for the Sherif with asymptotically constant boomerang model.



$$\Delta a = \frac{\beta^2 + d^2}{\beta^2 + 1 + d^4} \alpha d, \ ^{\alpha} = 0.4$$

Figure 19. Attitude change as a function of message discrepancy for the Sherif with asymptotically no boomerang model.

asymptotically decreases to zero.

Finally, there may exist some attitude situation in which boomerang is highly unlikely, yet the notion of latitudes of acceptance and rejection are still appropriate. Within the Sherif framework, these assumptions might take the form

$$\Delta a = \frac{\lambda^2}{\lambda^2+d^2} \cdot \alpha d \qquad (29)$$

where $d = \lambda$ is the boundary of the latitude of acceptance ($\beta = +\infty$ in this model). This Sherif with-no-boomerang model is graphed in Figure 20. Inside the latitude of acceptance, messages induce change proportional to discrepancy. In the region of rejection, attitude change is toward the position advocated by the message, but is a decreasing function of discrepancy and asymptotically goes to zero.

As $\lambda \to \infty$, $\Delta a \to \alpha d$. That is, this model reduces to the linear discrepancy model if the width of the latitude of acceptance is unbounded. When the region of rejection is infinite, every message is ineffectual, or, $\Delta a \to 0$ as $\lambda \to 0$.

For the entire class of Sherif models, the correlation between initial attitude and attitude change is contingent on both the distribution of initial attitudes

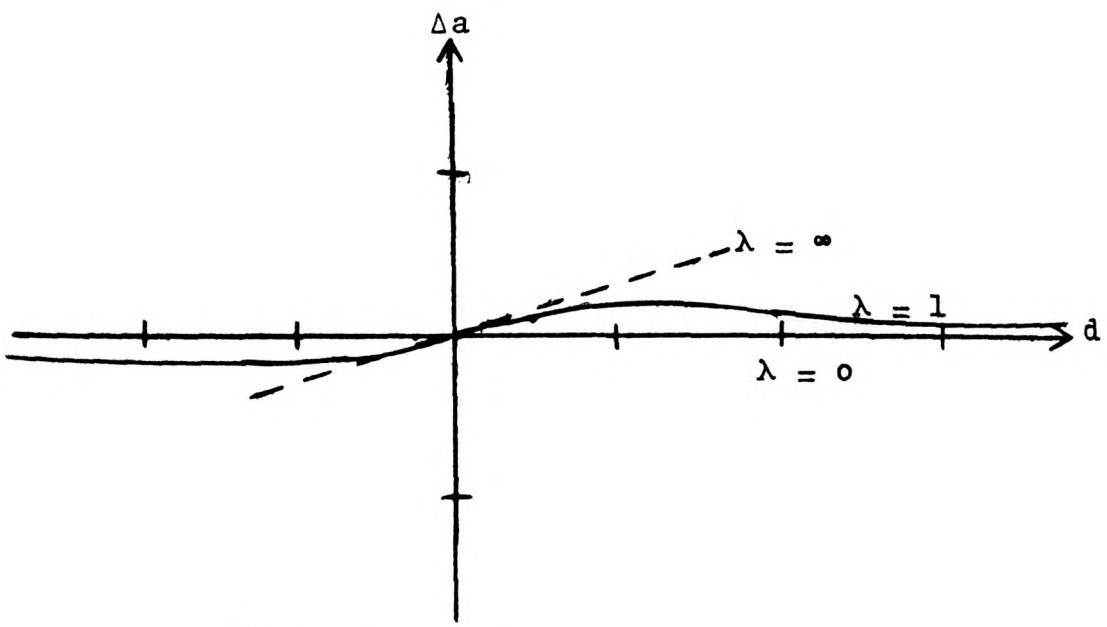


Figure 20. Attitude change as a function of message discrepancy for the Sherif with no boomerang model.

and the width of the latitude of acceptance. Given a broad acceptance region, the Sherif models reduce to the linear discrepancy model and the correlation would be highly negative. If the latitude of acceptance is relatively narrow and most individuals display no change or boomerang, the correlation would be highly positive.

An analysis of overall mean attitude change has the same difficulties as the linear discrepancy model. The analysis would be further obscured by differential latitude of acceptance widths, message values, and distributions of initial attitude.

Source Credibility

The key concepts in the social-judgment approach to attitude change are the latitudes of acceptance and rejection. These regions not only identify the conditions under which the message will be maximally effective or result in boomerang, but also have enabled Sherif to explain why attitude change might be either linear or curvilinear with discrepancy. When the latitude of acceptance is relatively broad, even an "extreme" message falls within it, so the observed relationship between attitude change and discrepancy will necessarily be linear. With a more narrow latitude of acceptance, the observed data

will manifest a curvilinear relationship.

While the exact numerical size of the latitude of acceptance cannot be predicted, it is not arbitrary. Sherif postulates two variables which restrict the relative width of these latitudes. They are ego-involvement and source credibility. Since ego-involvement was not manipulated or measured in the present research, its implications will not be pursued here.

Sherif (1967) concurs with previous theorists who argue that the credibility of the source magnifies the degree of attitude change. He derives this prediction from a different base. Credible sources have a wider latitude of acceptance, and thus, a more narrow latitude of rejection. The converse is true for incredible sources. Thus for Sherif,credibility is a positive function of the subject's attitude toward the source and the latitude of acceptance is a positive function of credibility. Since the latitude of acceptance is represented by β in these models, these assumptions could be expressed in a form such as

$$\beta = \rho e^{s} \qquad (30)$$

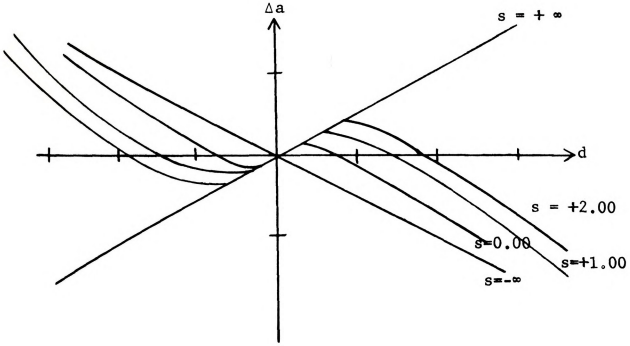
where ρ is a positive constant determined entirely by the choice of unit for s. This yields a perfectly incredible source with $\beta = 0$ and a perfectly credible source with

$\beta = +\infty$ as desired.

With these assumptions, the parametric graphs of Δa as a function of a and s are simply the graphs presented before with varying values of β. This is illustrated in Figure 21 for the Sherif model with boomerang an asymptotically linear function of discrepancy.

Source Change

Social judgment theory does not directly address the issue of change in attitude toward the source. It does state that the receiver's reaction to the source is associated with the discrepancy of the message. These sources whose messages fall into the latitude of acceptance are characterized as fair and impartial. When the message lies in the latitude of rejection, the source is labeled as biased. Thus, it seems reasonable that if a source's message is in the region of acceptance, the receiver's attitude toward the source would shift upward. If the message is rejected, the source would be derogated. Within the latitude of acceptance, the degree of enhancement would be inversely related to message discrepancy. That is, the more consonant the message, the more positive his evaluation. But, in the region of rejection, a more discrepant message would cause greater disparagement of the



$$\Delta s = \frac{\beta^2 - d^2}{\beta^2 + d^2} \alpha d, \quad \beta = \rho e^s, \quad \rho = 0.5$$

Figure 21. Attitude change as a function of message discrepancy and attitude toward the source for the Sherif model with asymptotically linear source disparagement.

source.

Thus,

$$\Delta s = \begin{cases} +, & \text{if } \lambda^2 - d^2 > 0 \\ 0, & \text{if } \lambda^2 - d^2 = 0 \\ -, & \text{if } \lambda^2 - d^2 < 0 \end{cases}$$

where $[-\lambda, +\lambda]$ is the region of acceptance if change is plotted as a function of discrepancy.

Figure 22 shows the relationship between attitude change and source change for these models. In the region where the message is rejected but still assimilated, the source has his desired impact but at the cost of his image. As with attitude change, the exact functional form of the equation for source change depends on the receiver's response to increasing message discrepancy. As discrepancy goes to $\pm \infty$, source derogation might be unbounded, level off, or damp to zero.

An example of a model with unbounded source derogation is

$$\Delta s = \gamma \frac{\lambda^2 - d^2}{\lambda^2 + 1} \qquad (31)$$

which is presented graphically in Figure 23.

A less extreme model with unbounded source derogation is

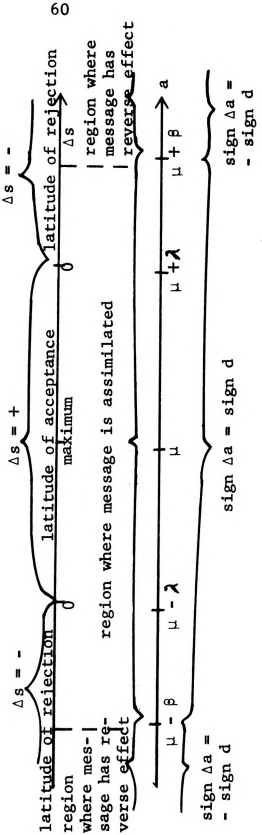
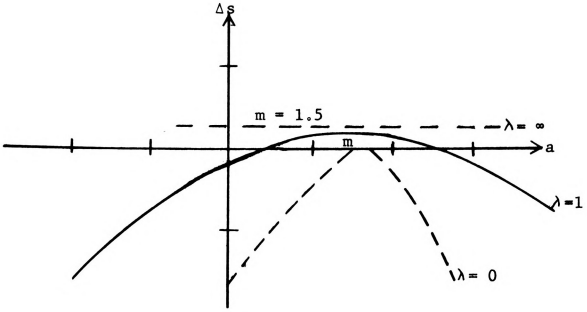


Figure 22. Graphic form of the social judgment assumptions for source change, and its relation to attitude change.



$$\Delta s = \gamma \frac{\lambda^2 - d^2}{\lambda^2 + 1}, \quad \gamma = 0.3$$

Figure 23. Source change as a function of pre-message attitude toward the object for the Sherif with nonlinear disparagement model.

$$\Delta s = \gamma \frac{\lambda^2 - d^2}{\lambda^2 + |d|} \qquad (32)$$

which is graphed in Figure 24.

An example of a model where source derogation as a function of discrepancy levels off is

$$\Delta s = \gamma \frac{\lambda^2 - d^2}{\lambda^2 + d^2} \qquad (33)$$

which is presented in Figure 25.

An example of a model in which source derogation is asymptotically zero is

$$\Delta s = \gamma \frac{\lambda^2 - d^2}{\lambda^2 + 1 + d^4} \qquad (34)$$

which is presented in Figure 26.

Source Credibility and Source Change

If source credibility affects the latitude of acceptance, then the λ in the previous equations for source change is not a constant. On the contrary, λ is a function of the attitude of the receiver toward the source. In particular, the assumption made before for β (Equation 30) would be rewritten

$$\lambda = \delta e^{s} \qquad (35)$$

where δ is less than ρ to the extent that β is less than λ.

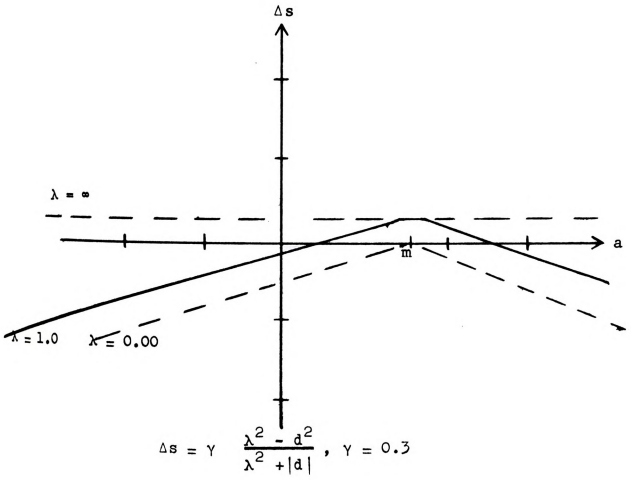
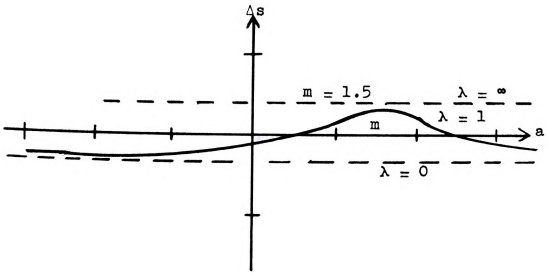
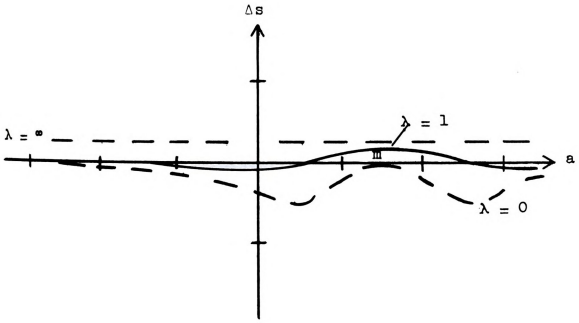


Figure 24. Source change as a function of attitude toward the object for the Sherif model with asymptotically linear source disparagement.



$$\Delta s = \gamma \frac{\lambda^2 - d^2}{\lambda^2 + d^2}, \quad \gamma = 0.3$$

Figure 25. Source change as a function of pre-message attitude toward the object for the Sherif with asymptotically constant disparagement model.



$$\Delta s = \gamma \frac{\lambda^2 - a^2}{\lambda^2 + 1 + a^4}, \quad \gamma = 0.3$$

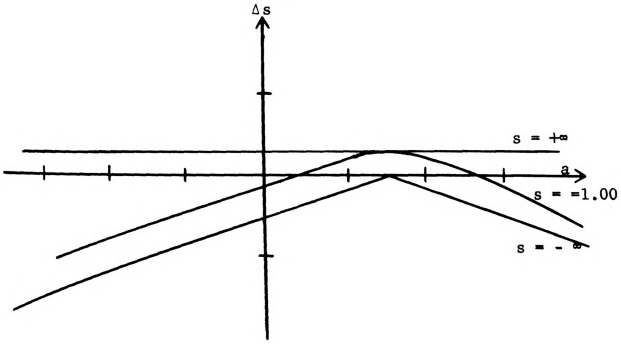
Figure 26. Source change as a function of pre-message attitude for the Sherif model with asymptotically no source disparagement.

The resulting parametric graphs of the change in attitude toward the source as a function of a and s are presented in Figure 27.

Source Change and Attitude Change

This chapter has presented five different equations for attitude change and four different equations for source change. Each equation is doubled by the possibility of assuming that source credibility is a function of attitude toward the source (or that the latitude of acceptance depends on source credibility).

Each model requires an equation for source change and an equation for attitude change, i.e. a coordination of the two. The only determined coordination is that either both or neither will make the source credibility assumption. Furthermore, just as Sherif gives no explicit statement of source change, he gives no explicit statement relevant to the coordination of the two. Moreover, there is no apparent implicit basis for a coordination. Thus any of the 40 remaining combinations appear plausible.



$$\Delta s = \gamma \frac{\lambda^2 - d^2}{\lambda^2 + |d|}, \quad \lambda = \rho e^s, \quad \rho = 0.5, \quad \gamma = 0.3$$

Figure 27. Source change as a function of pre-message attitude toward the object and source for the Sherif model with asymptotically linear source disparagement.

CHAPTER IV

AFFECTIVE CONSISTENCY THEORIES: CONGRUITY AND BALANCE

There is a completely different class of theories which emphasize the "discomfort" produced by a discrepant message. Indeed these theories assume that it is this discomfort which motivates attitude change. The basic idea is that if the subject's affect toward the source and object is not "consistent" with the message, then one or both of these attitudes will change. This class of theories includes balance theory (Heider, 1946) and congruity theory (Osgood and Tonnenbaum, 1955).

The history of affective consistency theories is well-summarized in Brown (1962) and Zajonc (1960). They also provide an excellent overview and comparison of formulations within this class. Briefly, the current consistency models of attitude change trace their origins to theories of group dynamics rather than attitude change *per se*. Brown proposes that the principles of consistency theory can be attributed to the even earlier work on

psychological conflict (Miller, 1944; Lewin, 1935; Freud, 1909). The first statement of the principles of balance was by Heider (1946). These principles were extended and refined by Newcomb (1953), Abelson and Rosenberg (1958), Cartwright and Harary (1956), Feather (1967), and Phillips (1967).

Each theory begins with the structural relations that exist between cognitive elements (attitudes). Elements are linked or related through affect signs--positive or negative. Some patterns of affective links among the elements are consistent or "balanced" and are naturally stable. Other patterns are not consistent or "unbalanced" and hence are not in a state of equilibrium. Such disturbances within the system or an alternation in links generate forces that eventually return the system to equilibrium.

For the passive communication paradigm the most sophisticated version of affective consistency theory is Osgood and Tannenbaum's (1955) congruity theory. The weaker and more general forms will be discussed under the heading "Balance Theory" at the end of Chapter XII.

Congruity Theory

The principles of congruity theory were expressly conceived for the communications paradigm by Osgood and Tannenbaum (1955). The principle difference in their formulation is their characterization of the message. Rather than scale the message to give it a value comparable to the receiver's attitude, they characterized messages as associative assertions, dissociative assertions, and an unnamed residual category. Thus a message with positive value evokes a positive association or bond between the source and object. A negative message evokes a dissociative or negative bond between source and object. Neutral messages (m = "0") are not discussed.

If the message is positive, the attitudes toward source and object are semi congruous if they have the same sign. They are completely congruous only if the affective values are exactly equal. That is, if two cognitive elements are associated, they should be affectively compatible. If they are not compatible, the association produces a "pressure to congruity" which must be reduced. The pressure is reduced by affective change. Thus the critical discrepancy for congruity theory is the difference between the attitudes toward source and object rather than the difference between attitude and message value.

This discrepancy is reduced when the attitude toward the object shifts toward the attitude toward the source (even if the shift is negative) and vice versa.

Congruity theory was stated in three concrete forms. First an explicit mathematical model was presented that assumed incongruity was completely resolved. Confronted with data collected by Tannenbaum (1953), the model was modified in several ways. The resulting theory was not mathematically stated but was implicit in their interpretation of the data. With only vague reference to a "congruity learning function" (Osgood, Suci, and Tannenbaum, 1957), the predicted change was reduced by a factor of five. From the fact that congruity was not completely resolved, they derived the assumption that the pressure of incongruity is less than the discrepancy between attitudes toward source and object (the "correction for incredulity"). From the fact that source change was less than attitude change, they concluded that source change and attitude change are not symmetric (the "assertion constant"). In addition to this implicitly stated model, they had two empirically derived "correction formulas" which they believed to embody the theoretical modifications stated verbally. These empirical formulas are not consistent with the theoretical modifications.

Preview

In each of the congruity theory models to be developed below, the general pattern of derivation is identical and corresponds to the common core of general theoretical assumptions. First, the presentation of the message is assumed to produce a certain "pressure of incongruity." The first stage in model construction is to calculate that pressure P from the assumptions to be used in that model. Second, the theory assumes that all the pressure must be relieved, and it must be relieved by source and attitude change. This is represented in the model construction by the equation.

$$\text{pressure relieved} = |\Delta a| + |\Delta s| = P$$

Since the sum of attitude and source change is thus known, the two are individually given once any other equation in the two is known. In each case, the natural equation is given by the Osgood and Tannenbaum assumptions concerning the relative resistance of source and object attitudes to change. That is the assumptions generate an expression for the ratio $|\Delta s|/|\Delta a|$. The proportions of pressure relieved by source change and attitude change are then derived and the calculation of the model equations follows immediately.

In this chapter, the modified version of congruity

theory is translated into a family of related models. For the positive message, the first model developed in the original one-step equilibrium model. Here the assumptions are that the pressure of incongruity equals the discrepancy between source and object attitudes, i.e.

$$P = |s-a|$$

and that resistance to change is proportional to polarity, i.e.

$$\frac{|s|}{|a|} = \frac{1/|s|}{1/|a|}$$

In the next model it is assumed that the discrepancy between source and object produces incredulity. Two plausible alternative assumptions about the amount of incredulity are given. For each, the amount of incredulity is calculated and the resulting or effective pressure of incongruity is then given by

$$P = \text{discrepancy} - \text{incredulity}.$$

The derivation is then completed with the original polarity assumptions for the ratio of $|\Delta s|$ to $|\Delta a|$. This derivation accomplishes what Osgood and Tannenbaum attempted to do with their "correction for incredulity." However, it is noted that their correction is actually inconsistent with their primary assumptions.

Next, a model was derived in which the incredulity

of incongruity and hence neither source change nor attitude change.

Finally, it is noted that the polarity assumption is not a primary but a technical assumption of congruity theory. As an alternative, the assumption that the relative resistance to change is a constant is offered. The resulting models are linear and the implications of this for an equilibrium analysis are discussed. The general linear model with incredulity and source-object asymmetry is also presented.

The Explicit Congruity Model

The original one-step equilibrium model for the positive message will now be derived in four steps. First, the pressure of incongruity is calculated. Second, the identity relating pressure to total affective change is stated. Third, the relative size of Δs and Δa are determined. Fourth, the proportion of pressure relieved by each affective change is computed and the actual change equations follow immediately.

Osgood and Tannenbaum first assumed that the pressure of incongruity was exactly equal to the discrepancy between source and object:

$$P = |a-s| \qquad (36)$$

They then assumed that the pressure relieved by an affective change is equal to the size of the change, i.e. the pressure relieved by attitude change is $|\Delta a|$ and the pressure relieved by source change is $|\Delta s|$. The total pressure relieved is

$$|\Delta a| + |\Delta s| = \text{pressure relieved.}$$

If all pressure must be relieved in the situation, then

$$P = |\Delta a| + |\Delta s| \qquad (37)$$

They then assumed that attitude change and source change are symmetric and that the relative change is inversely proportional to the intensity of the attitude (polarity). Hence,

$$\frac{|\Delta s|}{|\Delta a|} = \frac{1/|s|}{1/|a|} = \frac{|a|}{|s|} \qquad (38)$$

Let p be the proportion of the total pressure of incongruity relieved by attitude change. Then 1-p is the proportion relieved by source change. That is,

$$p \cdot P = |\Delta a| \text{ and } (1-p) \cdot P = |\Delta s| \qquad (39)$$

$$|\Delta a| + |\Delta s| = p \cdot P + (1-p) \cdot P = P \qquad (40)$$

Dividing Equation 39 by $|\Delta a|$ and substituting from 39, we have

$$1 + \frac{|\Delta s|}{|\Delta a|} = \frac{P}{|\Delta a|} = \frac{P}{pP} = \frac{1}{p}$$

When we substitute from Equation 38, we have

$$1 + \frac{|a|}{|s|} = \frac{1}{p}$$

or

$$p = \frac{1}{1 + |a|/|s|} = \frac{|s|}{|s| + |a|} \qquad (41)$$

and

$$1 - p = \frac{|a|}{|s| + |a|} \qquad (42)$$

From these equations, the model follows immediately:

$$\Delta a = \frac{|s|}{|s| + |a|} (s-a) \qquad (43)$$

$$\Delta s = \frac{|a|}{|a| + |s|} (a-s) \qquad (44)$$

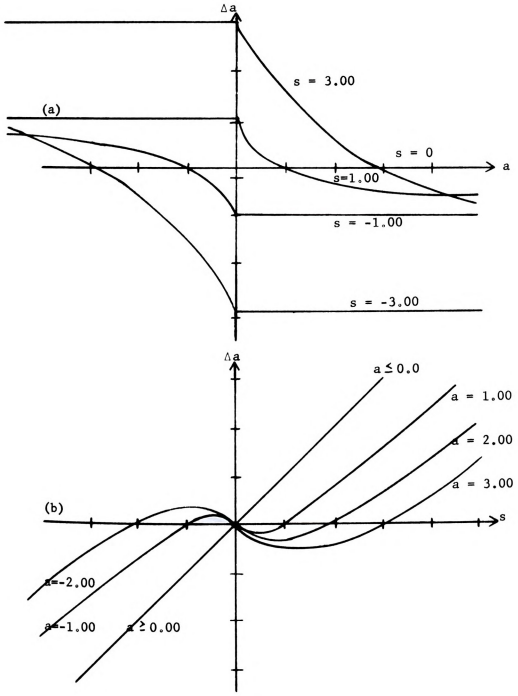
This model is presented in Figures 28 and 29.

The post message attitude toward the object is

$$\begin{aligned} a' &= a + \Delta a \\ &= a + \frac{|s|}{|a| + |s|} (s-a) \\ &= a - \frac{|s|}{|a| + |s|} a + \frac{|s|}{|a| + |s|} s \\ &= \left(1 - \frac{|s|}{|a| + |s|}\right) a + \frac{|s|}{|a| + |s|} s \\ &= \frac{|a|}{|a| + |s|} a + \frac{|s|}{|a| + |s|} s \end{aligned}$$

or

$$a' = (1-p)\ a + (p)\ s \qquad (45)$$



$$\Delta a = \frac{|s|}{|a|+|s|} \quad (s-a)$$

Figure 28. Attitude change as a function of attitude source and object for the original congruity model (positive assertion).

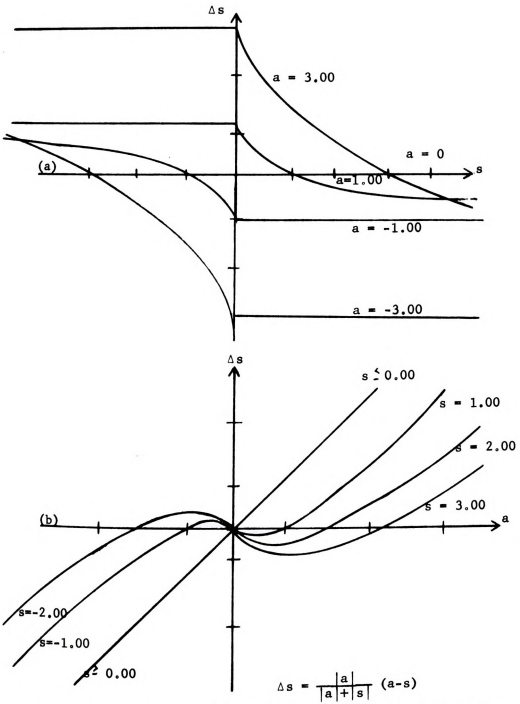


Figure 29. Source change as a function of attitude toward source and object for the original congruity model (positive assertion).

Similarly, the post message attitude toward source is

$$s' = (1-p)\ a + (p)\ s \qquad (46)$$

Thus the post message attitudes are equal and completely congruous. Equilibrium has been established. These final attitudes toward source and object are weighted averages of initial attitudes. The weights, though, are not constants but are themselves functions of source and object attitude.

Incredulity

The original formulation produces a complete convergence to congruity in one step. This doesn't happen very often, so Osgood and Tannenbaum modified the theory. The key assumption in their second formulation is that pressure of incongruity will be less than source-object discrepancy by the extent of "incredulity" elicited by that discrepancy. If we assume that incredulity is directly proportional to discrepancy, we have

$$\text{Incredulity} = \alpha\ |a-s| \qquad (47)$$

and hence

$$P = |a-s| - \text{incredulity} = (1-\alpha)\ |a-s| \qquad (48)$$

If there is no incredulity, α would be 0 and Equation 48 would reduce to Equation 36.

After an exactly parallel derivation, the new model is

$$\Delta a = (1-\alpha) \cdot \frac{|s|}{|s| + |a|} (s-a) \qquad (49)$$

$$\Delta s = (1-\alpha) \frac{|a|}{|a| + |s|} (a-s) \qquad (50)$$

These equations are identical to Equations 43 and 44 except that they have been multiplied by the fraction $1-\alpha$. Thus this new model assumes that a and s move $1-\alpha$ of the distance to the equilibrium values of the previous model. Although all the pressure of incongruity is relieved, a single message does not produce perfect congruity.

This model, with $\alpha = 4/5$, is mathematically equal to the model assumed by Osgood and Tannenbaum when they divided all their predicted change scores by 5. However it is obtained here without recourse to an external and otherwise unmentioned "congruity learning principle" (Osgood, Suci, and Tannenbaum, 1957).

To the contrary, this model <u>generates</u> a developmental process that is similar to learning. Thus if the positive message were repeated, or if a series of positive messages forced congruity, then the ultimate equilibrium values would <u>not</u> be those specified by the one-step model in Equations 45 and 46 (Cohen and Hunter, 1970).

The model above used the simplest version of the Osgood and Tannenbaum assumption that incredulity is a

direct function of discrepancy; i.e. that if you double the discrepancy, you double the incredulity. Suppose the relation is not so simple. For example, incredulity might increase more than proportionately to discrepancy. Then in Equation 47, "α" would not be a constant but would be an increasing function of discrepancy, for example

$$\alpha = \frac{|a-s|}{1 + |a-s|} \qquad (51)$$

Since none of the steps in the derivation depend on α being a constant, all equations are unchanged (including 47-50). Thus any correction for incredulity will ultimately multiply the original Osgood and Tannenbaum equations by a common factor. It is worth noting that any "correction" for incredulity that does not ultimately result in the multiplication of Equations 43 and 44 by a common factor will not satisfy the polarity assumption in Equation 38.

Osgood and Tannenbaum proposed a "correction for incredulity" which does not satisfy this criterion. However their correction was not obtained by direct mathematical argument from their theoretical assumption, but from a post hoc empirical fit to the Tannenbaum (1953) residuals.

The model following from the particular nonlinear incredulity assumption in Equation 51 will now be derived.

Since α is not a constant, the resulting model is not simply a proportionate decrease in the old. Thus,

$$\Delta a = \frac{1}{1+|a-s|} \cdot \frac{|s|}{|s| + |a|} \cdot (s-a) \qquad (52)$$

$$\Delta s = \frac{1}{1 + |a-s|} \cdot \frac{|a|}{|a| + |s|} \cdot (a-s) \qquad (53)$$

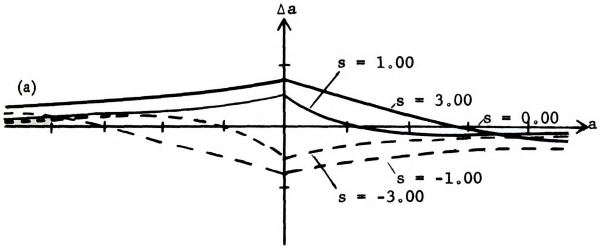
This model is graphed in Figures 30 and 31. The main effect of the incredulity correction is to increasingly reduce the magnitude of source and attitude change as a function of discrepancy. As a side effect, it produces results reminiscent of the constant change with polarity model. Thus attitude change is always maximal for neutral attitudes (a=0), and source change is maximal for neutral source (s=0).

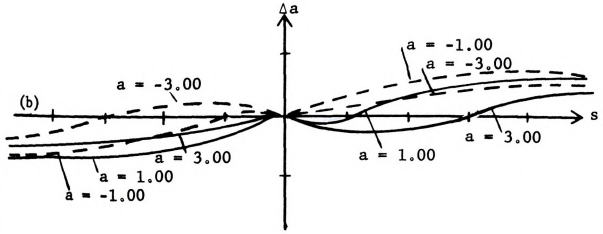
Source-Object Asymmetry

The other modification in the theory dealt with the relative change in source and object. Thus suppose that source change is always somewhat less than would be predicted from polarity alone, say

$$\frac{|\Delta s|}{|\Delta a|} = \beta \frac{|a|}{|s|} \qquad (54)$$

where β is less than 1 if source change is relatively less than attitude change. After the same derivation, the resulting proportions are





$$\Delta a = \frac{1}{1 + |a-s|} \frac{|s|}{|s|+|a|} \quad (s-a)$$

Figure 30. Attitude change as a function of attitude toward source and object for the congruity model with nonlinear incredulity (positive assertion).

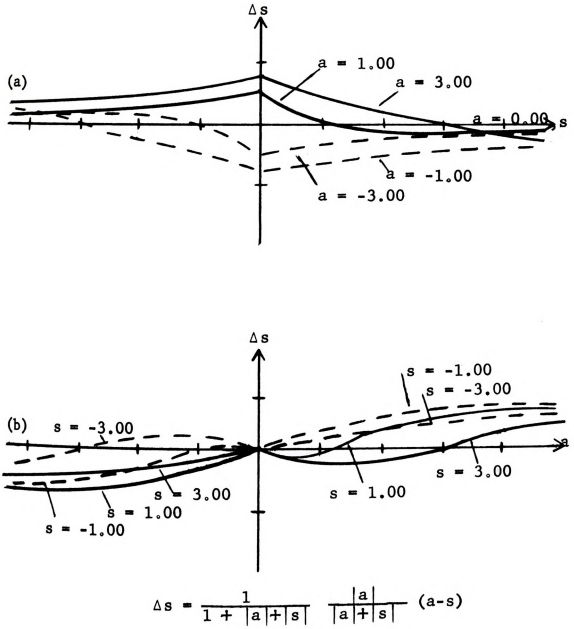


Figure 31. Source change as a function of attitude toward source and object for the congruity model with nonlinear incredulity (positive assertion).

$$p = \frac{1}{1 + \beta\,|a|/|s|} = \frac{|s|}{|s| + \beta\,|a|} \qquad (55)$$

and

$$1-p = \frac{\beta\,|a|}{|s| + \beta\,|a|} \qquad (56)$$

The model is:

$$\Delta a = \frac{|s|}{|s| + \beta\,|a|} \cdot (1-\alpha) \cdot (s-a) \qquad (57)$$

$$\Delta s = \frac{\beta\,|a|}{|s| + \beta\,|a|} \cdot (1-\alpha) \cdot (a-s) \qquad (58)$$

where $\alpha = 0$, $\beta = 1$ yields the original model. If $\alpha > 0$ (constant or not), this model makes the incredulity assumption, and if $\beta < 1$, this model makes an "assertion correction." Figures 32 and 33 present the model without incredulity ($\alpha = 0$) and a large source-object asymmetry ($\beta = \frac{1}{2}$). The main feature of these graphs is, of course, the fact that attitude change is much larger than source change.

The effects of this assumption are shown more clearly in the postmessage attitude and source values.

$$a' = \frac{\beta\,|a|}{|s| + \beta\,|a|}\, a + \frac{|s|}{|s| + \beta\,|a|}\, s \qquad (59)$$

$$= (1-\tilde{p})\, a + \hat{p}\, s \qquad (60)$$

and

$$s' = \frac{\beta\,|a|}{|s| + \beta\,|a|}\, a + \frac{\beta\,|s|}{|s| + \beta\,|a|}\, s = a' \qquad (61)$$

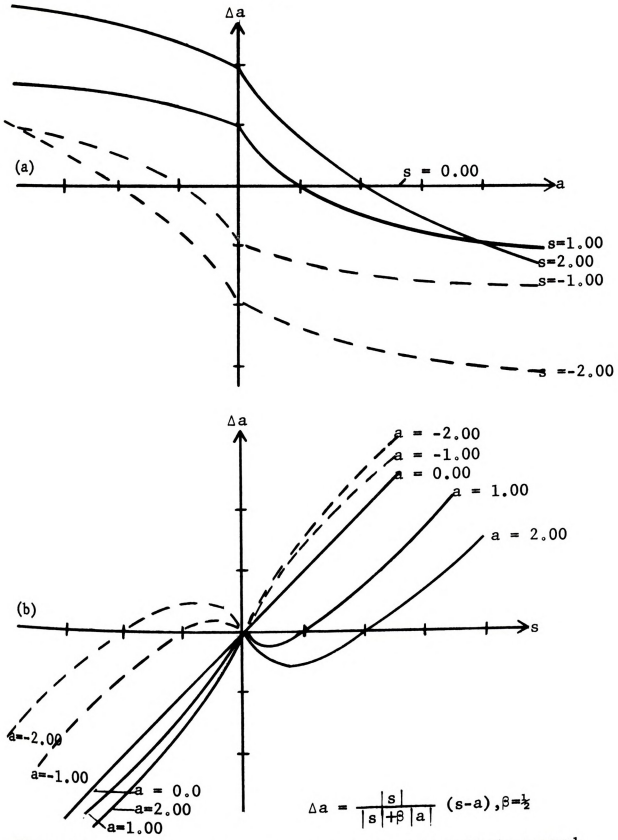


Figure 32. Attitude change as a function of attitude toward source and object for the congruity model with source-object asymmetry (positive assertion).

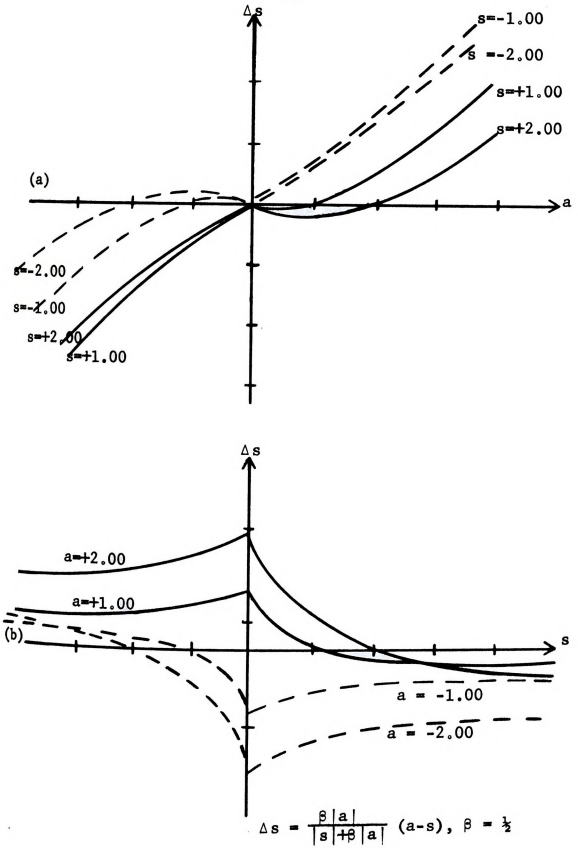


Figure 33. Source change as a function of attitude toward source and object for the congruity model with source-object asymmetry (positive assertion).

where the new weight $\tilde{p}$ is related to the weight p of the original model by

$$\frac{\tilde{p}}{1-\tilde{p}} = \frac{1}{\beta} \cdot \frac{p}{1-p} \qquad (62)$$

That is, s is given $1/\beta$ times the weight in the new average that it was given in the original (Equations 45 and 46).

Figures 34 and 35 present the model with both incredulity a nonlinear function of incongruity (Equation 51) and a large source-object asymmetry ($\beta = \frac{1}{2}$). The predominant feature of these graphs is the nonlinear incredulity effect (compare with Figures 30 and 31). The source-object asymmetry is less noticeable, particularly when source and object are highly discrepant affectively.

Osgood and Tannenbaum proposed an "assertion constant" to handle the problem of source-object asymetry. They simply added the constant to attitude change if the message was positive and subtracted it if the message was negative. This cannot be ture. If the attitudes were congruent or nearly so, the assertion constant would produce incongruity! Furthermore, their modification of the model implicitly changes the polarity and incredulity assumptions in nonobvious ways.

Fig 1

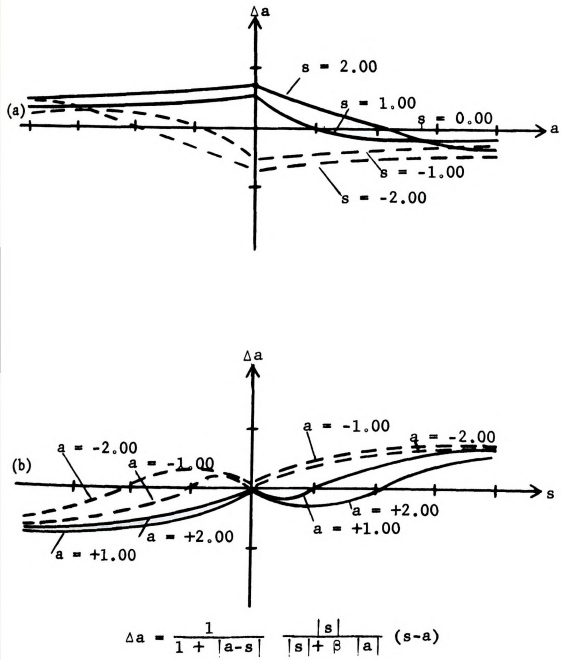


Figure 34. Attitude change as a function of attitude toward source and object for the congruity model with nonlinear incredulity and source-object asymmetry (positive assertion).

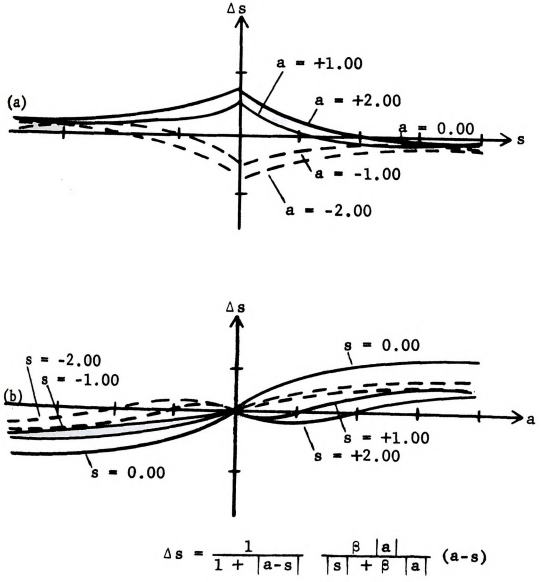


Figure 35. Source change as a function of attitude toward source and object for the congruity model with nonlinear incredulity and source-object asymmetry (positive assertion).

e Negative Message

If the message is negative, the attitudes toward urce and object are semi congruous only if they have posite sign. That is, if two cognitive elements are neg- ively associated, they should be affectively incompat- le. Two dissociated elements are perfectly congruous ly if the attitudes are exactly the negative of each her

The critical difference between positive and neg- ive messages is in the congruity condition and the cor- sponding discrepancy which measures incongruity. Thus e pressure for attitude change derives from the dis- epancy between a and -s, that is

$$D_a = |(-s)-a| = |s + a| \qquad (63)$$

The pressure for source change derives from the screpancy between s and -a, that is

$$D_s = |(-a) -s\ | = |a + s| \qquad (64)$$

ce these are identical, pressure of incongruity can be quivocally assumed to be equal to discrepancy again:

$$P = |s + a| = |-s-a| \qquad (65)$$

From this point on the derivation of every model the negative assertion is identical to the corres- ding derivation for the positive model.

The original Osgood and Tannenbaum model is

$$\Delta a = \frac{|s|}{|s| + |a|} \cdot (-s-a) \qquad (66)$$

$$\Delta s = \frac{|a|}{|s| + |a|} \cdot (-a-s) \qquad (67)$$

The model is presented in Figures 36 and 37. The post-message attitudes are given by

$$a' = (1-p)\ a + p\ (-s) \qquad (68)$$

$$s' = (1-p)\ (-a) + p\ s = (1-p)\ a + p\ (-s) \qquad (69)$$

where p is the same polarity weighted proportion as before

$$p = \frac{|s|}{|s| + |a|} \qquad (70)$$

Thus the postmessage attitudes are exactly equal in magnitude and of opposite sign, i.e. they are congruous (for a negative association).

The assumption that incredulity reduces the pressure of incongruity is independent of message value if phrased in terms of discrepancy. If incredulity is a linear function of discrepancy, then

$$\Delta a = (1-\alpha) \cdot \frac{|s|}{|s| + |a|} \cdot (-s-a) \qquad (71)$$

$$\Delta s = (1-\alpha) \cdot \frac{|a|}{|a| + |s|} \cdot (-a-s) \qquad (72)$$

This model is presented in Figures 38 and 39. As for the positive message, the assumption that incredulity is a linear function of discrepancy produces a model which

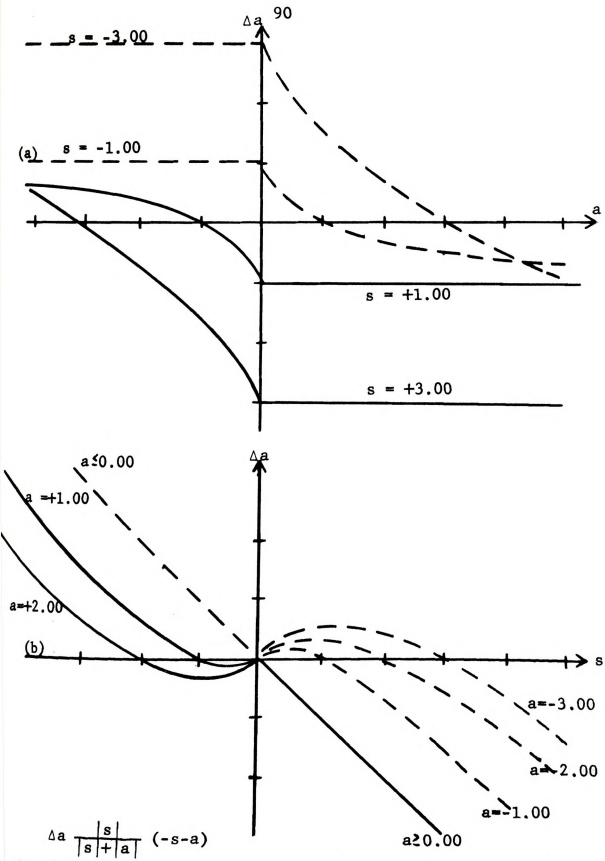


Figure 36. Attitude change as a function of attitude toward source and object for the original congruity model (negative assertion).

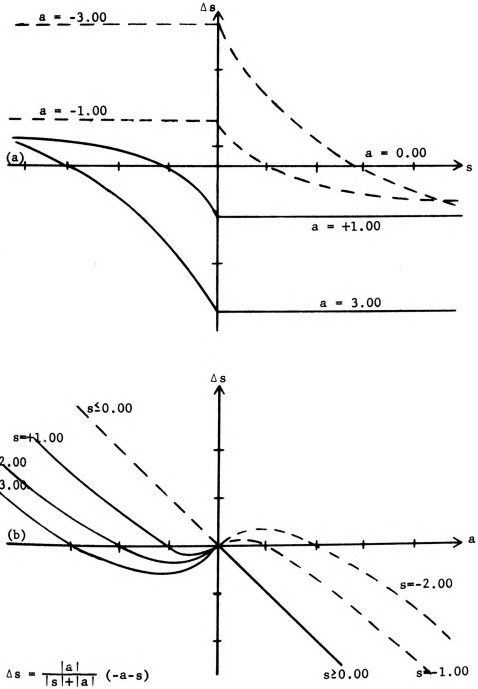
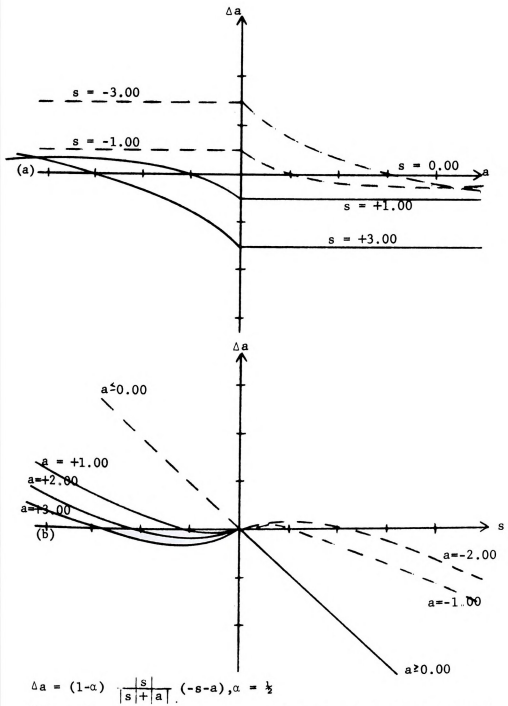


Figure 37. Source change as a function of attitude toward source and object for the original congruity (negative assertion).



$\Delta a = (1-\alpha)\,\frac{|s|}{|s|+|a|}\,(-s-a), \alpha = \frac{1}{2}$.

Figure 38. Attitude change as a function of attitude toward source and object for the original congruity model with linear incredulity (negative assertion).

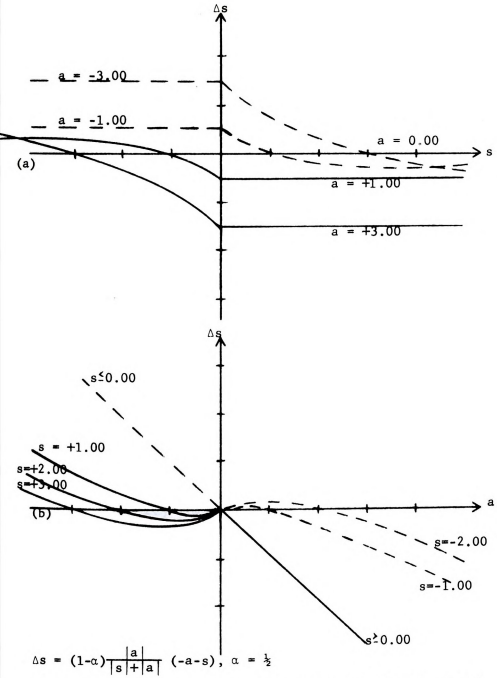


Figure 39. Source change as a function of attitude toward source and object for the original congruity model with linear incredulity (negative assertion).

moves each attitude 1-α of the distance to the
brium values generated by the original model
ions 68 and 69).

If incredulity increases more than proportionately
crepancy, then again the "α" of the previous equa-
shimply shifts to the corresponding function of
pancy:

$$\alpha = \frac{|a+s|}{1 + |a+s|}$$

w model for nonlinear incredulity is:

$$\Delta a = \frac{1}{1 + |a+s|} \cdot \frac{|s|}{|s| + |a|} \cdot (-s-a) \qquad (74)$$

$$\Delta s = \frac{1}{1 + |a+s|} \cdot \frac{|a|}{|a| + |s|} \cdot (-a-s) \qquad (75)$$

models are presented in Figures 40 and 41. The
of the incredulity assumption is to greatly reduce
ange associated with large discrepancies. It also
uates the polarity assumption in that maximal change
itude is at a = 0 and maximal source change is at

The Osgood and Tannenbaum "correction for incred-
is as counter to their theoretical assumptions for
gative message as for the positive.

The assumption that source change is relatively
han attitude change is also independent of message

With the same relative constant β, the model for

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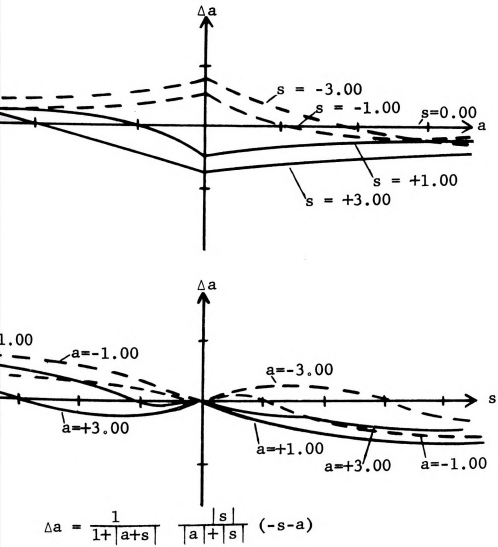

. Attitude change as a function of attitude toward source and object for the congruity model with nonlinear incredulity (negative assertion).

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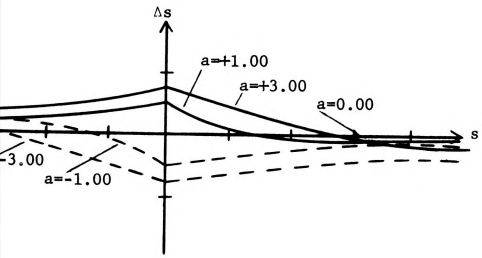
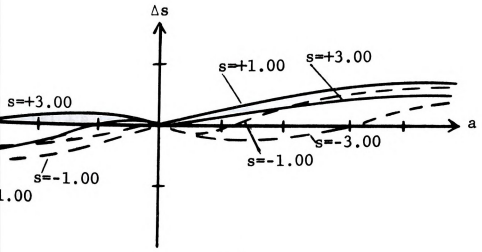




$$\Delta s = \frac{1}{1 + |a+s|} \quad \frac{|a|}{|a|+|s|} \quad (-a-s)$$

Source change as a function of attitude toward source and object for the congruity model with nonlinear incredulity (negative assertion).

ative assertion is

$$\Delta a = \frac{|s|}{|s| + \beta |a|} \cdot (1-\alpha) \cdot (-s-a) \qquad (76)$$

$$\Delta s = \frac{\beta |a|}{|s| + \beta |a|} \cdot (1-\alpha) \cdot (-a-s) \qquad (77)$$

= 0, $\beta = 1$ yields the original model. Again
constant or not) is the incredulity assumption,
1 is an "assertion correction." Figures 42 and
ent the model without incredulity ($\alpha = 0$) but with
source-object asymmetry ($\beta = \frac{1}{2}$). The major
of the assertion correction is to make attitude
much larger than source change.

This is shown more clearly in the postmessage
e equations

$$a' = \frac{\beta |a|}{|s| + \beta |a|} a + \frac{|s|}{|s| + \beta |a|} (-s) \qquad (78)$$

$$a' = (1 - \hat{\beta}) a + \hat{\beta} (-s) \qquad (79)$$

$$s' = (1 - \hat{\beta}) (-a) + \hat{\beta} s = -a' \qquad (80)$$

value for attitude toward the source is exactly
ative of the new attitude toward the object. So
del produces exact congruity in one step. The
sage attitude is a weighted average of the pre-
attitude and the negative of source affect, and

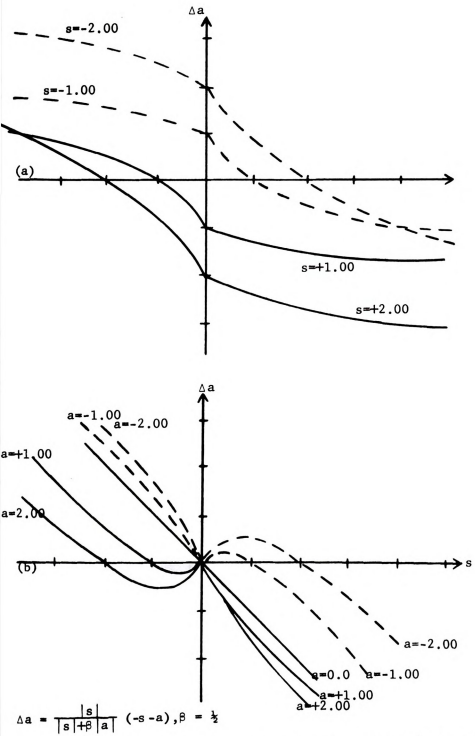
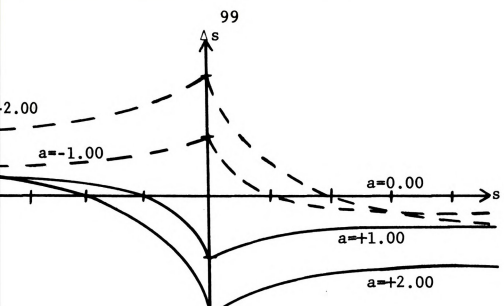
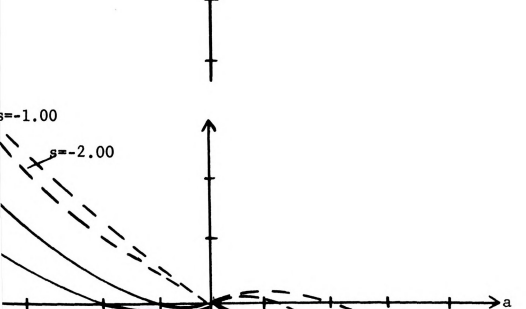


Figure 42. Attitude change as a function of attitude toward source and object for the congruity model with source-object asymmetry (negative assertion).

$$\frac{1}{2}$$





$$\Delta s = \frac{\beta |a|}{|s| + \beta |a|} \quad (-a-s), \ \beta = \tfrac{1}{2}$$

43. Source change as a function of attitude toward source and object for the congruity model with source-object asymmetry (negative assertion).

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$$\frac{\hat{p}}{1-\hat{p}}$$

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versa. The weight for the asymmetric model $\hat{p}$ is re-
l to the weight for the symmetric model p by

$$\frac{\hat{p}}{1-\hat{p}} = \frac{1}{\beta} \frac{p}{1-p} \qquad (81)$$

is, source affect is weighted $1/\beta$ times as heavily
fore.

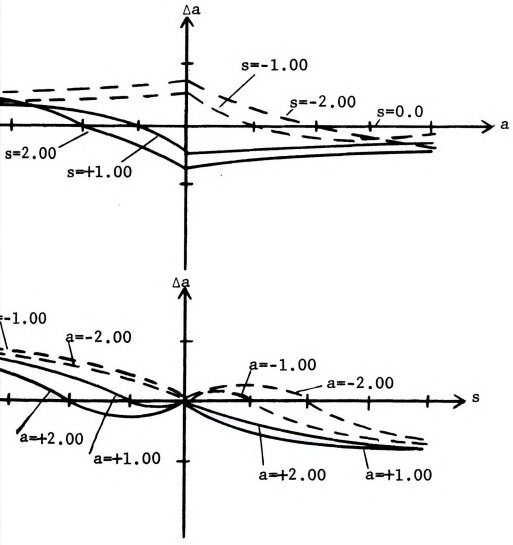
Figures 44 and 45 present the model with both
dulity a nonlinear function of discrepancy (Equation
nd a large source-object asymmetry ($\beta = \frac{1}{2}$). As in
ositive assertion, the source-object asymmetry is
hadowed by the nonlinear incredulity factor. The
rence in the magnitude of source and object change
scured for large affective discrepancy in source-
t attitudes.

The Osgood and Tannenbaum "assertion constant" is
unter to their theoretical assumptions for the
ive message as for the positive message.

Thus, once source-object discrepancy is suitably
ined for the negative message, all results are
tly parallel to those for the positive message.

ge Strength and the Neutral Message

Osgood, Suci, and Tannenbaum (1957) noted that
ressure of incongruity would be a function of the
nsity" of the assertion. For example, "Eisenhower



$$\Delta a = \frac{1}{1+|a+s|} \quad \frac{|s|}{|s|+\beta|a|} \quad (-s-a),\ \beta = \tfrac{1}{2}$$

re 44. Attitude change as a function of attitude toward source and object for the congruity model with nonlinear incredulity and source-object asymmetry (negative assertion).

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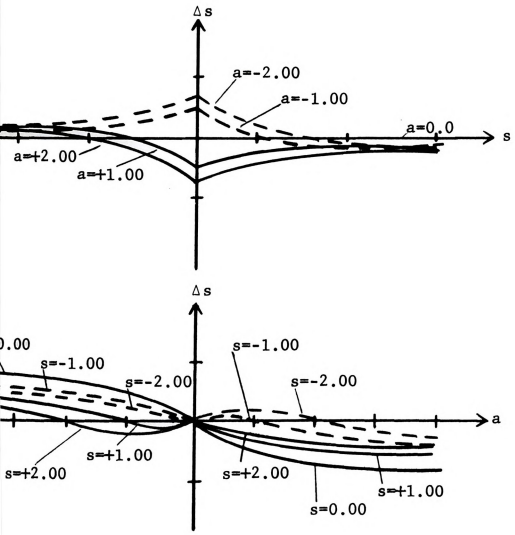


$$\Delta s = \frac{1}{1 + |a+s|} \quad \frac{\beta |a|}{|s| + \beta |a|} \quad (-a-s), \ \beta = \tfrac{1}{2}$$

e 45. Source change as a function of attitude toward source and object for the congruity model with nonlinear incredulity and source-object asymmetry (negative assertion).

es peaceful coexistence" should be less incongruous
isenhower advocates communism." Thus the amount of
uity is not only proportional to source-object dis-
y but to message "strength." If the "strength"
ensity" of a message follows the same law as the
ity" of attitudes, then it should be a direct
n of "polarity." For example,

$$\text{message intensity} = |m|. \tag{82}$$

Pressure of incongruity would then be a direct
n of message value as well as source-object dis-
y, i.e.

$$P = f(m)\ |a-s| \text{ if } m = + \tag{83}$$

$$P = f(-m)\ |a+s| \text{ if } m = - \tag{84}$$

more, since a neutral message is both the limiting
a weak positive message and the limiting case of
negative message, we have

$$f(0)\ |a-s| = f\ |0|\ |a+s| \tag{85}$$

$$f(0) = 0 \tag{86}$$

neutral message produces no pressure of incongruity
ce no attitude change and no source change.

On the other hand consider a message of infinite
h. It should be perfectly assertive. That is, we
ave

P = discrepancy if $m = \pm \infty$

$f(m) = 1$ if $m = \pm \infty$

m) begins at 1 at $m = -\infty$ goes to 0 at $m = 0$ and

to 1 at $m = +\infty$. For example

$$f(m) = \frac{|m|}{|m| + 1} \tag{87}$$

Thus the pressure of incongruity is only equal to

crepancy between source and object if the message

fectly" or "infinitely" assertive and is less

se. Using the same particular function f(m),

$$P = \frac{|m|}{1 + |m|} \cdot \text{discrepancy}$$

$$= \begin{cases} \frac{m}{m+1} \cdot |a-s| & \text{if } m = + \\ \frac{-m}{-m+1} \cdot |a+s| & \text{if } m = - \end{cases} \tag{88}$$

ewrite this equation for the positive message,

$$P = (1-\varepsilon)\ |a-s|, \quad \varepsilon = \frac{1}{1+m} \tag{89}$$

s identical to the pressure formula generated by

ear incredulity assumption (Equation 48) except

is replaced by ε. The corresponding equations

rce and attitude change would of course be identi-

are

$$\Delta a = (1-\varepsilon) \cdot \frac{|s|}{|s| + |a|} \cdot (s-a) \tag{90}$$

$$\Delta s = (1-\varepsilon) \cdot \frac{|a|}{|s| + |a|} \cdot (a-s) \tag{91}$$

for an experiment with only one message value,

els are completely confounded.

The negative message is handled by noting that

$$\epsilon = \frac{1}{1 + |m|} \quad \text{if } m = - \tag{92}$$

t the model then becomes identical to the linear

lity model for the negative message:

$$\Delta a = (1-\epsilon) \cdot \frac{|s|}{|s| + |a|} \cdot (-s-a) \tag{93}$$

$$\Delta s = (1-\epsilon) \cdot \frac{|a|}{|a| + |s|} \cdot (-a-s) \tag{94}$$

In either case, the attitudes shift

$$1-\epsilon = \frac{|m|}{|m| + 1} \tag{95}$$

distance to the equilibrium values.

If we subtract incredulity from the pressure of

uity we have

$$P = \frac{|m|}{1 + |m|} \cdot \text{discrepancy} - \alpha \cdot \text{discrepancy}$$

$$P = (1-\epsilon-\alpha) \cdot \text{discrepancy} \tag{96}$$

α is constant or not. Thus the general model for

tive message is

$$\Delta a = (1-\epsilon-\alpha) \cdot \frac{|s|}{|s| + \beta |a|} \cdot (s-a) \tag{97}$$

$$\Delta s = (1-\epsilon-\alpha) \cdot \frac{\beta |a|}{|s| + \beta |a|} \cdot (a-s) \tag{98}$$

the negative message is

$$\Delta a = (1-\epsilon-\alpha) \cdot \frac{|s|}{|s| + \beta |a|} \cdot (-s-a) \tag{99}$$

$$\Delta s = (1-\epsilon-\alpha) \cdot \frac{\beta |a|}{|s| + \beta |a|} \cdot (-a-s) \tag{100}$$

<1, this yields source asymmetry and α may be con-
or a function of discrepancy. The figures for the
s are visually indistinguishable from those of the
sponding incredulity models, although the location
e maximum change is mathematically distinct (i.e.
ed to discrepancy, etc. by a different function of
arameters).

Thus as Osgood, Suci, and Tannenbaum noted, these
s can only be distinguished in an experiment that
s message value. Furthermore, a positive message-
ive message design will not work since from the
of view of intensity $|-3| = |+3| = 3$.

The critical test for the assumption that pressure
function of message intensity is to use a neutral
ge in a context where the positive and negative
ges are eliciting considerable change.

uity Without Polarity

The original mathematical formulation of congruity
embodied two sets of principles: (1) the primary
tions of congruity, pressure of incongruity, and
des of releasing that pressure and (2) three tech-
assumptions--the equality of pressure and discrep-
the symmetry of source and object, and the polarity

cts of intensity. Osgood and Tannenbaum ultimately
ked the equality of pressure and discrepancy by de-
g incredulity. They relaxed symmetry with the asser-
correction. The following models present an alterna-
to the polarity assumption.

Suppose the relative size of source change is
endent of intensities, then

$$\left|\frac{\Delta s}{\Delta a}\right| = \beta \qquad (101)$$

$\beta = 1$ if source and object are symmetric and is
than one if source change is relatively smaller.
a parallel development, the general model for the
ive message is

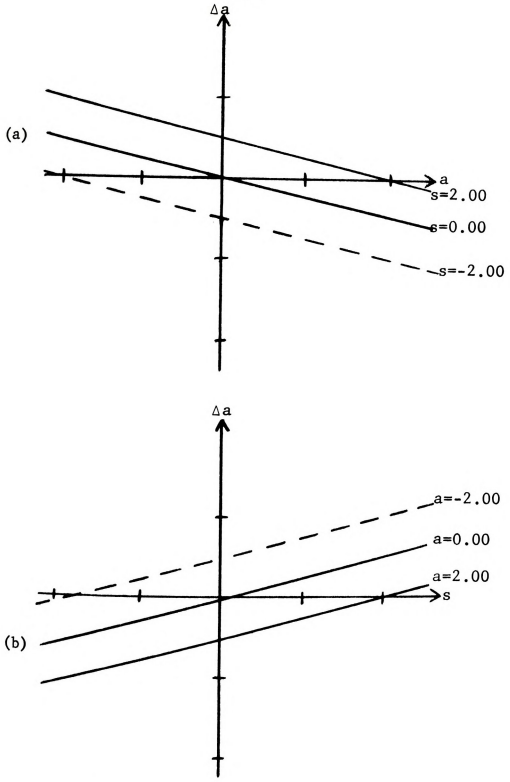
$$\Delta a = \frac{1}{1+\beta} \cdot (1-\alpha) \cdot (s-a) \qquad (102)$$

$$\Delta s = \frac{\beta}{1+\beta} \cdot (1-\alpha) \cdot (a-s) \qquad (103)$$

If $\alpha = 0$ and $\beta = 1$, this model produces a simple
r version of the original Osgood and Tannenbaum
:

$$a' = s' = \frac{a+s}{2} \qquad (104)$$

$= 1$ and α is a constant, we have the linear propor-
l change version of this model. This model is
ıted in Figures 46 and 47. In the developmental
ss generated by repeated messages, this model



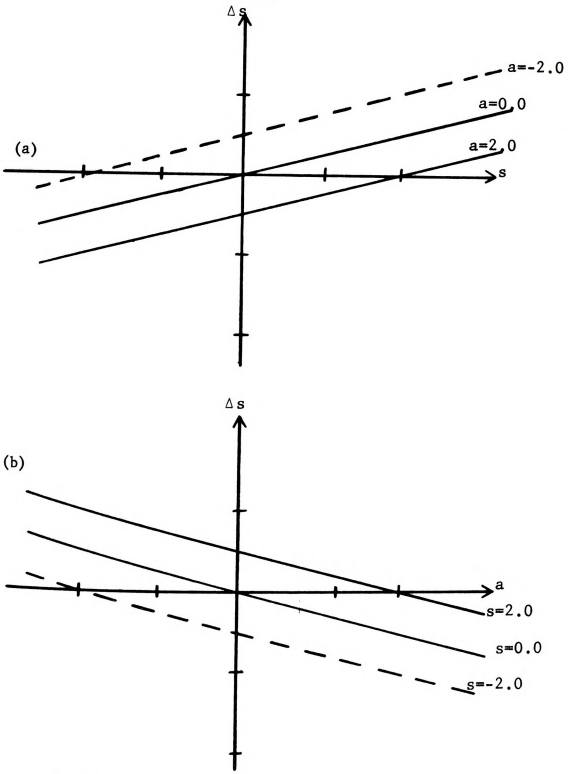
$$\Delta a = \frac{1}{1+\beta}(1-\alpha)(s-a),\ \beta \neq 1,\ \alpha=0.5$$

Figure 46. Attitude change for the linear congruity model with source-object symmetry and linear incredulity (positive assertion).





Figure



$$\Delta s = \frac{\beta}{1+\beta}(1-\alpha)(s-a), \quad \beta = 1, \quad \alpha = 0.5$$

Figure 47. Source change for the linear congruity model with source-object symmetry and linear incredulity (positive assertion).

verges to the same limits as the one step model, i.e.
arithmetic average of initial values.

If incredulity is proportional to discrepancy
is a constant) and $\beta < 1$, then the asymmetric model is
ear and has equilibrium values

$$a^* = s^* = \frac{s + \beta a}{1 + \beta} \qquad (105)$$

ch are simple weighted averages of the initial values
are independent of the amount of change produced by
message. This model is shown in Figures 48 and 49.

If incredulity is a nonlinear function of discrep-
y (Equation 51) and source change is smaller than
itude change ($\beta < 1$), then we have

$$\Delta a = \frac{1}{1 + \beta} \cdot \frac{1}{1 + |a-s|} \cdot (s-a) \qquad (106)$$

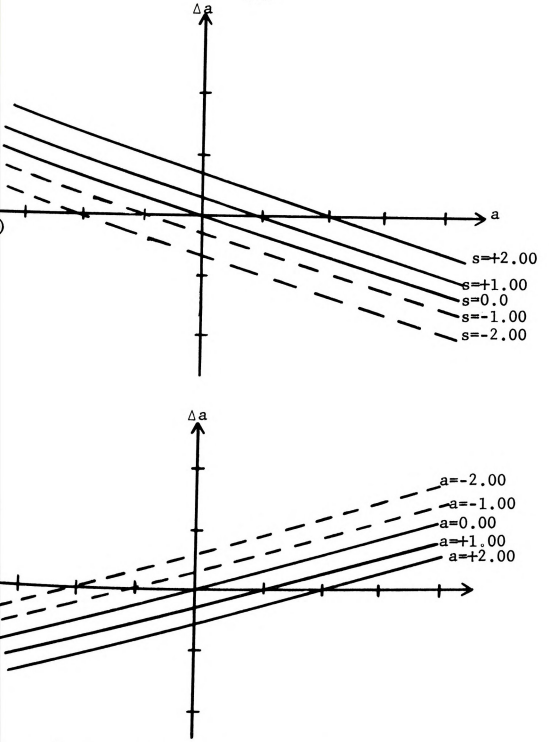
$$\Delta s = \frac{1}{1 + \beta} \cdot \frac{1}{1 + |a-s|} \cdot (a-s) \qquad (107)$$

equilibrium values are still

$$a^* = s^* = \frac{s + \beta a}{1 + \beta} \qquad (108)$$

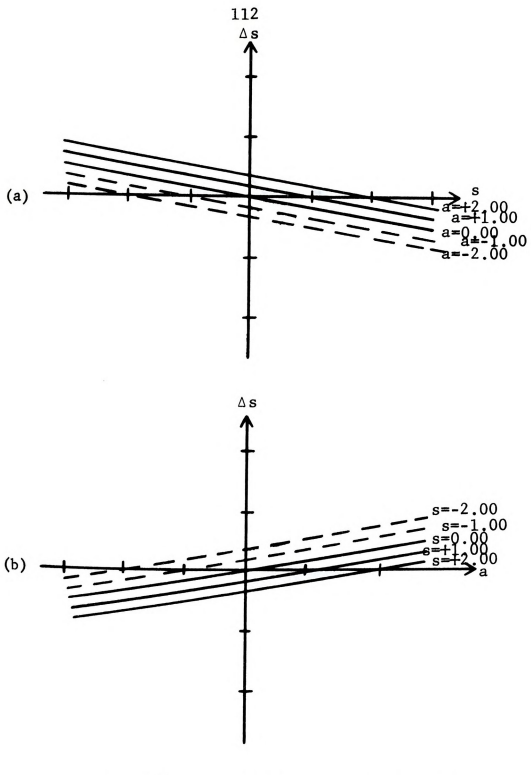
are independent of the amount of change following any
message. This model is presented in Figures 50 and 51.
e both effects are displayed: attitude and source
nge are greatly reduced for large discrepancy and source
nge is only half of attitude change.

The critical step in developing the model for the
itive message is to note that attitude shifts toward



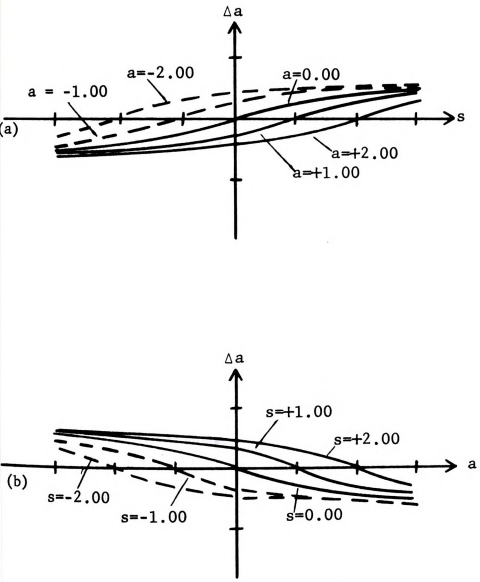
$\Delta a = \frac{1}{1+\beta}(1-\alpha)(s-a)$, $\beta = \frac{1}{2}$, $\alpha = \frac{1}{2}$

ure 48. Attitude change as a function of attitude toward source and object for the linear congruity model with linear incredulity and source-object asymmetry.



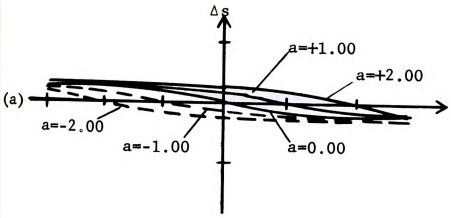
$$\Delta s = \frac{\beta}{1 + \beta} \quad (1-\alpha)\ (a-s),\ \beta = \tfrac{1}{2},\ \alpha = \tfrac{1}{2}$$

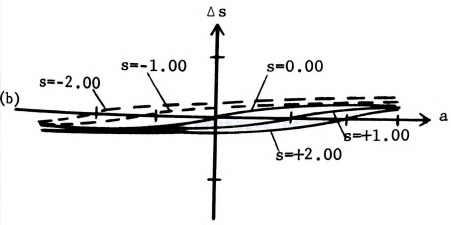
Figure 49. Source change as a function of attitude toward source and object for the linear congruity model linear incredulity and source-object asymmetry (positive assertion).



$$\Delta a = \frac{1}{1+|a-s|} \quad \frac{1}{1+\beta} \ (s-a), \ \beta = \tfrac{1}{2}$$

Figure 50. Attitude change as a function of attitude toward source and object for the linear congruity model with nonlinear incredulity and source-object asymmetry (positive assertion).





$$\Delta s = \frac{1}{1 + |a-s|} \quad \frac{\beta}{1 + \beta} \quad (a-s),\ \beta = \tfrac{1}{2}$$

Figure 51. Source change as a function of attitude toward source and object for the linear congruity model with nonlinear incredulity and source-object asymmetry (positive assertion).

the negative of source affect and source affect shifts towards the negative of the attitude (as was the case with polarity). The general model is

$$\Delta a = \frac{1}{1 + \beta} \cdot (1-\alpha) \cdot (-s-a) \qquad (109)$$

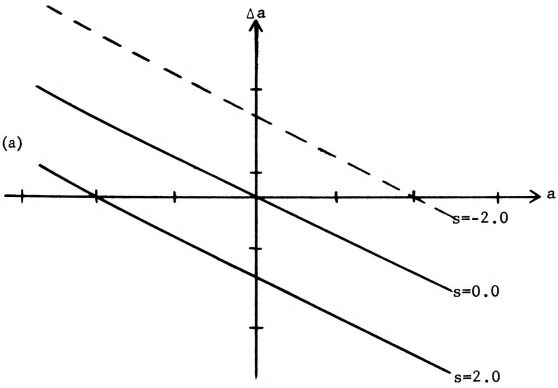
$$\Delta s = \frac{\beta}{1 + \beta} \cdot (1-\alpha) \cdot (-a-s) \qquad (110)$$

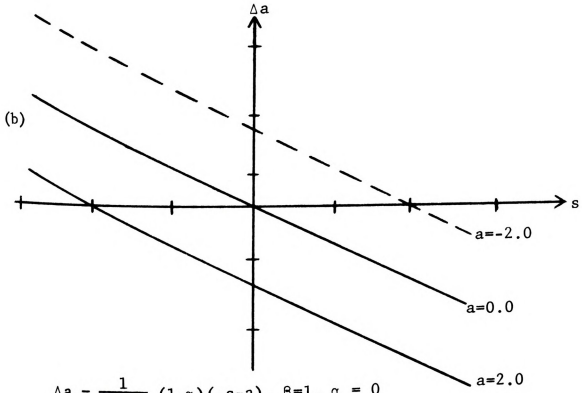
where $\beta < 1$ yields the source-object asymmetry and $\alpha > 0$ (constant or not) yields the correction for incredulity. The equilibrium values are

$$a^* = \frac{\beta a - s}{\beta + 1} = \frac{\beta a + (-s)}{\beta + 1} \qquad (111)$$

$$s^* = \frac{s - \beta a}{1 + \beta} \quad \frac{s + \beta(-a)}{1 + \beta} = -a^* \qquad (112)$$

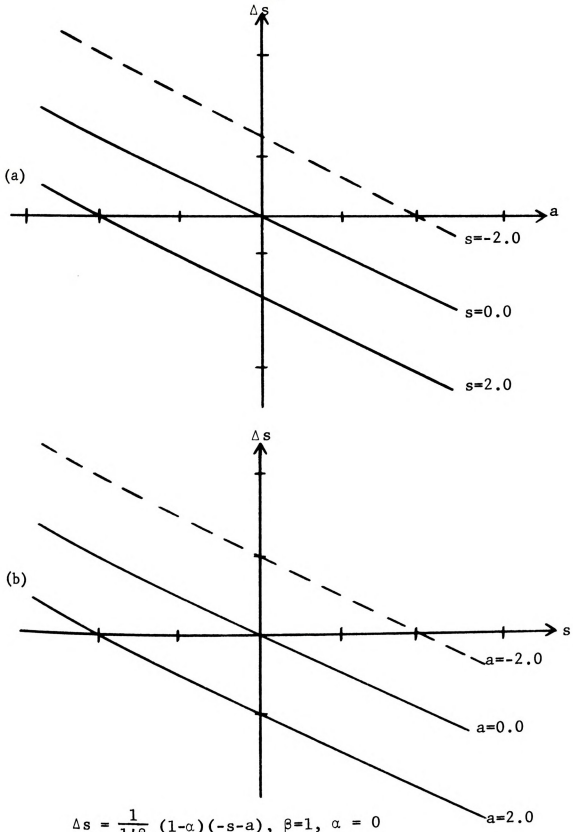
These equilibria are congruous linear weighted averages of each attitude and the negative of the other. As for the positive message, the equilibria are independent of incredulity assumptions. The one-step ($\alpha = 0$) symmetric model is presented in Figures 52 and 53. The nonlinear asymmetric model is shown in Figures 54 and 55. The constant (slope) differences in source change and object change curves evident in the previous linear congruity models disappear outside the region of moderate attitude toward source and object. Indeed, these graphs display a "polarity effect" even though no such direct assumptions were made in their derivation as in the polarity congruity



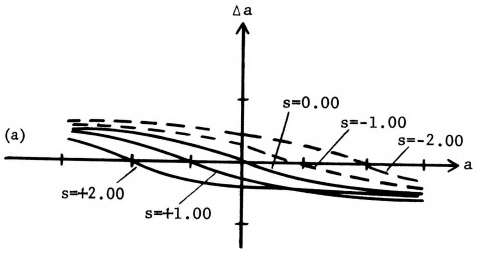


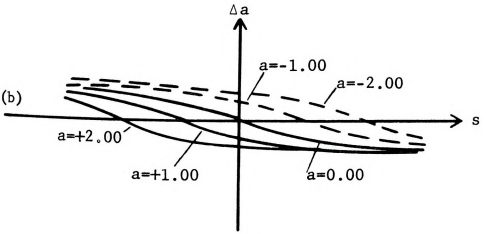
$$\Delta a = \frac{1}{1+\beta}(1-\alpha)(-s-a),\ \beta=1,\ \alpha = 0$$

Figure 52. Attitude change as a function of pre-message attitudes toward source and object for the linear congruity model with source-object symmetry and no incredulity (negative assertion).



gure 53. Source change as a function of pre-message attitudes toward the source and object for the linear congruity model with source-object symmetry and no incredulity (negative assertion).





$$\Delta a = \frac{1}{1 + |a+s|} \cdot \frac{1}{1 + \beta} (-s-a), \quad \beta = \tfrac{1}{2}$$

Figure 54. Attitude change as a function of attitude toward source and object for the linear congruity model with nonlinear incredulity and source-object asymmetry (negative assertion).

(a)

(b)

Figu

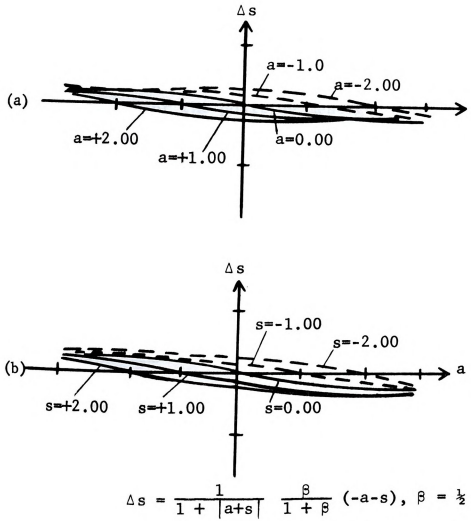


Figure 55. Source change as a function of attitude toward source and object for the linear congruity model with nonlinear incredulity and source-object asymmetry (negative assertion).

models (compare with the original congruity model, Figures 28, 29 and 38, 39).

Finally if we assume that pressure of incongruity is a function of message "intensity" or "strength," this model undergoes exactly the same modification as did the polarity model. For the positive message

$$\Delta a = \frac{1}{1+\beta} \cdot (1 - \varepsilon - \alpha)(s - a) \qquad (113)$$

$$\Delta s = \frac{\beta}{1+\beta} \cdot (1 - \varepsilon - \alpha)(a - s) \qquad (114)$$

where

$$\varepsilon = \frac{1}{1+m} \qquad (115)$$

For the negative message

$$\Delta a = \frac{1}{1+\beta} \cdot (1 - \varepsilon - \alpha) \cdot (-s-a) \qquad (116)$$

$$\Delta s = \frac{\beta}{1+\beta} \cdot (1 - \varepsilon - \alpha) \cdot (-a-s) \qquad (117)$$

As for the polarity models, the assumption of less incongruity for "weaker" messages is indistinguishable from the incredulity assumptions in an experiment with a single message value (or balanced positive and negative messages). Intensity must be varied.

Again it is the neutral message which provides the simplest and most direct test of the intensity assumption.

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CHAPTER V

DISSONANCE THEORY

Dissonance theory has often been classed with affective consistency theories (Brown, 1962 and Osgood, 1963). As Kiesler, Collins, and Miller (1969) note, the basis for this is actually rather superficial. Thus Festinger (1957) says that inconsistency produced dissonance and the reduction of dissonance leads to attitude change and source change (among other things). This is analagous to inconsistency produces a pressure of incongruity which is relieved by attitude and source change. However, at a more fundamental level there is no agreement between the theories. For dissonance the inconsistency is produced when a credible source says something at odds with the subject's belief. That is, dissonance arises from message-object discrepancy: a logical or semilogical contradiction. While for affective consistency theory the inconsistency arises from "incompatible" emotional reactions to associated objects (source-object discrepancy).

The first exposition of dissonance principles was

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ven by Festinger (1957). The application of dissonance eory to attitude change was made by Festinger and Aronson 960) and experimentally tested in Aronson, Turner, and rlsmith (1963). The following quotations are all from is last paper.

The central assertion by these authors was that hen an individual finds that an opinion advocated by a edible communicator is discrepant from his own opinion experiences dissonance." Like any other drive, dissonce must be reduced. In the passive communication paragm, the constraints are such that only two outlets are ailable for channeling or reducing dissonance--derogation the communicator and attitude change. To this general se, the authors sought to add those assumptions to ssonance theory that would derive the nonlinear dispancy curves generated by social judgment theory.

eview

Three models of dissonance theory are presented low. The first closely parallels the presentation of nson, Turner, and Carlsmith. They derive attitude ange and source change independently and intuitively. at is, they present no formal derivation of their basic emises from dissonance theory but simply state a new

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ory in the language of dissonance theory. The result-
model for attitude change is identical to the infor-
ion processing model in which source credibility is a
tiplier of linear discrepancy theory. This model con-
ms to some but not all of what the authors claim to
e derived from dissonance theory. In particular, it
not consistent with Sherif's nonlinear discrepancy
ves.

A second model is constructed using an "energy"
culation of dissonance and its release through source
attitude change. The derivation is formally identical
that used for congruity theory. The key assumption in
s "conservation" model is that the relative amount of
sonance released by source change in comparison to
itude change is directly proportional to discrepancy
inversly related to source credibility. The result-
curves for attitude change are nonlinear discrepancy
ves with a source credibility effect. However, the
ves increase to a finite asymptote rather than de-
asing to zero.

This suggested that a more extreme model of the
form in which the relative amount of dissonance
ction produced by source change is still inversely
ted to source credibility but is proportional to the

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e of discrepancy. The resulting model is very close
at of social judgment theory without boomerang.

The First Model

The first step in modeling dissonance theory is
lculate the amount of dissonance aroused in the
ve communication context. Dissonance is produced
a subject hears a discrepant message from a credible
e. Thus, ". . . the magnitude of dissonance increases
function of the discrepancy." The degree of dissonis also a function of source credibility. For sources
no credibility, discrepant statements elicit no dissce. Thus, the amount of dissonance (taken to be a
ive quantity) is proportional to source credibility
ommunication discrepancy. That is,

$$\text{Dissonance} = \alpha \cdot \text{credibility} \cdot \text{discrepancy}.$$

the dissonance theorists see only effective and nonitive sources, credibility is strictly non-negative
anges from zero to perfect. One example of these
otions about credibility is the same model proposed
chapter on information processing (Equation 11):

$$\text{credibility} = \frac{e^s}{1 + e^s}$$

Finally, this

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ıally, this yields

$$\text{Dissonance} = \alpha \cdot \frac{e^s}{1 + e^s} \cdot |m-a| \qquad (118)$$

graph of this function is shown in Figure 56.

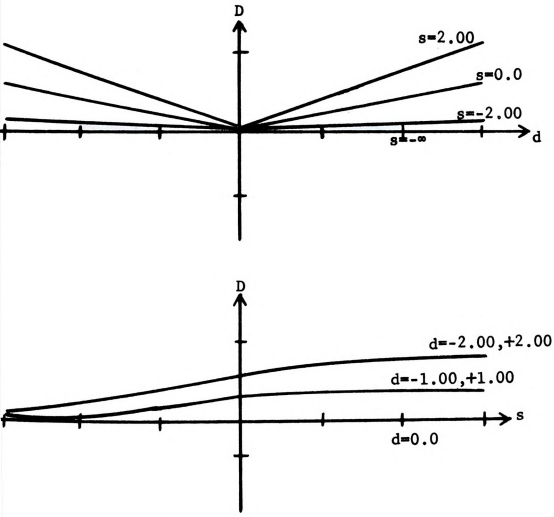
The next step in obtaining a model is to show how sonance is reduced through attitude change. For sources h perfect credibility, dissonance is eliminated solely ough opinion change. "If dissonance is reduced by nion change alone, the degree of opinion change is a ect function of the extent of discrepancy." If the rce has zero credibility, there is no dissonance and ce no attitude change. These statements would be sistent with the assumption that attitude change is irect function of dissonance. The simplest such func- n is obtained if they are directly proportional. thermore, attitude change is always in the direction of message. Thus,

$$\Delta a = \beta \cdot \alpha \cdot \frac{e^s}{1 + e^s} \cdot (m - a) \qquad (119)$$

itude change is graphed in Figure 57. This model is ıtical to the information processing model given by ation 17.

Dissonance can also be reduced through source ıge. In particular, source change is always negative, source change is source derogation. ". . . The

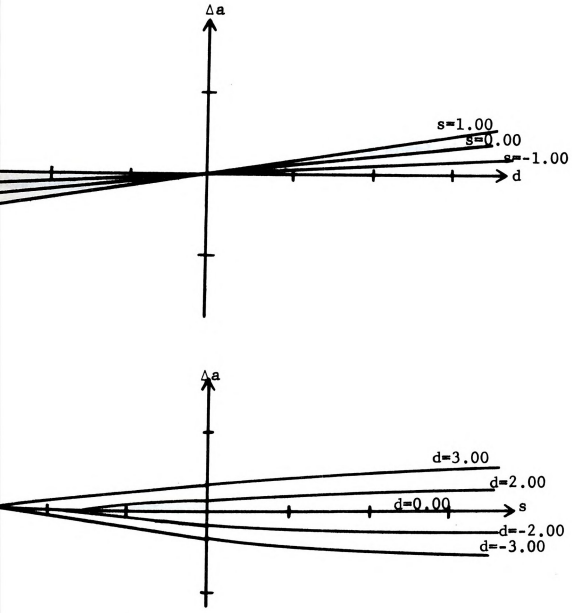
Figure 56.



$$D = \alpha \frac{e^{s}}{1 + e^{s}} \quad |m-a|, \ \alpha = 0.5$$

re 56. Magnitude of dissonance provoked as a function of attitude toward the source and message discrepancy.

Figure 57.



$$\Delta a = \alpha \cdot \beta \cdot \frac{e^{s}}{1 + e^{s}} (m-a), \quad \alpha = 0.5, \quad \beta = 0.3$$

e 57. Attitude change as a function of message discrepancy and attitude toward the source for dissonance model I.

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rce derogation, i.e. source change is inversely
l to source credibility. One possible model which
es these assumptions is

$$\Delta s = \gamma \cdot (1 - \text{credibility}) \cdot |m-a|$$

$$\Delta s = -\gamma \cdot \frac{e^{-s}}{1 + e^{-s}} \cdot |m-a| \qquad (120)$$

m chosen to represent the inverse relation to
lity is bounded by one as credibility goes to zero.
del is graphed in Figure 58.

Now that attitudechange and source change have
ecified, we have a first dissonance model:

$$\Delta a = -\gamma \cdot \frac{e^{s}}{1 + e^{s}} \cdot (m-a) \qquad (121)$$

$$\Delta s = -\gamma \cdot \frac{e^{-s}}{1 + e^{-s}} \cdot |m-a| \qquad (122)$$

change and attitude change can now be discussed
r. With credibility held constant, attitude change
rce derogation increase directly with message
ancy. When the source is perfectly credible, $\Delta a = \gamma$
(m-a) and $\Delta s = 0$. That is, dissonance is reduced
rough opinion change. For a perfectly incredible
$\Delta a = 0$ and $\Delta s = -\gamma |m-a|$; or, there is no attitude
but the source is derogated to the extent his

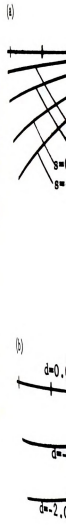
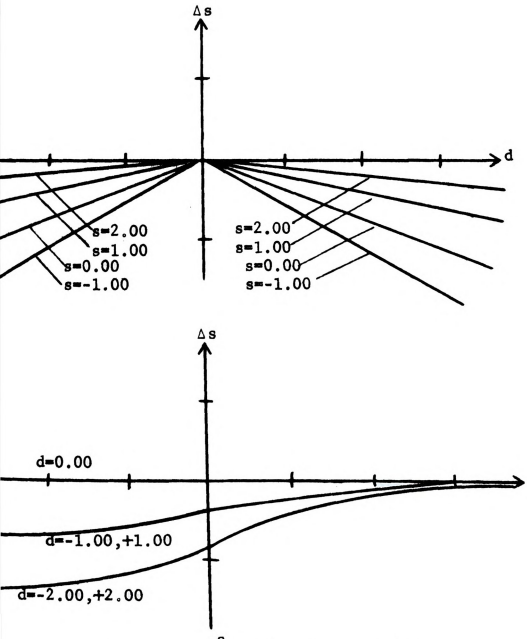


Figure 58.



$$\Delta s = -\gamma \frac{e^{s}}{1+e^{-s}} |m-a|, \gamma = 0.75$$

re 58. Source change as a function of message discrepancy and attitude toward the source for the dissonance model I.

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Aronson, Turner, and Carlsmith came to a different

ion for a mildly credible source delivering a

discrepant communication than that predicted from

ns 121 and Figure 57a. They argue for a curvilinear

nship between attitude change and discrepancy when

sage is presented by a mildly credible source.

sert

"Consider a communicator of mild credibility. Here, both opinion change and derogation can be used to reduce dissonance. If a communication is relatively close to the opinion of the recipient, the existing dissonance can be reduced easily by a slight shift in opinion. On the other hand, if the discrepancy is great, a person can reduce dissonance much more easily by derogating the communicator. That is, if the position advocated by a mildly credible communicator is extreme, it may appear quite unrealistic to the recipient. If this were the case, it is unlikely that he would change his attitude very much. Instead, he might reduce dissonance by deciding that the communicator is unrealistic--or stupid, naive, untruthful, etc."

Basically their argument reduces to this: for

discrepancy there will be considerable source

ion. They then implicitly subtract derogation from

nce and conclude that there will be little attitude

However, as discrepancy increases so does

dissonance and i

can be both larg

change. Thus i

is $\frac{1}{4}$ and (ignor

$\Delta s = -\frac{1}{2}$

How as discrepa

also doubles.

gation will inc

Thus, for this

$\Delta a = \frac{1}{2}$

To even as the

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for attitude

ance and if dissonance increases sufficiently there
both large source derogation and large attitude
. Thus in the preceding model, if s = 0, credibility
nd (ignoring the constant γ),

$$\Delta s = -\tfrac{1}{2} |m-a|.$$

discrepancy doubles, the derogation of the source
ubles. If we quadruple discrepancy, source dero-
will increase indeed. But so does dissonance!
or this model (ignoring the constant δ),

$$\Delta a = \tfrac{1}{2} (m-a).$$

as the tendency to derogate the source doubles,
unt of attitude change also doubles. Hence, this
s actually consistent with dissonance theory as
esent it.

Thus the mere existence of greatly increased
derogation does not permit the dissonance theorists
ve the curvilinear discrepancy curves characteris-
social judgment theory.

On the other hand this model is by no means the
del consistent with their verbal theory. In par-
, the models below yield quite different curves
itude change.

A Conservation Mod

The next

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amount of dissona

amount of attitud

$$|\Delta a| + |\Delta$$

This sort of cons

as "motivate atti

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118, then

$$|\Delta a| +$$

Now that

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The cr

solve for the

source derogat

ervation Model of Dissonance Theory

The next model relates affective change and dis-
e in a strong quantitative law. Assume that the
of dissonance dissipated is exactly equal to the
of attitude change. Then

$$|\Delta a| + |\Delta s| = \text{Dissonance.} \qquad (123)$$

ort of conservation law is implicit in such phrases
tivate attitude change" and the compensation assump-
relating source change and attitude change. If we
ue to assume that dissonance is given by Equation
hen

$$|\Delta a| + |\Delta s| = \alpha \cdot \frac{e^s}{1 + e^s} \cdot |m-a| \qquad (124)$$

Now that the total amount of affective change is
we can no longer consider attitude change and
derogation separately. Rather we must consider
the relative change or the proportion of dissonance
d through one channel or the other. The derivation
ill begin with relative change, then calculate the
ion of dissonance to be released in each channel,
m these proportions the change equations follow
y.

The critical aspect of this alternate model is to
or the relative reduction of dissonance by
derogation versus attitude change, or, equivalently,

the ratio of Δs to

stated above for t

and restate them a

quation. First, t

source is a direct

relative tendency

related to source

Equation 120 for

$$\left|\frac{\Delta s}{\Delta a}\right| = Y$$

Let p be

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equal to D. Thu

reduction increa

Now,

$$p \cdot D =$$

or

$$|\Delta a| +$$

Dividing throug

Equation 126 fo

$$1 + \frac{|\Delta s}{|\Delta a}$$

atio of Δs to Δa. Suppose we take the assumptions
d above for the absolute amount of source change,
estate them as assumptions for relative source der-
on. First, the relative tendency to derogate the
e is a direct function of discrepancy. Second, the
ive tendency to derogate the source is inversely
ed to source credibility. We can then rewrite
ion 120 for the ratio of Δs to Δa:

$$\frac{|\Delta s|}{|\Delta a|} = \gamma \cdot \frac{e^{-s}}{1 + e^{-s}} \cdot |m-a| \qquad (125)$$

Let p be the proportion of the total dissonance
sed through attitude change and 1-p the remaining
rtion reduced through source derogation. For a
amount of dissonance D, $|\Delta a| + |\Delta s|$ is fixed and
to D. Thus, as one component or mode of dissonance
tion increases, the other must necessarily decrease.

$$p \cdot D = |\Delta a| \text{ and } (1-p) \cdot D = |\Delta s| \qquad (126)$$

$$|\Delta a| + |\Delta s| + D = pD + (1-p)\, D \qquad (127)$$

ing through Equation 127 by $|\Delta a|$ and substituting
ion 126 for Δa yields

$$1 + \frac{|\Delta s|}{|\Delta a|} = \frac{D}{|\Delta a|} = \frac{D}{pD} = \frac{1}{p}$$

Substituting from

$$1 + \gamma \cdot$$

or

$$p = \frac{}{e^{\delta} +$$

and

$$1\text{-}p = \frac{}{e^{\delta}$$

Now subs

$$\Delta a = \alpha$$

$$\Delta s = -$$

This model is p

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tion ($\Delta s \equiv 0$).

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$$1 + \gamma \cdot \frac{e^{-s}}{1 + e^{-s}} \cdot |m-a| = \frac{1}{p}$$

$$p = \frac{e^{s} + 1}{e^{s} + 1 + \gamma |m-a|} \qquad (128)$$

$$1-p = \frac{\gamma |m-a|}{e^{s} + 1 + \gamma |m-a|} \qquad (129)$$

Now substituting in Equation 126 yields

$$\Delta a = \alpha \cdot e^{s} \cdot \frac{\gamma (m-a)}{e^{s} + 1 + \gamma |m-a|} \qquad (130)$$

$$\Delta s = - \frac{\gamma |m-a|}{e^{s} + 1 + \gamma |m-a|} \cdot \frac{e^{s}}{e^{s} + 1} \cdot \alpha |m-a| \qquad (131)$$

odel is presented graphically in Figures 59 and 60. perfectly credible source, $\Delta a = \alpha \gamma (m-a)$ is the discrepancy model, and there is no source deroga- $\Delta s \equiv 0$). If the source has no credibility, then is no attitude change and no source derogation is no dissonance). From Figure 60, we see that derogation is a U-shaped function of attitude the source. From Figure 28 we see that as dis- cy increases attitude change increases to an asymp- level (αe^{s}) which is in turn an increasing function rce credibility or attitude toward the source.

This is in substantial agreement with Aronson, , and Carlsmith except that attitude change doesn't

(a)

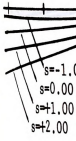

Figure 59. A
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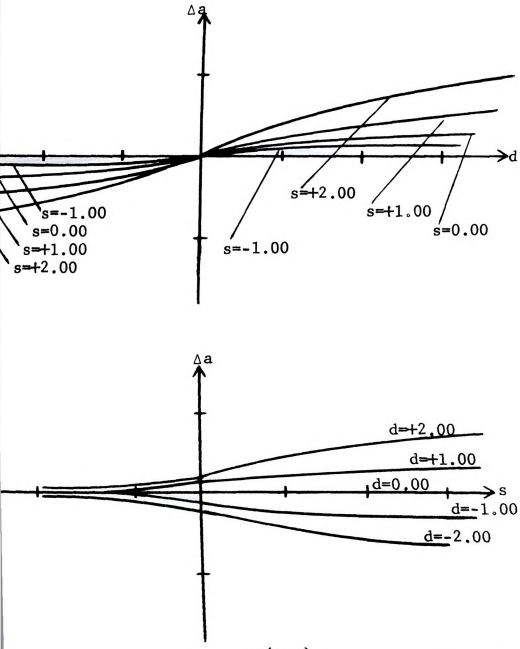
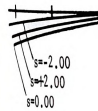


$$\Delta a = \alpha \cdot e^{s \frac{\gamma(m-a)}{e^s + 1 + \gamma |m-a|}} \quad \alpha = 0.5,\ \gamma = 0.75$$

59. Attitude change as a function of message discrepancy and attitude toward the source for dissonance model II.

(a)



(b)



$$\Delta s = -\frac{\gamma}{e^{s}+|+}$$

Figure 60. Sour
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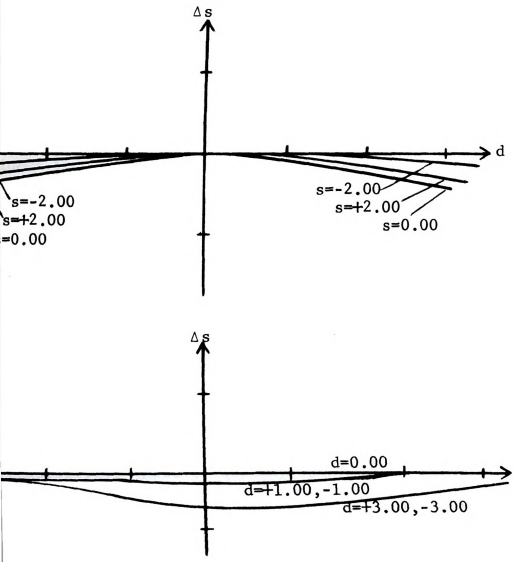

$$= -\frac{\gamma\,|m-a|}{e^{s}+|+\gamma\,|m-a|} \cdot \frac{e^{s}}{e^{s}+1} \cdot \alpha\,|m-a|, \quad \gamma = 0.75, \quad \alpha = 0.5$$

60. Source change as a function of message discrepancy and attitude toward the source for the dissonance model II.

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zero as discrepancy goes to infinity for sources of
ediate credibility. Thus we have a second model
on the Aronson, Turner, and Carlsmith assumptions
s inconsistent with the predictions they "derived."

On the other hand, the attitude change curves
inear in the first model and asymptotically con-
in the second. This suggests that a more extreme
n of the assumptions in the second model would pro-
he social judgment curves.

A Second Conservation Model

Assume again that total affective change equals
ssonance released. Assume again that the relative
cy to derogate the source is inversely related to
credibility. However instead of assuming that the
ve tendency to disparage the source is proportional
crepancy, assume that it is proportional to the
of discrepancy, that is

$$\frac{|\Delta s|}{|\Delta a|} = \gamma \cdot \frac{e^{-s}}{1 + e^{-s}} \cdot |m-a|^2$$

So, if you double discrepancy you quadruple the
ve tendency to derogate the source rather than
your attitude. If you triple the discrepancy, the
e tendency to derogate is multiplied by nine. Thus
increase in discrepancy, there is a more than

proportional incr

source.

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$\Delta s = -\alpha$

These models are

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Figure 62, we s

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rtional increase in the tendency to disparage the
e.

The derivation is identical in form and yields

$$\Delta a = \alpha \cdot e^{s} \cdot \frac{(m-a)}{e^{s} + 1 + \gamma\ |m-a|^2} \qquad (133)$$

$$\Delta s = -\alpha \cdot \frac{\gamma\ |m-a|^2}{e^{s} + 1 + \gamma\ |m-a|^2} \cdot \frac{e^{s}}{e^{s} + 1} \cdot |m-a| \qquad (134)$$

models are displayed in Figures 61 and 62. Again
rfectly credible source produces a linear discrep-
aw for attitude change, and no source derogation.
there is no dissonance produced by the perfectly
ible source and concomittantly no change. From
62, we see that again source derogation is a U-
function of source credibility. However, attitude
is also a U-shaped function of discrepancy (while
derogation is an increasing function of discrepancy).

This last model is consistent with Aronson, Turner,
rlsmith. The key assumption is mathematical,
that the relative tendency to derogate the source
at a more than proportional rate as a function of
pancy.





$\Delta a = \alpha e^{s}$

Figure 61. Att
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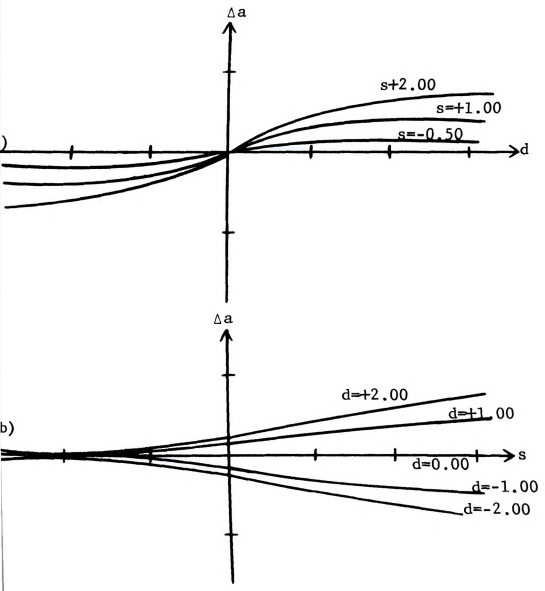
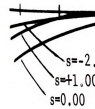


$$\Delta a = \alpha\, e^{s}\, \frac{(m - a)}{e^{s+1+\gamma|m-a|^{2}}}\,, \quad \alpha = 0.5,\ \gamma = 0.75$$

ure 61. Attitude change as a function of message discrepancy and attitude toward the source for dissonance model III.

(a)



(b)



$\Delta s = -\alpha \frac{\gamma|m}{e^{s}+1+}$

Figure 62. Sou
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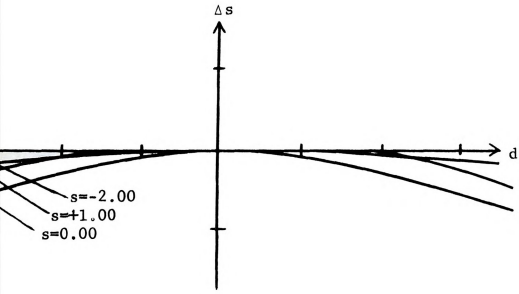

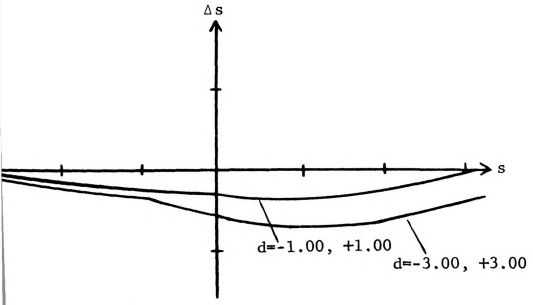

$$= -\alpha \frac{\gamma |m-a|^2}{e^s + 1 + \gamma |m-a|^2} \cdot \frac{e^s}{e^s + 1} \cdot |m-a|, \quad \alpha = 0.5, \ \gamma = 0.75$$

62. Source change as a function of message discrepancy and attitude toward the source for the dissonance model III.

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CHAPTER VI

A RECAPITULATION OF THE THEORIES AND A REVIEW OF THE RESULTS OF THE TANNENBAUM STUDY

Theories

Substantively the theories fall in two classes, affective consistency theories on one side and the itive theories on the other. The cognitive theories me that it is the "logical" content of the message produces change while affective consistency theory nes that change is produced when the implied emotional tions are incompatible.

Mathematically there are three main clusters in theories of attitude change which are most clearly in the plots of attitude change as a function of pre- ge attitude with attitude toward the source parameter-

For the constant change theorists the curves are all the axis for a positive message and all below the for a negative message. The relativistic information ssing theorists, social judgment theorists, and dis- ce theorists are all discrepancy theorists. Except

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boomerang, attitude change is positive when the mes-
e value is above the attitude and negative when it is
er. For congruity theory there is a complex inter-
ion between message value and attitude toward the so
rce. If the message is positive; each curve crosses
axis at the point where a = s, is positive below
point and negative above it. That is, the curves
different source values look like discrepancy curves
different message values. If the message is negative,
curves all cross the axis where a = -s, and again
like discrepancy curves for different message values.
the neutral message, the congruity theory and the
tant change theory predict no change.

The theories are more sharply differentiated in
r predictions for source change. The two information
essing models were supplied with the same model for
icting source change. The key assumption was that if
urce advocated a more polar version of the subject's
tude there would be source enhancement. Advocating
shy-washy" version elicits mild disparagement, while
sition elicits strong disparagement. For social
ent theory, any message in the latitude of acceptance
ts enhancement, while a message in the latitude of
tion elicits disparagement. Thus source change as

a function of attit

value and negative

either direction.

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Tannenbaum's St

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nction of attitude will be positive near the message
ie and negative if the attitude is too discrepant in
ier direction. The dissonance theorists also predict
source change will be a function of the discrepancy
een attitude and message value. If there is no dis-
ancy, there is no disparagement. The greater the dis-
ancy in either direction, the greater the disparage-
. Thus, if source change is plotted against attitude,
ill be zero at the message value and increasingly neg-
e as you leave that value. For congruity theory
e is a complex interaction between attitude and mes-
value. For the positive message, if source change
lotted as a function of source with attitude parameter-
, each curve will cross the axis at s = a. Below this
t the curves are positive; above it, they are negative.
the negative message, the curves cross the axis at
-a, are positive below that point and negative above
For the neutral message, congruity theory predicts
nange.

enbaum's Study

The materials in Tannenbaum's study were "news-
articles" in which a prominent person or political
itution was reported to have endorsed or opposed some

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vic or cultural policy. The articles were carefully
itten to be free of actual arguments or justifications
the reported position. Premessage attitudes toward
irce and object were classified into three intervals:
sitive, negative, or neutral. For each of the resulting
ie cells, he reports the mean source change and attitude
nge for fifteen observations.

Tannenbaum's actual results are displayed in
ures 63, 64, 65 and 66 to scale. They exhibit little
to the original Osgood and Tannenbaum model. However,
model with nonlinear incredulity and source-object
mmetry (Figures 34, 35, 44, and 45) fits reasonably
l. Of course the theory was reconstructed post hoc to
this data, i.e. this data was not a cross-validation
dy.

The principal problem in the attitude change data
other models is the "boomerang" for negative source
the positive message. If these two small negative
ues are ignored (and neither is significantly different
n 0) the following models fit the data: constant
nge with source effect and polarity (Equation 16),
rmation processing model with source effect and
arity (Equation 19), the Sherif model without boomer-
(Equation 29), and the third dissonance model





Figure 63. The
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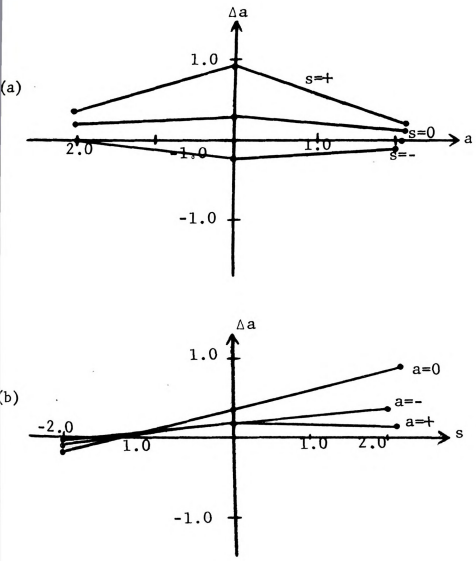

Figure 63. The regression curves from the Tannenbaum data for attitude change as a function of attitudes toward source and object in the positive assertion.



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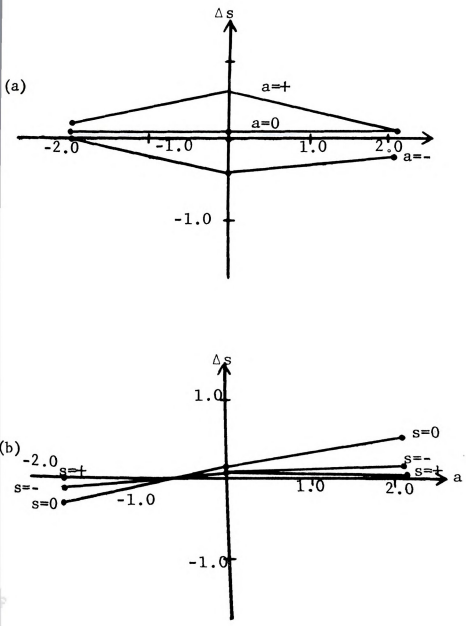

gure 64. The regression curves from the Tannenbaum data for source change as a function of attitudes toward source and object in the positive assertion.

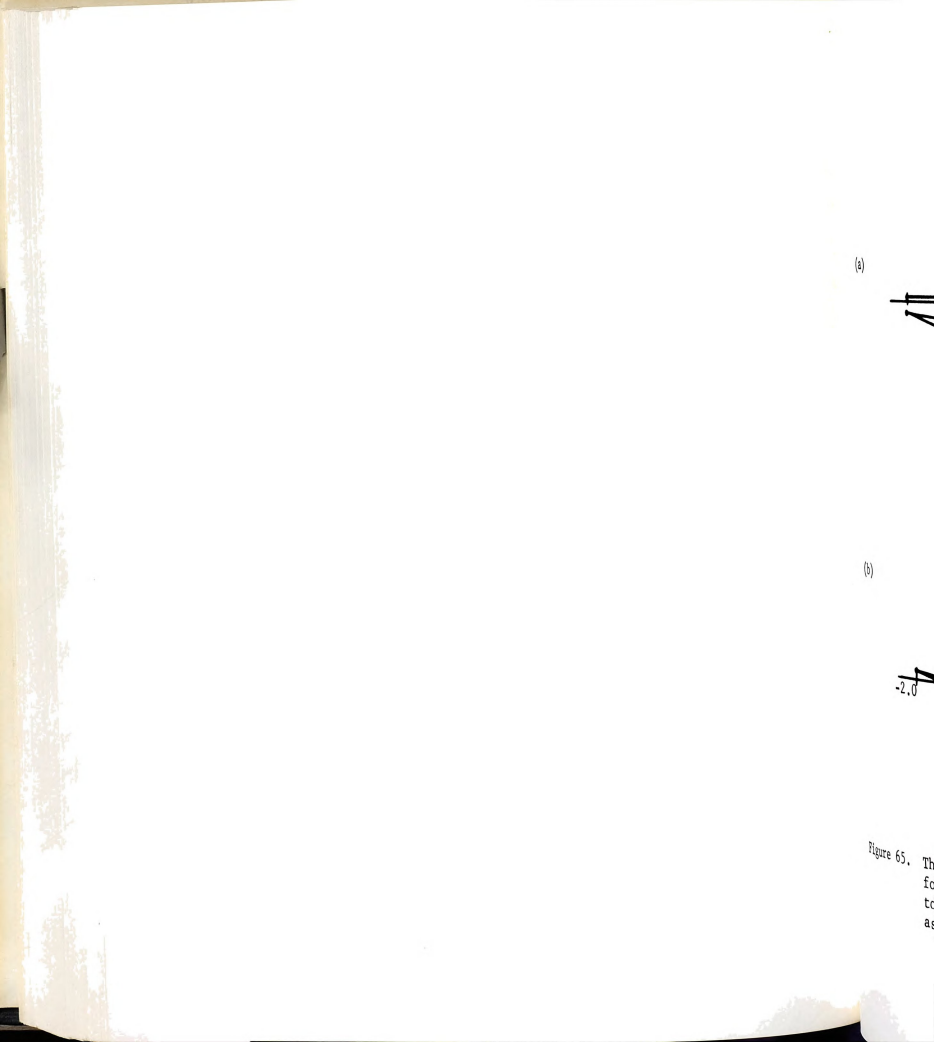

Figure 65. Th
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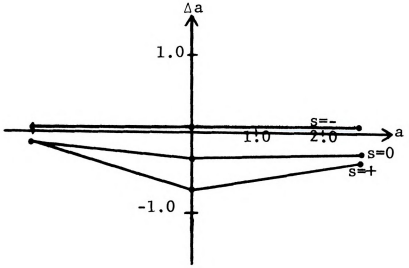

(b)

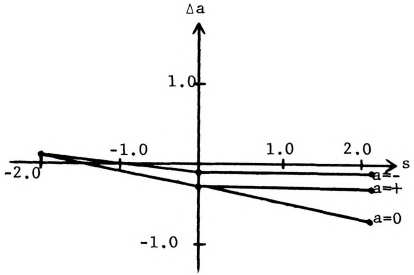

Figure 65. The regression curves from the Tannenbaum data for attitude change as a function of attitudes toward source and object in the negative assertion.

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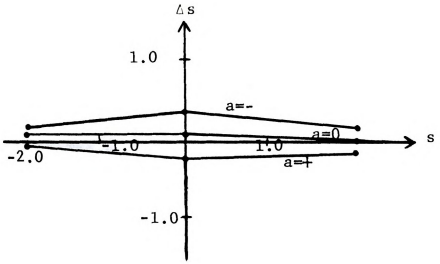

(b)

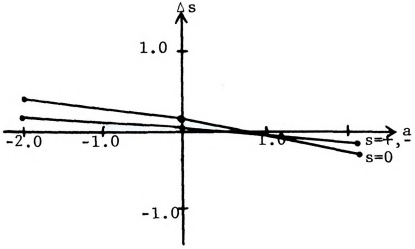

Figure 66. The regression curves from the Tannenbaum data for source change as a function of attitudes toward source and object in the negative assertion.

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Of these four models, only the Sherif model without boomerang fits the source change data. The source change goes from positive to negative at a = 0, which is precisely the point at which attitude change was maximal in both messages, i.e. at the boundary of the latitude of acceptance. The source change model for the constant change and information processing theories is a complete failure. Even if source change is regarded as "0", dissonance theory would be in trouble. The amount of source disparagement is woefully short of dissonance predictions, particularly for large discrepancies.

The attitude change in Tannenbaum's data is of marginal magnitude. The models could only be fit qualitatively. Every model had places where it assumed certain points were "0", and all these assumptions were reasonable statistically (n = 15 for any given point). Source change was even smaller, and in fact the hypothesis that there was none is not completely unreasonable.

Tannenbaum's data bring out the fact that many of the models are very similar, and unless the magnitude of source change and attitude change is substantial, distinguishing among competing models can be difficult.

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CHAPTER VII

UNRELIABILITY AND REGRESSION EFFECTS

This chapter reviews the problems that are created by fallible data, in particular the regression artifacts produced by unreliability, i.e. errors of measurement. A partial solution to the problem is offered and discussed.

If all variables were perfectly measured, evaluating the "goodness of fit" for each model to empirical data would be uncomplicated. One would simply plot the graph for Δa versus a and see how well it corresponds to the constant change model, linear discrepancy model, etc. But if the variables are imperfectly measured, there are two immediate problems. Even if the underlying change scores were a perfect function of the independent variable (or variables), the observed scores would generate a scatterplot. Thus, (1) the regression of Δa on a would appear to be imperfect and (2), more seriously, the observed regression of Δa would not be the same as the desired regression. The fact that the graph of the observed variables differs from the graph of the true

variables is ref

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variables is referred to as a regression effect or artifact.

If the regression curves are linear, the traditional "correction for attenuation" formulas adjust the observed regression curve to yield the true regression curve. If they are not linear, then there is no standard correction procedure. However, there is a closely related procedure that greatly reduces the difference between observed and actual regression (Hunter and Cohen 1971). The next section states and solves the problem for linear regression.

Univariate Case: Linearity

Let a and a′ be the observed pre and post attitude scores related to the corresponding true scores A and A′ by the classical observed = true + error score equations. Suppose that every subject's attitude toward the object changed by a constant amount, say +1. Thus,

$$\Delta A = 1 \text{ or } A' = A + 1 \qquad (135)$$

Let r_{aa} be the reliability coefficient for a and μ_A be the mean of A. Figure 67 presents the true and observed regression curves for this case with moderate reliability for a ($r_{aa} = .70$) and with $\mu_A = 1$.

The observed regression line exhibits the classic



Figure 67. Tr
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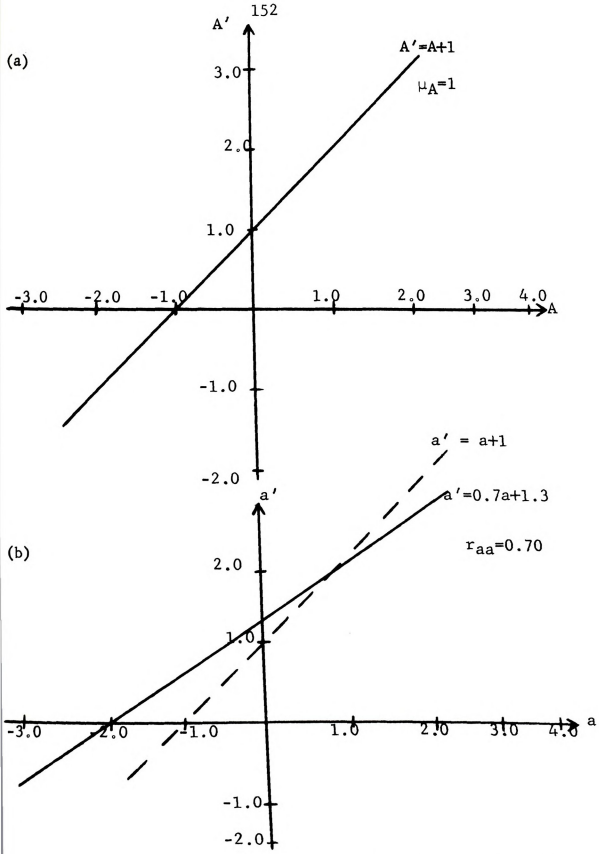

Figure 67. True and observed regression curves of post-message attitude on pre-message attitude (the linear case).

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"regression to the mean" effect. The degree of attitude change is underestimated for those individuals above the mean on A ($A > 1$) and overestimated if the individuals were below the mean on A ($A < 1$). The most serious consequences of this artifact are evident in Figure 68 which shows the true and observed regression of attitude change on pretest. The observed regression line appears to obey the linear discrepancy model with a message value of 4.33 even though true change was constant as a function of pretest. Not only does the observed regression line fail to identify the true regression line, but it also leads to the acceptance of a totally false, but realistic, model.

The problem illustrated by this example is general. If the true regression is linear, the slope of the observed regression line will always be "less" than the slope of the true regression line by a factor equal to the reliability of the independent variable.

For the linear case, standard correction procedures have been devised to eliminate the regression artifact (Lord and Novick, 1968). These procedures are all equivalent to transforming the observed scores on the pretest by the equation

$$a^* = \mu_a + r_{aa} (a - \mu_a) \qquad (136)$$



Figure 68. T
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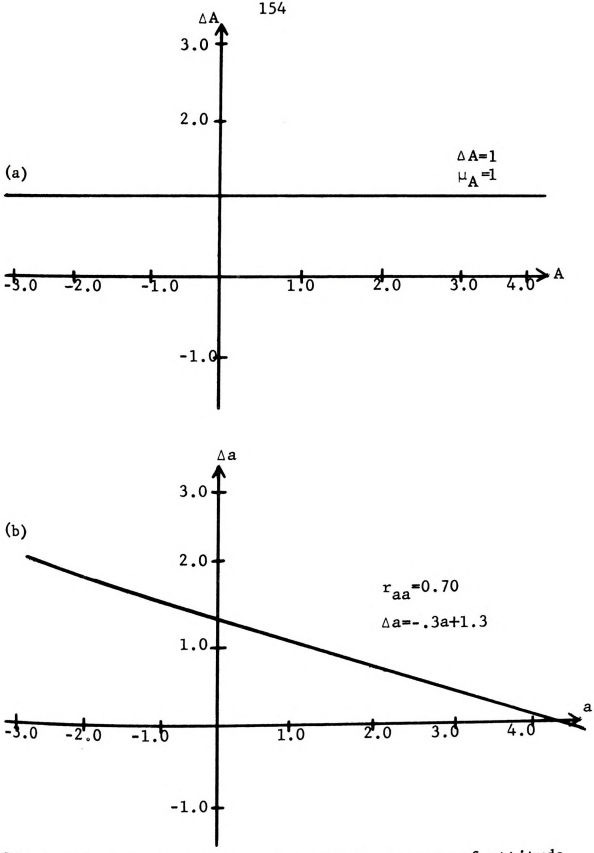

Figure 68. True and observed regression curves of attitude change on pre-message attitude (the linear case).

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where a* is the "corrected" value of a. The regression line for a′ on a* would be exactly the same as the regression of A′ on A (to within sampling error).

Graphically, this procedure is equivalent to plotting the points [a*, E(a′|a)] rather than [a, E (a′|a)], where E (a′|a) is the conditional mean post-attitude score for fixed pre-attitude score. This adjustment does not correct the conditional variances, however. They remain inflated by the unreliability of both a′ and a. If the regression is homoskedastic, the true conditional variance is given by

$$\sigma^2_{A'|A} = r_{a'a'}\,\sigma^2_{a'}\,\left(1 - \frac{r^2_{aa'}}{r_{aa}r_{a'a'}}\right) \qquad (137)$$

(to within sampling error).

Univariate Case: Nonlinearity

To illustrate the nonlinear case, let A′ and A be related by:

$$A' = A^2,\ \sigma^2_{A'|A} = 0,\ A \text{ is } N(0, 1) \qquad (138)$$

Since A′ is perfectly quadratic on A, $r_{AA'} = 0$. Assuming a bivariate normal relation between true score and error, the true and observed regression curves for various reliabilities are shown in Figure 69.

Inspection of Figure 69 shows that the observed regression function is relatively flat compared to the

Figure 69.

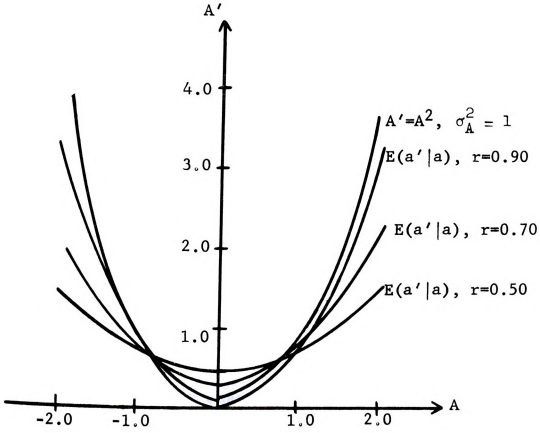

Figure 69. The true regression curve for post-message attitude on pre-message attitude, and the observed regression curves as a function of reliability (the nonlinear case).

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true regression curve, $A' = A^2$. This leveling effect caused by measurement error in a produces the regression artifact. Post-message attitude scores for individuals whose pre-message scores are in the middle are overestimated, while the post-message attitude scores for individuals in either tail are underestimated and more so as their scores become extreme.

The proposed solution originated with a rather naive question: Why not try the correction formula for the linear case? The corrected regressions are presented in Figure 70. The regression effect, although still present, has been considerably reduced.

For most data sets, the number of observations is too small to warrant point regression procedures. Instead the independent variable is collapsed into intervals. Hunter and Cohen have noted that the use of class intervals is equivalent to point regression at a slightly lower level of reliability.

As in the linear case, the conditional variances of a' on a are unchanged by the correction procedure. Hence, the observed conditional variances are larger than the actual. No attempt was made to deal with this problem in the present paper.

A general evaluation of this procedure is beyond

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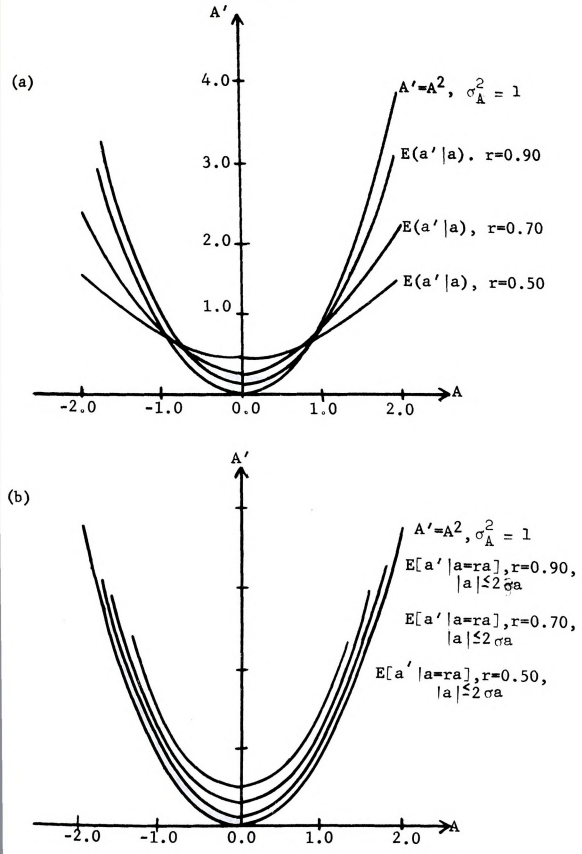
Figure 70.



ure 70. The true regression curve for post-message attitude on pre-message attitude, and the observed (a) and corrected (b) curves as a function of reliability (the nonlinear case).

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the scope of this paper (see Hunter and Cohen, 1971). For the present, it is sufficient to note that the procedure is perfect if the true regression is linear and near perfect if it is monotone. The example shown is illustrative of the worst possible nonlinear case.

Since the present study is concerned with testing models, an alternative strategy was considered: For each model generate a predicted regression curve for fallible data. Compare the predicted fallible curve with the observed fallible curve. There are three problems with this approach. The simplest problem is the familiar problem of unknown parameters (a matter of numerical analysis). Second, the exact relation between true scores and errors must be known (this is normally assumed to be complete independence). Third the distributions of true scores and errors must be known (these are traditionally taken to be normal.) These last two are usually taken together in the assumption that true score and error are independent, normally distributed random variables.

However, nonlinear regression is not a passive context for normality assumptions. All formulas depend critically on joint and single moments, and the assumption that true score is perfectly symmetric, for example, has ramifications which can neither be tested nor corrected

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for in the data. Thus, if true score were actually skewed, or if errors were heteroskedastic on true score or etc., then the predicted regression curve for fallible data would have relatively more error than the estimated true regression obtained using Equation 100 on the observed data

Bivariate Case

In the present thesis, the models involve not one attitude but two--source and object. These models are in the form

$$A' = f(A,S),\ S' = g(A,S)$$

where A, A′ and S, S′ are the true pre and post-message attitudes toward source and object. Again, the observed attitude scores a′, a and s′, s are fallible indicators of these true scores and, therefore, the observed regression functions are subject to the regression artifacts.

If the regression functions are linear and the true score-error component assumptions hold, the true regression functions can be obtained using corrections for attenuation. There are two cases to be considered. When A and S are uncorrelated, the corresponding observed scores, a and s, are separately adjusted by Equation 100. The solution is more complex if A and S are correlated. In this case, the correction procedures are derived from

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Cohen, 1971).

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a multiple regression technique, which takes into account the degree of correlation between A and S (Hunter and Cohen, 1971).

As one might expect, there is no standard solution for adjusting nonlinear regression functions in the bivariate case either. However, if the observed regression functions are adjusted through the linear techniques, the regression artifacts are greatly moderated.

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CHAPTER VIII

EXPERIMENTAL DESIGN, INSTRUMENTS, AND METHOD

Experimental Design

tipulations for the Experiment

A successful laboratory persuasion study has four asic requirements. First, the stimulus for attitude hange must be the message. This condition is often not atisfied in many studies, especially when the attitude opic is a familiar or timely one. For example, persuasive rguments presented in a laboratory study might dispose he subject to think about arguments he has heard outside he experiments. These "internal messages" might then ecome the primary agents in inducing subsequent change. hus, there would be little relation between the message nd attitude change.

Second, it is necessary for the attitude toward he source to change during the experiment. Otherwise, ny of the present models cannot be differentiated. In me experiments the source's credibility was so extreme at any subsequent change was quite small (a polarity

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phenomenon). Or, the experimental manipulation was too weak to effect any significant degree of source change. In some instances, source credibility took on only two or three values, thus, excluding a thorough comparison of the models. If source change is to be related to attitude change, the source must be strongly linked to the message. If, like Walter Cronkite, the source is perceived as simply transmitting "facts" (or other people's views), the source and message will be dissociated and there will be no source change. A similar dissociation of source and message takes place, if the subject believes that "they screwed up. X didn't say that." or "X must have been under a lot of pressure" or "they've taken that out of context" etc.

The third condition is that the evaluative strength of the message must be subject to definition and measurement. The first requirement is that the content of the message be such that the value of the message (ignoring model-predictable subject-produced distortions) is the same for everyone. Second, the need for quantitative message values must not override the need for credible content. Previous attempts at a quantitative definition of message strength (in particular within experiments testing the discrepancy hypothesis) have produced some

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ather strange and, perhaps, absurd messages; for example, dvocating zero hours of sleep or expounding on the virues of never visiting a dentist. Such material could ause the subject to reject the experiment, i.e. produce aughter, arouse feelings of insult and indignation, reate a feeling of "confusion," etc.

There is also a fourth class of requirements arefully spelled out in Hovland (1959). One such problem as been touched on earlier--salient attitudes that are esistant to change. A quite effective countermeasure is o study attitude change for de novo attitudes formed in he laboratory. This procedure also usually minimizes ndividual differences in ego-involvement with the bject. The experimental method should also insure dequate warmup with the experimental instruments and abituation to the laboratory surroundings. Finally, the xperimental task should be engaging so the subject attends o and genuinely responds to the experimental sequence.

erview

The present study attempts to meet these requirents by using a "dynamic person perception" paradigm. ppose the subject views two individuals, A and B, who ccessively talk about one another. When A describes B,

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A becomes a source of information and B becomes the object of this information. The subject forms an impression of B based on what A says and, at the same time forms an impression of A. These impressions can be translated into evaluative ratings of A and B. Subsequently, when B talks about A, their roles are now reversed with B the source and A the object. Given that A and B are unfamiliar stimuli to the subject prior to the experiment, one might expect that (1) the evaluative ratings acquired by A and B would be determined by what they say about each other; (2) the evaluative ratings could be manipulated through message content, thus providing experimental control over attitude and source change; (3) source and object are strictly comparable and are on an absolutely equal basis in terms of potential change; (4) subjects should find "people talking about other people" interesting and engaging.

This paradigm can be generalized to a set of people talking about one another, thus providing a natural base for replications and varied message values. For the present study, five amateur thespians at Michigan State University were hired to portray the roles of stimulus-persons. E claimed to have interviewed the members of a drama club and their faculty advisor. The

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interpersonal messages were said to be based on the material collected in these interviews.

In reality, the interpersonal material was constructed without any recourse to empirical data. The material for each stimulus-person consisted of: a biographical resume ("prepared by the advisor"), a personal sketch or self-description, and four interpersonal sketches--statements about him from each of the other people. Although the material was fictitious, they had been written to resemble typical protocols that might be obtained from real-life interviews.

Each actor (stimulus-person) was first introduced by the biographical sketch. Next, he delivered his self-description, and finally he talked about the other group members. The self-description and interpersonal sketches had been pre-recorded (on videotape) prior to the experimental sessions.

Ss in the experiment read the five biographical resumes and then rated each stimulus-person on several evaluative scales. Next, the videotaped personal sketches were shown, after which Ss again completed the evaluative scales for each stimulus-person. Ss then viewed twenty interpersonal sketches. After each sketch, Ss rated the source and object of the sketch on the evaluative scales.

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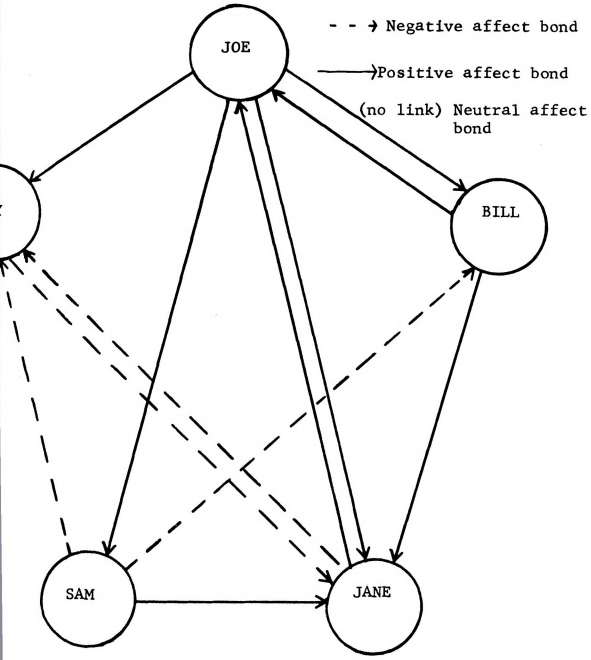
Sociogram

Since it was anticipated that the experimental erials would be delivered by student actors, members a hypothetical drama club were selected for stimulus- sons. This decision permitted the student actors to vide first-hand knowledge in the construction and ting of materials. In addition, such a hypothetical up seemed to provide diverse stimulus-person attributes interactions. The size of the group was set at five.

The members of the drama club were Joe, Bill, , Mary, and Jane. A hypothetical sociogram was defined the group and is presented in Figure 71. Sociometric ices were not symmetrical. The sociogram was designed provide a rich variety of evaluative material (messages) h positive, neutral, and negative affect.

For each member, a kernal caricature was composed e Table 1). The facts in this caricature were main- ned in the interpersonal sketches, although the source free to interpret these facts in a fashion appropriate he sociogram. The source might also "add facts" if e were consistent with the caricature and his feelings rd the object. This procedure generated interpersonal

Figure



gure 71. Sociogram of the hypothetical drama club.

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ketches that contained consistent information about the bjects from message to message, but still reflected the ources' evaluations of the objects.

TABLE 1.

CARICATURES FOR THE HYPOTHETICAL DRAMA CLUB

Stimulus-person	Caricature
Mary	"is hardworking but cold and bitter; always bitching about people who don't do their work."
Joe	"is not much. He's 'all right,' doglike, nice but tasteless, works steady but slow."
Sam	"is 'cool," he's better than the others he has 'talent.'"
Jane	"is sincere and untalented, a bit lazy, talks all the time. (Note: Jane basks in the light of contrast)."
Bill	"is quiet but competent. He is steady, reliable and honest."

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Advisor Biographies and Self-Descriptions

Biographical sketches about each member were "prepared by" the faculty advisor to the drama club (see Appendix I). The material in these sketches served to preset Ss attitudes toward the members. The biographical material was selected to produce maximal variance in the initial attitudes toward each group member and thus guarantee varying degrees of communication discrepancy when the interpersonal sketches were presented. The biographical sketches also furnished S with experience on the experimental task and the rating instruments.

The self-descriptions were "prepared by" each member and presented his reasons and objectives for joining the drama club (see Appendix I). These sketches were delivered by the student actors and had been videotaped. The visual personal sketches familiarized S with the "live" group (until this point, S had only read printed material about the group) and stabilized his impression of each member prior to the interpersonal message phase of the study. It was also intended that these videotaped sketches would further fix, for S, the identity of each stimulus person and would also eliminate from the interpersonal sketches the transient reactions S might have had upon viewing the stimulus-persons for the first time.

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nterpersonal Sketches

With the group size at five, there were twenty ossible interpersonal messages (see Appendix I). All wenty were constructed and videotaped. Each sketch was ntended to reflect the positive, negative, or neutral ssociation from the source to the object. In writing egative or positive sketches, highly complimentary or ighly derogatory material was introduced into the sketch, onsistent with the caricatures and biographies. In eutral sketches, an attempt was made to avoid highly olar material. Weakly positive statements were balanced y weakly negative statements when necessary. In all ases the positive and negative material was logically onsistent, i.e. referred to different attributes such as alent and warmth.

Two orders of presentation for the interpersonal essages were devised. In one order, each member, in urn, successively talked about the other four members-- ame source about multiple objects (SSMO). In the second rder, four members talked about the same member, then our members talked about another member, and so on-- ultiple sources about same object (MSSO). These orders long with the entire experimental sequence are reported n Table 2. The MSSO order was introduced to check for

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TABLE 2

EXPERIMENTAL SEQUENCES FOR THE SSMO AND MSSO CONDITIONS

Condition	
SSMO	MSSO
Mary	Mary
Joe	Joe
Bill	Bill
Jane	Jane
Sam	Sam
Mary	Mary
Joe	Joe
Bill	Bill
Jane	Jane
Sam	Sam
Mary about Bill	Jane about Sam
Mary about Jane	Bill about Sam
Mary about Joe	Joe about Sam
Mary about Sam	Mary about Sam
Mary about Sam	Mary about Sam
Joe about Bill	Sam about Jane
Joe about Jane	Bill about Jane
Joe about Mary	Joe about Jane
Joe about Sam	Mary about Jane
Bill about Jane	Sam about Bill
Bill about Joe	Jane about Bill
Bill about Mary	Joe about Bill
Bill about Sam	Mary about Bill
Jane about Bill	Sam about Joe
Jane about Joe	Bill about Joe
Jane about Sam	Mary about Joe
Sam about Bill	Sam about Mary
Sam about Jane	Jane about Mary
Sam about Joe	Bill about Mary
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Videotapes

Five student thespians in the Department of Theatre at Michigan State University were recruited to play the roles of the hypothetical acting group. Each student actor rehearsed his particular script for a period of five days. He was instructed to critically evaluate the sketches for their degree of realism and for consistency with extemporaneous dialogue. After the sketches were revised to a minor extent, each student actor was videotaped while he delivered "his" self-description and "his" sketches about the other four members of the hypothetical group. During the videotaping the student actor was seated at a table as if he were responding to queries from an interviewer. On the videotape itself, a sign was superimposed in each segment to identify the member of the hypothetical acting group and, for the interpersonal sketches, the object of the sketch. When S viewed the videotape, this sign was visible at the bottom of the television screen.

Instruments

Ratings

tings of Source and Object

All attitudes were measured by the semantic differential technique. Thirteen bipolar adjective scales re selected by (1) examining previous research related interpersonal ratings (Snider, 1969) (2) incorporating jectives that, on an a priori basis, seemed highly levant to the material in the experimental sketches, d (3) supplementing each scale with a parallel scale r the purpose of augmenting and assessing the reliability the instrument (the one exception was the pair involved-oof). The thirteen bipolar scales are listed below by irs. The abbreviation "r.s." means "reverse scored."

agressive-timid	relaxed-tense (rs)
competent-incompetent (rs)	untalented-talented
dishonest-honest	trustworthy-untrustworthy (rs)
modest-arrogant (rs)	vain-humble
ungenerous-generous	selfish-unselfish
unfriendly-friendly	warm-cold (rs)

The visual format and scoring are shown below:

ld: ____: ____: ____: ____: ____: ____: ____: warm
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ese scales were actually dittoed onto an IBM scoring eet (see Appendix II). The resulting data sheets can

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be read by the optical scanner and thus data coding was reduced to writing and testing a program to transform the machine punches to the desired scores (see Appendix II).

The next step was to identify an evaluative cluster. To do this, the 13 adjective pairs were correlated for each source and object rating. Thus, there were fifty-five 13 x 13 correlation matrices within SSMO and fifty-five for MSSO. These were found to be uniform, and the average of the 110 matrices is found in Table 3.

To identify an evaluative cluster, all possible intercorrelations were computed between the 13 adjective pairs, separately for the source and object ratings, for each message. An evaluative cluster was established by examining the pattern of correlations for internal validity (high intracluster correlations) and external validity (a similar correlational pattern for variables within the cluster with variables outside the cluster). (See Hunter, 1970).

The scales friendly-unfriendly and warm-cold were presumed to load highly on the evaluative factor and were the pivotal scales in the clustering process. These pairs emerged in the present study along with selfish-unselfish, ungenerous-generous, modest-arrogant, vain-humble, dishonest-honest, and trustworthy-untrustworthy.

TABLE 3

OF 12 SEMANTIC DIFFERENTIAL SCALES

THE CORRELATIONS AMONG THE 13 SEMANTIC DIFFERENTIAL SCALES AVERAGE ACROSS THE BIOGRAPHICAL, PERSONAL, AND INTERPERSONAL SKETCHES AND ACROSS SMMO AND MSSO

	Scale	(1)	(2)	(3)	(4)	(9)	(10)	(12)	(13)	(5)	(6)	(7)	(8)	(11)
(1)	unfriendly-friendly	100	70	53	65	40	43	35	36	06	32	13	11	34
(2)	warm-cold		100	50	57	42	46	31	34	07	32	13	11	37
(3)	selfish-unselfish			100	60	53	55	39	39	19	23	16	10	27
(4)	ungenerous-generous				100	44	48	39	42	09	25	15	16	30
(5)	modest-arrogant					100	67	31	31	34	19	08	04	24
(10)	vain-humble						100	31	29	32	14	07	07	25
(12)	dishonest-honest							100	54	17	17	32	24	21
(13)	trustworthy-untrustworthy								100	20	20	39	31	25
(5)	agressive-timid									100	-12	16	-11	12
(6)	relaxed tense										100	19	13	25

TABLE 3--Continued

USING THE 13 SEMANTIC DIFFERENTIAL SCALES

TABLE 3--Continued

THE CORRELATIONS AMONG THE 13 SEMANTIC DIFFERENTIAL SCALES AVERAGE ACROSS THE BIOGRAPHICAL, PERSONAL, AND INTERPERSONAL SKETCHES AND ACROSS SMMO AND MSSO

	Scale	(1)	(2)	(3)	(4)	(9)	(10)	(12)	(13)	(5)	(6)	(7)	(8)	(11)
(7)	competent-incompetent											100	65	20
(8)	untalented-talented												100	14
(11)	involved-aloof													100

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Estimated reliability coefficients for the pre-message evaluative reatings of source and object are presented in Table 4. Reliabilities were estimated by the application of the Spearman-Brown formula to the average correlation among the 8 evaluative scales. The reliabilities range from .70 to .94 with an average of 0.89.

Method

Subjects

E recruited, by telephone, 219 students enrolled at Michigan State University to participate in the study. S was paid $3.00 for his participation. The bulk of the Ss were at the freshman and sophomore class level.

Experimental Room

The study was conducted in the Experimental Classroom Facility at Michigan State University. The room was similar in all respects to a regular classroom except that a 23" television monitor was located at the front right corner of the room. Four rows of five desks each were positioned in a semicircular fashion at right angles to the television monitor. A two-way mirror was located on the front wall of the room and permitted complete visibility of the room. Videotape

TABLE 4

RELIABILITIES OF THE PREMESSAGE ATTITUDES TOWARD SOURCE AND OBJECT IN THE SSMO AND MSSO CONDITIONS

	Condition			
	SSMO		MSSO	
Message	Source	Object	Source	Object
Mary about Bill	0.87	0.86	0.94	0.93
Mary about Jane	0.88	0.86	0.92	0.84
Mary about Joe	0.88	0.88	0.91	0.88
Mary about Sam	0.89	0.87	0.82	0.88
Joe about Bill	0.89	0.70	0.90	0.92
Joe about Mary	0.90	0.89	0.93	0.91
Joe about Sam	0.90	0.90	0.91	0.88
Bill about Jane	0.90	0.88	0.91	0.94
Bill about Joe	0.86	0.89	0.83	0.91
Bill about Mary	0.87	0.88	0.91	0.95
Bill about Sam	0.90	0.86	0.88	0.89
Jane about Bill	0.88	0.90	0.93	0.93
Jane about Joe	0.85	0.90	0.93	0.91
Jane about Mary	0.88	0.92	0.94	0.96
Jane about Sam	0.89	0.86	0.88	0.88
Sam about Bill	0.83	0.88	0.91	0.92
Sam about Jane	0.89	0.89	0.88	0.91
Sam about Joe	0.89	0.93	0.92	0.93
Sam about Mary	0.87	0.93	0.90	0.92

Note.--Reliabilities are estimated by application of the Spearman-Brown formula on the average correlation of the evaluative cluster.

quipment and E's observation post were situated in back f the two-way mirror.

xperimental Material

The videotaped segments (five self-descriptions nd twenty interpersonal sketches) for each student actor ere edited onto a continuous videotape, 37 minutes in ength.

The questionnaire booklet contained (1) a brief xplanation of the study, (2) printed versions of the elf-descriptions and the advisor sketches, and (3) 3-scale semantic differential instruments. (See ppendix III).

rocedure

S was assigned to either the SSMO Condition or he MSSO Condition. Because the correlational aspects of he experiment required a large number of subjects in one ondition, Ss were assigned to the SSMO condition until 46 Ss had been run. Funds were available for 73 addition s and they were allotted to the MSSO Condition. Ss were ested in group sessions in the classroom with the number f testees in any session varying from 2 to 18.

An experimental session was approximately 105 inutes long. At the start of the session, E distributed

each S the questionnaire booklet and a composite photo-
aph of the drama club (see Appendix I). E informed the
that the control room for the videotape equipment was
hind the classroom, and that E would remain in the
ntrol room during the session. E told the Ss that he
uld observe them through the two-way mirror and S
uld raise his hand if he had any questions or difficul-
es during the session. S was told to refer to the
otograph at anytime during the experiment. E then
tered the control room.

S read the instruction booklet which informed him
at the experiment was designed to study interpersonal
rception. The questionnaire booklet stated that E had
terviewed members of a campus drama club and had
tained, with their permission, material pertaining to
eir interpersonal relationships. This material was to
utilized in subsequent research. Student actors not
the club had been hired to simulate the members of
drama club. The self-descriptions and interpersonal
tches S viewed would be delivered by these student
ors, although they were obtained from real persons.

S read the advisor sketches and, for each stimulus-
son filled out a 13-scale semantic differential for
he felt about each person. Next, S viewed the five

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self-descriptions on the television monitor. S then read the same self-descriptions printed in the questionnaire booklet and again rated how he felt about each member.

Next, E showed S the twenty interpersonal sketches. After each sketch, the videotape was stopped and S rated how he felt about the person talking (the source) and the person talked about (the object). After the last interpersonal sketch, S made a final rating of each member in the acting club.

E then entered the classroom and explained that the material had been constructed rather than actually obtained from a campus drama club. E debriefed the Ss on the purpose of the study and answered Ss' questions about the experiment. Before leaving, E requested S not to reveal or discuss the contents of the experiment with anyone until the end of the school quarter.

CHAPTER IX

THE SCALING OF MESSAGES

review of the Main Results

Messages were written with the intended message alues given in the sociogram above. Three scaling studies ere conducted to assess the actual message values: essages were scaled when viewed in context, read in ontext, and read out of context. The average correlation etween the methods was .90. The message values used in nalyzing the source and attitude change in the main study ere the majority-rule values assigned by the three caling methods. The correlation between intended and ctual sociogram was .84. (They agreed on 16 of the 20 inks or messages.)

heoretical Remarks

Every message has some affective value m for any iven subject. This value could be determined by a emantic analysis of the message and the receiver's value ystem. In a study where the content of the messages and

e character of the subjects is predetermined and beyond e control of the experimenter, this poses a considerable oblem. In a study where the messages are to be con- ructed for a chosen population of receivers, the prob- m is greatly simplified.

In this study the critical requirement is that the lue of the message be as nearly the same for all sub- cts as possible. Thus the message should not refer to aracteristics (such as "Negro") which have different lues to different subjects. Furthermore subtle material at requires or permits variant interpretations should avoided. If the message writer has consciously and plicitly followed these rules, then the resulting mes- ges should be semantically simple. In this case, or- nary psychological scaling by subjects from the same pulation as the receivers should provide an adequate timate of the message values produced. In particular, informal semantic analysis is implicit in any attempt write messages with predetermined values. If this in- rmal analysis is accurate, the scaling study should be alidation of the writer's intent.

There is an additional subtlety involved when re is a succession of messages about the same object. h message provides a context for those that follow. In

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an experiment this could be good or bad. If the meaning of the terms in the messages are susceptible to subtle alterations, individual differences in the value of a later message could be produced by an earlier message. On the other hand, the cumulative effect of the messages might be to reduce the number of ambiguities and hence reduce the variance in message value across subjects.

Thus, in a sutdy with multiple messages about the same object, the scaling of messages should be done in two very different ways. Each message should be scaled as a separate entity, i.e. "out of context." On the other hand, all the messages should be presented in the same order (and with the same identification) as in the experiment and scaled in that context. Ideally the message values would be the same in either context.

A second problem arises from the nature of the messages employed in the present study, that is, the videotaped interpersonal sketches. Scaling out of context was done with printed messages from which all identification was stripped, whereas videotaped messages also show the gestures, voices, and other expressive movements of the source. Furthermore the timing of the videotaped message is not determined by the subject as it is by the reader of the printed message, nor can the viewer look back.

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Thus there are four possible methods of scaling--messages read out of context (ROC), messages read in context (RIC), messages viewed out of context (VOC), and messages viewed in context (VIC). The VOC procedure was not done, because there was an error in estimating the number of subjects required. To avoid identification, each source must appear only once and each object must be discussed only once. This suggested twenty groups of judges, one for each message. However, the VOC scaling could be done with four groups of judges, each of which would see five messages: A talks about B who talks about C who talks about D who talks about E who talks about A; ACEBDA; ADBECA; and AEDCBA.

Viewing in Context

Rationale.--VIC most closely approximated the sequence of message presentation in the attitude study. It has the advantage of preserving (1) the temporal duration of the messages, (2) the visual and expressive effects of the videotaped sketches, (3) the exact content of the messages (including the identification of source and object), and (4) the sequence in which the messages appeared in SSMO). The disadvantage of the VIC procedure is that the scale values are "contaminated" by any interactive

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effects between the message and the judge's attitudes toward source and object.

Subjects.--Eight students attending Michigan State University volunteered for the study. S was paid $3.00 for his participation.

Scaling Booklet.--The experimental materials from the SSMO condition in the attitude study were utilized (SSMO Questionnaire Booklet and SSMO Videotape). (See Chapter VIII.)

Procedure.--Ss read instructions for the attitude study except they were told not to evaluate the object in the interpersonal sketches. Instead, S was requested to judge how the source (not S) felt about the object. However, S was to evaluate the source in the usual fashion. The evaluations were measured on the semantic differential scales.

eading in Context

Rationale.--RIC eliminated the voice, gestures and acial expressions of the source. It also gave the judge ore time to concentrate on the message and potentially nabled his judgments to be more independent of his ttitudes.

Subjects.--Ten students enrolled in introductory

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ychology courses at Michigan State University volunteered
r the study. S received experimental points (convertible
points toward the course grade) for his participation.

Scaling Booklet.--The entire set of experimental
terials was presented in printed form for the SSMO order
presentation. Each judgment was on 10 semantic dif-
rential scales. (The six evaluative scales included
ve been calibrated to the eight included in the 13 scales
ed elsewhere.)

Procedure.--The instructions were the same as for
e VIC study.

ading Out of Context

Rationale.--ROC eliminates the problem of attitude
as. Messages were randomly arranged and identifying in-
rmation (names of source and object) was masked. How-
er, since the message was read without any time con-
raint, the judge might process aspects of the message
at were not perceived or were not salient in the video-
ped version.

Subjects.--Twenty-eight students enrolled in in-
oductory psychology couses at Michigan State University
lunteered for the study. S received experimental points
xchangeable for points toward the course grade) for

rticipating.

Scaling Booklet.--The five advisor sketches, the ve self-descriptions, and the twenty interpersonal etches (randomly ordered) were arranged in a printed oklet, one to a page (see Appendix IV). The 13 semantic fferential scales followed each sketch.

Results

Table 5 presents the basic data for the scaling udies. The means and standard deviations for ROC and C are based on eight evaluative scales; those of RIC ve been calibrated from the data on six evaluative ales. The "constructed direction" is the intended lue of the message as shown in the sociogram. The inal direction" will be explained below.

Messages were classified as "positive," "neutral," "negative" if the mean value assigned was greater than .0, between -1 and +1, or less than -1 respectively. e resulting distributions are given in Table 6. The inal direction" of a message was determined by a 2-out-3 rule. The agreement among the methods is so high at no message is put into both positive and negative tegories by any two methods (including the a priori signation). The number of "positive" messages is

MEANS AND STANDARD DEVIATIONS FOR THE SCALING CONDITIONS AND THE INTENDED AND FINAL DIRECTIONS

Message	Intended	Scaling Procedure: ROC (N=28) $\bar{x}$	ROC s	RIC (N=10) $\bar{x}$	RIC s	VIC (N=8) $\bar{x}$	VIC s	Final
(1) Mary about Bill	0	1.26	0.94	0.00	0.62	-0.05	0.59	0
(2) Mary about Jane	-	0.03	1.29	-0.20	0.97	-0.92	0.54	0
(3) Mary about Joe	0	1.80	0.61	1.18	0.47	1.81	0.81	+
(4) Mary about Sam	0	-0.14	1.63	-0.15	0.88	-1.33	0.74	0
(5) Joe about Bill	+	1.55	1.21	1.43	0.40	1.72	0.65	+
(6) Joe about Jane	+	1.69	1.17	1.60	0.26	1.94	0.69	+
(7) Joe about Mary	+	0.69	1.62	1.07	0.68	1.36	0.77	+
(8) Joe about Sam	+	0.37	1.66	1.00	0.82	0.56	0.61	0
(9) Bill about Jane	+	2.02	0.58	1.63	0.24	1.77	0.74	+
(10) Bill about Joe	+	2.08	0.58	1.23	0.59	1.84	0.71	+
(11) Bill about Mary	-	-1.67	0.83	-0.72	0.48	-1.72	0.68	-
(12) Bill about Sam	0	-0.89	0.81	0.05	1.05	-1.52	0.48	0
(13) Jane about Bill	0	0.25	0.94	0.33	0.66	-0.58	1.07	0
(14) Jane about Joe	+	1.40	1.67	1.53	0.34	2.11	0.77	+
(15) Jane about Mary	-	-1.31	0.78	-0.93	0.37	-1.97	0.53	-
(16) Jane about Sam	0	-0.04	1.64	-0.05	1.04	-1.41	0.56	0

TABLE 5--Continued

TABLE 5--Continued

MEANS AND STANDARD DEVIATIONS FOR THE SCALING CONDITIONS AND THE INTENDED AND FINAL DIRECTIONS

Message	Intended	Scaling Procedure: ROC (N=28) $\bar{x}$	ROC s	RIC (N=10) $\bar{x}$	RIC s	VIC (N=8) $\bar{x}$	VIC s	Final
(17) Sam about Bill	-	-1.38	0.58	0.00	0.71	-1.86	0.67	-
(18) Sam about Jane	+	2.26	0.54	1.72	0.19	1.94	0.70	+
(19) Sam about Joe	0	0.71	1.78	0.98	0.56	1.22	1.05	+
(20) Sam about Mary	-	-1.78	0.83	-1.35	0.31	-2.08	0.80	-
Overall Mean		0.15	1.08	0.45	0.58	0.52	0.71	
Overall SD		0.79	0.43	1.29	0.26	0.91	0.15	

Note.-- positive = +, neutral = 0, negative = -.

TABLE 6

DISTRIBUTION OF MESSAGES WITHIN TYPES BY INTENDED DIRECTION, SCALING METHOD, AND FINAL DIRECTION

	Scaling Procedure				
Message Type	Intended	ROC	RIC	VIC	Final
Positive	8	8	9	9	9
Neutral	7	8	10	4	7
Negative	5	4	1	7	4

essentially the same for all five methods of classifying the messages. However there is some variance in how the remainder are split between neutral and negative. The RIC condition yielded only one "negative" message, while VIC had seven.

The number of messages classified identically by each pair of methods is shown in the "agreement matrix" in Table 7. The general level of agreement is quite high. The lowest agreement is between RIC and VIC as one would predicts from the difference in the number of "negative" messages for these two methods. The high agreement between final direction and the three scaling methods is in part function of the dependence between them; the high agreement between *a priori* designation and final direction is

TABLE 7

AGREEMENT MATRIX FOR THE SCALING PROCEDURES

	Intended	ROC	RIC	VIC	Final
Intended	20	15	15	13	16
ROC		20	14	14	17
RIC			20	12	15
VIC				20	17
Final					

free of artifact and quite encouraging.

A more quantitative picture of the level of agreement is given by the correlation coefficients in Table 8. Intended and final direction were coded +1, 0, and -1 for these computations. The general level of correlation is extremely high, including RIC and VIC. The correlations tend to be lower for RIC because the variance in mean message values is lowest for this group.

The average standard deviation in message values for ROC was 1.03 while it was only .71 for VIC and .58 for RIC. Thus it would appear that the succession of messages about a given object tends to reduce the number of ambiguities that are given idiosyncratic interpretations, i.e. with increased context the value of a

TABLE 8

CORRELATIONS, MEANS, AND STANDARD DEVIATIONS FOR THE SCALING PROCEDURES

	Intended	ROC	RIC	VIC	Final
Intended	1.00	0.83	0.89	0.85	0.84
ROC	0.83	1.00	0.90	0.93	0.92
RIC	0.89	0.90	1.00	0.95	0.92
VIC	0.85	0.93	0.95	1.00	0.94
Final	0.84	0.92	0.92	0.94	1.00
$\bar{x}$		0.45	0.52	0.14	
s		1.29	0.91	1.58	

Note.--For the intended and final procedures, positive messages were coded as +1, neutral as 0, and negative as -1.

rticular message has less variance.

Because the means and variances of RIC and VIC e so different, the scatterplot for these two was made d is presented in Figure 72. The regression appears to linear and the point of equality is high in the positive adrant. Thus subjects in the RIC condition assigned stantially higher values to the VIC negative messages somewhat higher values to the VIC neutral messages. re is another way to look at this linear regression,

Figure

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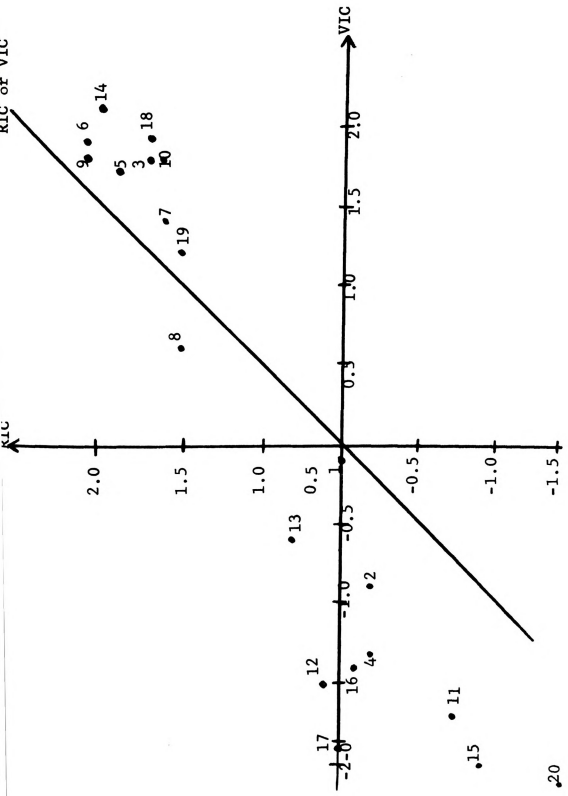
Figure 72. Scattergram of message values from RIC and VIC.



.e. to consider the implications of slope and intercept eparately. Suppose RIC has a "calibration" problem, .e. every judgment is too high by .5. If we subtract he calibration constant from RIC values, the intercept ould be 0 and the interpretation problem would be quite ifferent: Why do the judges in RIC give consistently eaker ratings than those in VIC? One hypothesis that redicts a calibration constant is the following. If a erson is "speaking candidly" or trying to give "construc- ive criticism," he is expected to produce a message that s less positive (or more negative) than in the context f normal speech. Since reading and writing tend to be eserved for more objective problem-solving communication, uppose there is a tendency to treat anything in print s "constructive criticism." Then a reader would give uch a message a higher value than it would warrant as normal speech (he discounts the negative aspects).

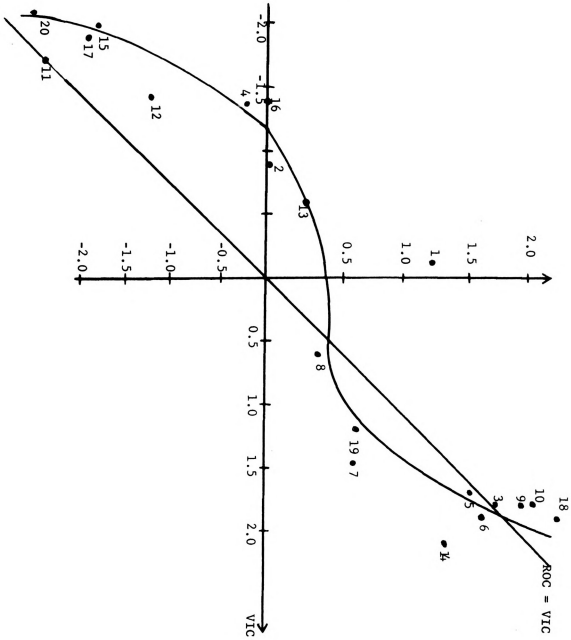
Assume that RIC should be corrected downward by 5 to a 0 intercept with VIC. Then the RIC ratings are bout 1/2 the VIC ratings at any given level, i.e. half s positive or half as negative. This can be looked at wo ways: (1) Why do the videotape viewers exaggerate ne message values? or (2) why do the readers understate ne affect in the messages? An exaggeration hypothesis:

the viewer operates in a situation of high information load. He responds to this by focussing his attention on only the most salient aspects of a message. The most salient aspects are usually those with the most polar affect. Thus a message tends to be sharpened to its most extreme elements.

The following hypothesis assumes that it is the reader who understates the value of a message. Any message has two aspects: the specific elements of its content and the implied importance or relevance of these elements. Since most complex messages have elements whose values vary over a wide range; the differential weights given to the various elements are very important. The viewer hears the message only once and at its natural pace, the reader can look at a message again and again. Thus the reader is free to consider all elements and by focussing his attention can alter the weights. If the reader gives minor points more weight than they were intended to have, then the resulting evaluations will be less extreme. Thus extreme messages tend to be extreme because they weigh the extreme elements much more heavily than the neutral or opposing elements, and if these weights are shifted to equality the resulting value will be much closer to the neutral or opposing elements.

The scatterplot for ROC on VIC was also made. The rather surprising result is shown in Figure 73. If message 1 is ignored, the points form an almost perfect cubic regression line. The intercept for this cubic regression of ROC on VIC is about .5 which is the same as that of RIC on VIC. If this .5 is regarded as a calibration constant and subtracted from ROC then the cubic goes through the origin and can be interpreted as follows: (1) VIC exaggerates the differences between neutral messages or (2) ROC is insensitive to the differences between neutral messages. For example one might hypothesize that the subjects viewing a tape at a forced pace would focus on the most salient aspect of a message and give correspondingly less weight to the less salient aspects. This would make weakly positive messages more positive (particularly if the "weakness" stems from minor negative aspects of the message) and weakly negative messages more negative. However this exaggeration hypothesis would suggest a cubic relation for RIC on VIC which was not there (see Figure 72). On the other hand, a subject who is judging a message out of context has no basis on which to weigh the various elements of that message. Furthermore a reader has the opportunity to study all aspects. Thus a reader might give more time and attention

Figure 73. Scattergram of message values from ROC and VIC.



to minor aspects of the message than they warrant. This might be particularly true if the minor aspects have opposite affect. Unless a message has uniformly positive or negative elements, this tendency to equalize weights or "overbalance" would create an artificial neutrality. Thus ROC would be insensitive to the differences between messages with mixed content.

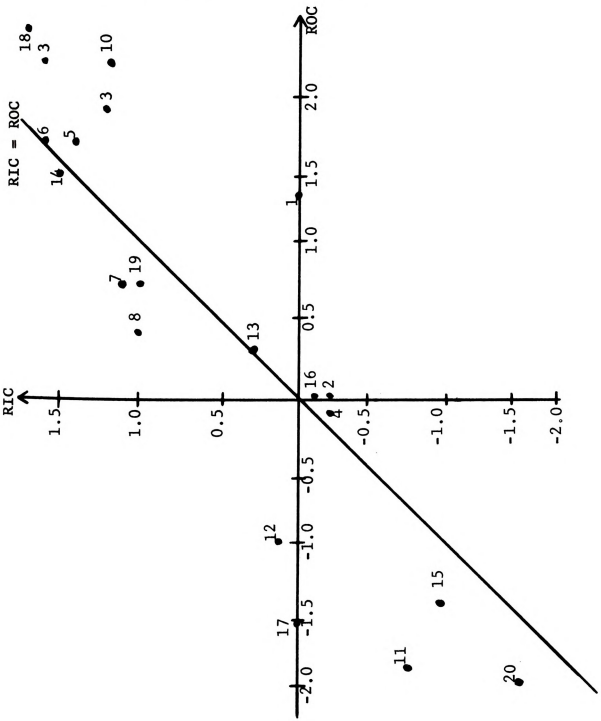
If ROC and VIC are assumed to be perfectly related to one another (ignoring message one and error), and RIC is approximately linear on VIC then RIC should be non-linear on ROC. Figure 74 presents the scatterplot of RIC on ROC with the predicted curve drawn in. RIC is so "variable" on the ROC negative messages that the non-linearity holds by default.

A less direct test of the cubic relation between ROC and the other two conditions is obtained by looking at the distributions themselves. Thus RIC and VIC are both bimodal while ROC is unimodal.

Summary

The principal finding in the scaling study was that the messages constructed did in fact span the evaluative continuum. Moreover, the average correlation between the three methods of obtaining message values was

Figure 74. Scattergram of message values from RIC and ROC.



0.90. In particular, it was possible to produce three sets of messages (positive, neutral, and negative) that not only have homogenous values as a class, but whose individual messages are known to have more or less uniform meaning across subjects.

CHAPTER X

RESULTS AND DISCUSSION: CHANGE IN ATTITUDE TOWARD THE OBJECT

The basic data for this analysis were the evaluative ratings of the source and object on the twenty interpersonal sketches (messages). These data provided the necessary information for constructing the regression function relating Δa to a and s, and the function relating Δs to s and a. The observed functions will be corrected for attenuation as outlined in Chapter VII.

The attitudes toward source and object could theoretically range from -3 to +3. The range was divided into four intervals: -3.00 to -1.50, -1.49 to 0.00, + 0.01 to +1.49, and -1.50 to -3.00. These intervals will be referred to as: highly negative (HN), moderately negative (MN), moderately positive (MP), and highly positive (HP). The number of categories could not be increased without an intolerable number of empty and near-empty cells. The category width was sufficiently narrow to satisfy the requirements stated in the

reliability chapter. The regression functions were computed from these intervals.

The four intervals on each attitude continuum partition the pre-message bivariate distribution of s and a into 16 cells. After the pre-message attitudes were corrected for attenuation, the data for that subject on that message was entered in the appropriate cell. For each cell, the associated mean post-message attitudes were calculated. These means were used to arrive at the estimated Δa, Δs regression functions.

A preliminary message-by-message analysis of the results proved to be inadequate. In several of the messages, over 50 per cent of the cells were empty. Many of the cell frequencies were too small to protect against large sampling errors. Therefore the data for the individual messages were pooled. Nine positive messages went into the positive message table, seven neutral messages into the neutral message table, and four negative messages into the negative message table. The data for each message separately (and within SSMO and MSSO separately) are given in Appendix V.

The pooling procedure used here is equivalent to averaging means across messages with any particular cell weighted by the frequency of that particular cell.

At this stage, the pooled tables were computed separately for the SSMO and MSSO conditions (see Appendix V). Within each condition, some of the extreme corner cells were empty or contained only a few observations. The remaining cells displayed similar results in the two conditions. Consequently, the SSMO and MSSO data were pooled.

Even with pooling, some of the extreme cells provided too few observations for precise estimation of averages. Such data points are circled in the figures which follow.

For each message, the three message values from the three scaling procedures were averaged to form a single estimate of message value. The means and standard deviations of these values for the positive, negative, and neutral message classes are presented in Table 9. Note that the difference between the positive and neutral message means is appreciably greater than the difference between the neutral and negative message means.

In each of the graphs below HP, MP, MN, and HN were given values of +2.00, +0.80, -0.80, -0.80, and -2.00, respectively. The values correspond quite closely with the actual observed means in these intervals. The advantage of standard reference marks from graph to graph

TABLE 9

MEANS, STANDARD DEVIATIONS, AND NUMBER OF INDIVIDUAL MESSAGES FOR THE MESSAGE TYPES

	Message Types		
	Positive	Neutral	Negative
$\bar{X}$	1.53	-.16	-1.40
s	0.40	0.72	0.58
N	9	7	4

outweigh any minor inaccuracies introduced into the graphs because of deviations between the standard marks and the actual pre-message attitude means.

Overall Attitude Change

Figure 75 presents the basic results for attitude change as a function of pre-message attitude. For each message the four source curves were averaged geometrically, i.e. as if they were based on equal numbers of subjects. Except for the highly negative attitude, positive message point, these curves are those of simple linear discrepancy theory. The intercepts are all about half again more extreme than the corresponding average message values (Table 9). The slopes are all about -.4.

The overall source effects are well illustrated

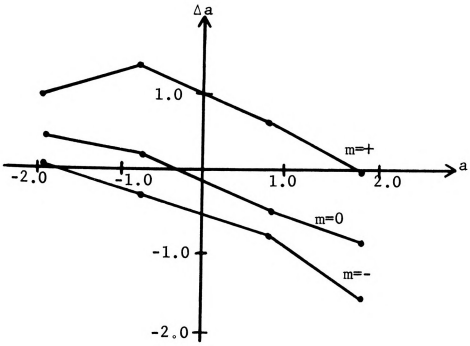


Figure 75. The regression curves for attitude change by message type as a function of pre-message attitude toward the object.

by Figure 76 which shows absolute attitude change as a function of source. Again the four attitude curves were averaged geometrically. These three curves show no relation between attitude change and source credibility.

There were nonlinearities and source effects in the attitude change data for the three message types, but they were generally small, frequently associated with the cells of low sample size, and not consistent across message types. This point will be discussed in the conclusions following the presentation of the data for the three message types.

Positive Message

The summary statistics for the pooled data, positive message case, are found in Table 10. The cell entries indicate the mean attitude change toward the object, the standard deviation of change scores, and the cell size as a function of the pre-message attitudes toward the source and object. Appendix V presents a more complete summary of this data.

The regression functions for Δa on a and s are graphed in Figures 77a and 77c. Figures 77b and 77d present the averaged regression functions from Figures 77a and 77c. Points from Figures 77a and 77c were averaged

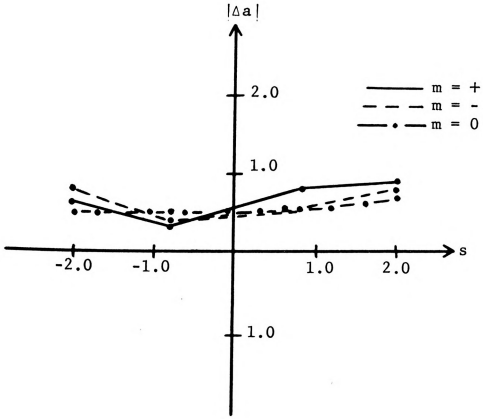


Figure 76. The regression curves for overall absolute attitude change by message type as a function of pre-message attitude toward the source.

TABLE 10

MEANS, STANDARD DEVIATIONS, AND SAMPLE SIZES FOR ATTITUDE CHANGE IN THE POSITIVE MESSAGE AS A FUNCTION OF PRE-MESSAGE ATTITUDES TOWARD SOURCE AND OBJECT (SSMO AND MSSO POOLED)

Pre-message Attitude Toward Object		Pre-message Attitude Toward Source HN	MN	MP	HP
HP	$\bar{X}$	-0.04	-0.14	-0.05	0.05
	s	0.84	0.68	0.67	0.55
	N	48	190	285	132
MP	$\bar{X}$	0.61	0.27	0.39	0.84
	s	0.99	0.83	0.75	0.74
	N	42	212	373	182
MN	$\bar{X}$	1.82	0.88	1.06	1.40
	s	0.94	1.08	1.17	1.08
	N	23	58	136	175
HN	$\bar{X}$	0.04	0.39	1.88	1.43
	s	0.41	0.93	1.38	1.54
	N	2	4	16	39

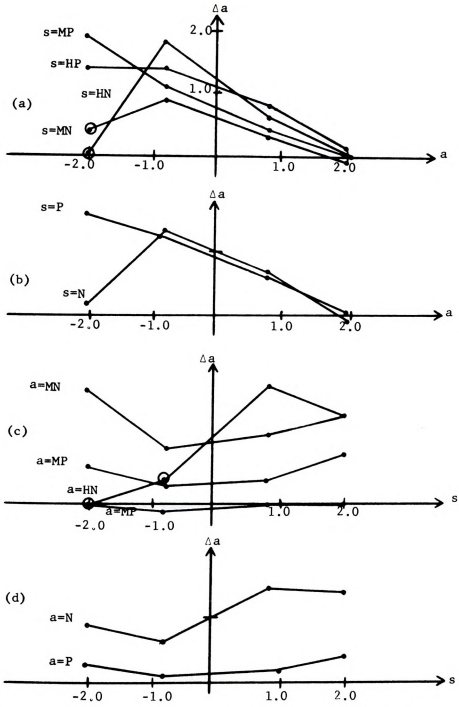


Figure 77. The regression curves for attitude change in the positive message as a function of pre-message attitudes toward source and object.

geometrically (unweighted) rather than arithmetically. These functions collapse the source (object) continuum into just two values--positive (P) and negative (N)--and facilitate the interpretation of the more detailed graphs.

The present discussion focuses on Figure 77b. It will first raise the issues involved in the collapsing, then the implications will be drawn. Consider the two psoitive source curves in Figure 77a. They start equal at a = 2.00; the next two points show a small multiplicative credibility effect; at a = -2.00 they show a moderately large inversion. It seems reasonable to conclude equality throughout. The two negative source curves start equal, show a mild inverted credibility effect at a = +.80, show a large inverted credibility effect at a = -.80, and drop to zero at a = -2.00. The critical question here is whether the large inverted credibility effect at a = -2.0 is sampling error or not. The t value for this difference is significant ($t = 3.68$ $p < .001$), but it is also the largest of a set of inconsistent differences. If this difference is accepted, it is counter to all the models given.

Assume that Figure 77b is accepted as a starting point. Without the point for the negative source at the highly negative pre-message attitude, the figures display

pure linear discrepancy. With that point, Figure 77b is a clear Sherif credibility effect. That is, there is no credibility effect until the curve passes the "latitude of rejection" at which point the curve for the incredible source drops quickly to zero. However, the two points in Figure 77a on which this point is based have n's of 2 and 4!

The constant change theorists fail to predict the discrepancy effect (Figures 1 and 2). The dissonance theorists predict that there is a credibility effect from the point of zero discrepancy (Figure 61). The information theorists must either reject the point at a = -2.0 or predict the same credibility effect as the dissonance theorists (Figure 9).

Congruity theory predicts that for a positive message the relevant discrepancy is between source and object. Thus congruity theory predicts "discrepancy" curves with an intercept at a = s. For the positive source, source and message are "confounded" and the linear congruity theory (Figure 46) works well. However for negative source, congruity theory predicts negative attitude change and fails disasterously.

Negative Message

The major results for attitude change in the negative message case are presented in Table 11 and Figures 78a, 78b, 78c, and 78d. A more detailed listing of the summary statistics can be found in Appendix V. These tables and figures conform to the format described in the previous section.

The regression curves of Δa on a (Figure 78a) indicate that the magnitude of attitude change was generally proportional to message discrepancy and always negative (i.e., in the direction of the position advocated by the message). Extreme message discrepancy did not yield either a boomerang or a curtailment in the magnitude of attitude change.

Again the discussion will focus on Figure 78b. If it is accepted "as is," then the two source curves start equal at $a = -2.0$, show a mild credibility effect for $a = -.80$ and $+.80$, and show an inverted credibility effect at $a = +2.0$. The most reasonable conclusion to this line of reasoning is that there probably is no real difference between the curves.

On the other hand, consider the two negative curves in Figure 78a. They are quite different. In particular, ignore the figure for the highly negative

TABLE 11

MEANS, STANDARD DEVIATIONS, AND SAMPLE SIZES FOR ATTITUDE CHANGE IN THE NEGATIVE MESSAGE AS A FUNCTION OF PRE-MESSAGE ATTITUDES TOWARD SOURCE AND OBJECT (SSMO AND MSSO POOLED)

Pre-message Attitude Toward Object		Pre-message Attitude Toward Source HN	MN	MP	HP
	$\bar{X}$	-2.53	-1.02	-1.22	-1.43
HP	s	1.52	1.74	1.23	1.75
	N	11	30	42	31
	$\bar{X}$	-0.37	-0.51	-0.66	-1.19
MP	s	0.96	1.03	1.25	1.54
	N	15	106	139	35
	$\bar{X}$	-0.25	-0.08	-0.25	-0.48
MN	s	0.94	0.63	0.80	0.87
	N	27	127	115	46
	$\bar{X}$	-0.14	0.16	0.09	0.09
HN	s	0.47	0.68	0.66	0.42
	N	21	43	43	21

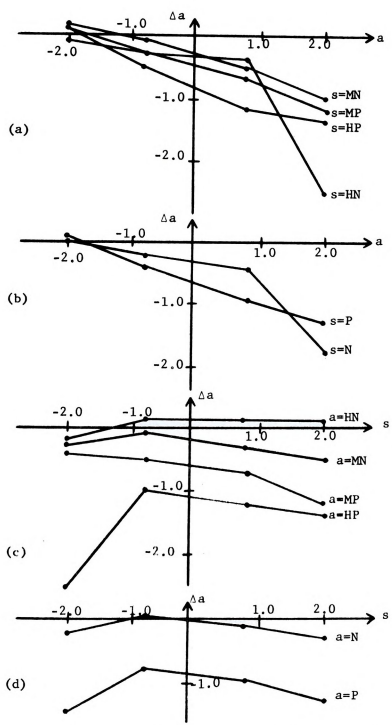


Figure 78. The regression curves for attitude change in the negative message as a function of pre-message attitudes toward the source and object.

source for a moment. The other three show a consistent small multiplicative credibility effect. If the value of the highly negative source at a = HP were changed to -.5 (a change of about 4 standard errors) this credibility would be uniform. The constant change theorists fail to handle the discrepancy effect (Figures 1 and 2). The information processing theorists would accept either the linear discrepancy curve observed (Figure 3) or the credibility effect of the "realigned" curves (Figure 9). Sherif is consistent with the linear discrepancy curve if the latitude of acceptance is so wide that the Sherif models degenerate to simple discrepancy models (i.e. low "ego involvement"). However he does predict the lack of a source effect for this case. The linear dissonance model fits the "realigned" credibility effect (Figure 57).

Congruity theory predicts that for a negative message the relevant discrepancy is between attitude and the negative of source. Thus all predicted curves have negative slope and have intercepts at a = -s. If attitude toward the source is positive, its negative is negative and is confounded with message value. Thus the positive source yields a "discrepancy" curve with negative intercept. Hence the linear congruity model fits the data for the positive source. However, congruity theory

predicts that the "discrepancy" curves should shift to have intercepts at about 0 and +2 for the neutral and negative source respectively. Thus again congruity theory yields very bad predictions for the "neutral" and negative source. In particular, congruity predicts positive attitude change for the negative source.

Neutral Message

A summary of the results for attitude change is given in Table 12. A more detailed listing is found in Appendix V. The regression curves for Δa on a and s are presented in Figures 79a, 79b, 79c, 79d. These tables and figures are comparable in format to those described in the previous sections.

Figure 79b shows that, in general, the magnitude of attitude change was directly related to communication discrepancy and was toward the position advocated in the message. Since the position of the message was neutrality, Ss with positive attitudes became less positive about the object (Δa was negative) while Ss whose initial attitudes were negative became less negative (Δa was positive). Hence, attitudes changed toward a more neutral position. Ss who were neutral toward the object prior to the message displayed no change in attitude.

TABLE 12

MEANS, STANDARD DEVIATIONS, AND SAMPLE SIZES FOR ATTITUDE CHANGE IN THE NEUTRAL MESSAGE AS A FUNCTION OF PRE-MESSAGE ATTITUDES TOWARD SOURCE AND OBJECT (SSMO AND MSSO POOLED)

Pre-message Attitude Toward Object		Pre-message Attitude Toward Source HN	MN	MP	HP
HP	$\bar{X}$	-0.81	-1.06	-0.95	-0.97
	s	0.78	1.31	1.06	1.21
	N	4	26	67	75
MP	$\bar{X}$	-0.53	-0.54	-0.59	-0.37
	s	0.78	1.05	0.82	0.96
	N	6	103	345	128
MN	$\bar{X}$	0.24	-0.02	0.07	0.33
	s	1.07	0.88	0.83	0.98
	N	14	161	330	134
HN	$\bar{X}$	-0.54	0.35	0.69	1.06
	s	0.47	0.86	1.08	1.10
	N	4	28	33	33

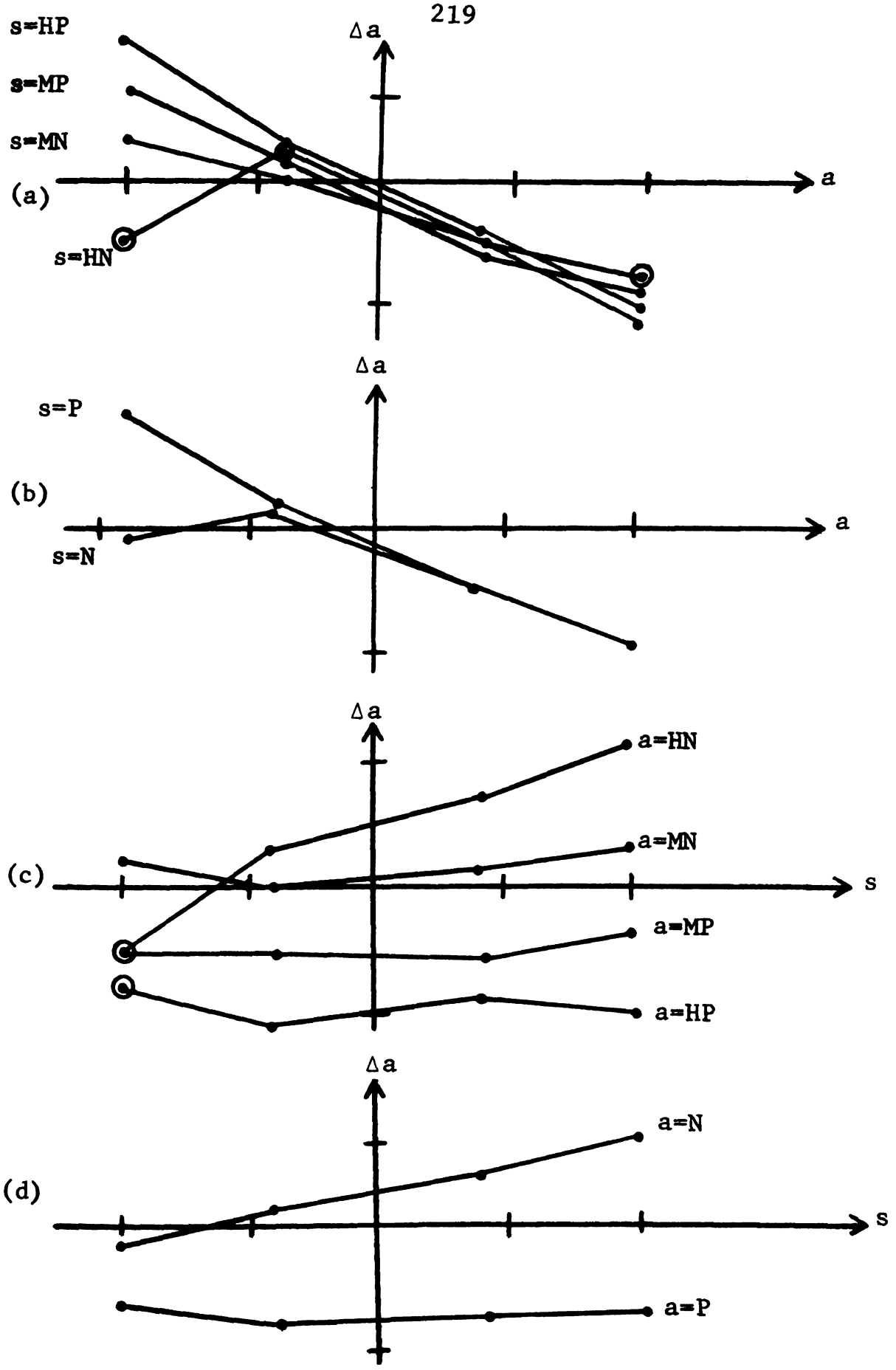


Figure 79. The regression curves for attitude change in the neutral message as a function of pre-message attitudes toward the source and object.

The point a = +2.0, s = HN (Fibure 79a) deviates from this trend. In this instance, there was a boomerang in attitude. These Ss became more negative about the object.

The main results are clear in Figure 79b. There is no source credibility effect for positive pre-message attitudes and a considerable effect for negative attitudes. The only interpretive issue is the size of that credibility effect. The curves in Figure 79a show a credibility effect with boomerang. However the "offending" point (a = -2.0, s + HN) has only 4 subjects. If this value were moved to zero (2 standard errors), it would create a simple credibility effect without boomerang. Finally one could consider moving this point (and the other negative source point for a = -2.0) to a common value of .9 (the value for the positive source). This would eliminate the source effect entirely.

Thus the results could be interpreted as:
(1) an asymmetric discrepancy curve with a boomerang credibility effect for negative attitudes and no credibility effect for positive attitudes or
(2) a somewhat "realigned" curve with a simple credibility effect on the left and none on the right or
(3) a much "realigned" symmetric curve with no credibility

effect at all.

The constant change and congruity theorists predict no attitude change for the neutral message!

No one predicts an asymmetric credibility effect. If the credibility effect for highly negative attitudes is rejected (or ignored), the data fit the simple linear discrepancy model with no source effect. This would be consistent with only the information processing models (Figure 3) or Sherif if there is low "ego-involvement."

Conclusions

The results were all forms of message-attitude discrepancy curves. Thus the constant change theorists and congruity theorists showed grossly bad fit throughout. The source effects were problematical and inconsistent, so the dissonance models gave poor overall fit. There was virtually no boomerang and only problematic inconsistent, so the dissonance models gave poor overall fit. There was virtually no boomerang and only problematic inconsistent polarity, so Sherif fit only with the assumption of low ego-involvement.

The simple linear discrepancy model without credibility effects gave almost perfect fit to the data. The exceptional points were:

(1) a = HN, s = MN, HN for the positive message which showed message rejection

(2) a = HN points for the neutral message which showed a credibility effect with boomerang.

CHAPTER XI

RESULTS AND DISCUSSION: CHANGE IN ATTITUDE TOWARD THE SOURCE

The analysis of change in attitude toward the source was parallel to that of change in attitude toward the object. The data from the twenty messages were pooled into three message classes: positive, negative, and neutral. Within each class, the bivariate distribution of pre-message attitudes was partitioned into the 16 cell grid specified in the previous chapter. Regression curves, corrected for unreliability, were obtained for Δs on a and s by the interval estimation procedure described in Chapter VII. The data for SSMO and MSSO were quite similar and were therefore pooled. Detailed tables for each message separately and within SSMO and MSSO separately are given in Appendix V.

Overall Source Change

Figure 80 presents the basic results for source change as a function of pre-message attitude toward the object. The inhomogenous point for a = -2.0 on the

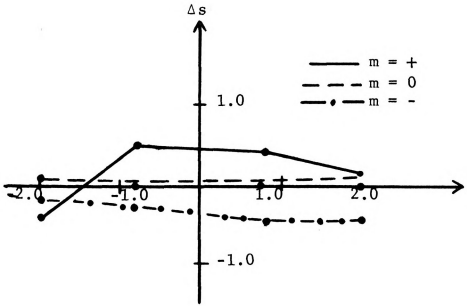


Figure 80. The regression curves for overall source change by message type as a function of pre-message attitude toward the object.

positive message represents the entire "attitude effect" for source change. Every model considered predicted source change would be a function of pre-message attitude!

The basic results for source change as a function of pre-message attitude toward the source for each message are given in Figure 81. The regression curves were calculated by geometrically averaging the curves within each message type. The curve for the positive message has been adjusted. The regression curve for a = HN was not included in the summary curve because it was not homogenous with the other curves in the positive message class.

The results for the source change data fit what might be termed a "source-message discrepancy" model. Sources less positive than the message were enhanced or showed positive change; those more positive were disparaged or displayed negative change. That is, the source who delivered a message which was more favorable about the object than his image, gained in esteem. Otherwise, the source was derogated. The degree to which these effects were present was proportional to the distance between the source's message about the object and his initial evaluation. One representation of this phenomena is

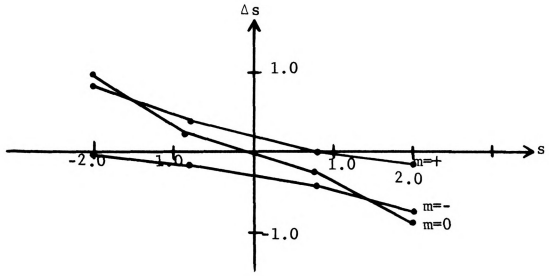


Figure 81. The regression curves for overall source change by message type as a function of pre-message attitude toward the source.

$$\Delta s = \alpha\,(m-s),\quad 0 < \alpha < 1 \qquad (139)$$

which is graphed in Figure 82 with $\alpha = .25$.

This model fits the data qualitatively but has two quantitative failings. First, the intercept for the positive message is too low. Second, and more glaring, the slope for the neutral message is almost twice that for the positive and negative messages. In fact for highly positive source image, the neutral message elicited as much derogation as the negative message. For highly negative source image, the neutral message elicited as much source enhancement as the positive message.

Further discussion will be given in the conclusions section following the presentation of the three messages separately.

Positive Message

The major summary statistics for source change, positive message case, are listed in Table 13. A more extensive table of summary statistics has been placed in Appendix V. The corrected regression curves for Δs on a and s are presented in Figures 83a, 83b, 83c, and 83d.

The regression curves in Figure 83a indicate that, in general, the more negative the source, the greater the enhancement produced by the message. Sources

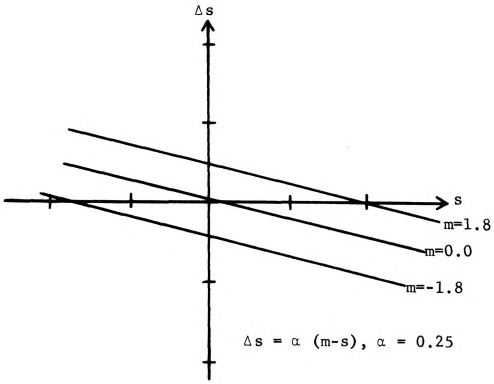


Figure 82. The relationship between source change and pre-message attitude toward the source as a function of message affect for the source-message discrepancy model.

TABLE 13

MEANS, STANDARD DEVIATIONS, AND SAMPLE SIZES FOR SOURCE CHANGE IN THE POSITIVE MESSAGE AS A FUNCTION OF PRE-MESSAGE ATTITUDES TOWARD SOURCE AND OBJECT (SSMO AND MSSO POOLED)

Pre-message Attitude Toward Object		Pre-message Attitude Toward Source HN	MN	MP	HP
HP	$\bar{X}$	0.36	0.21	-0.03	-0.22
	s	1.11	0.99	0.89	0.84
	N	48	190	285	132
MP	$\bar{X}$	1.03	0.50	0.02	-0.09
	s	1.28	0.97	0.65	0.57
	N	42	212	373	182
MN	$\bar{X}$	1.48	0.45	-0.05	-0.13
	s	1.35	0.87	0.82	0.69
	N	23	58	136	175
HN	$\bar{X}$	-0.18	-0.67	-0.43	-0.53
	s	0.04	0.61	1.08	1.10
	N	2	4	16	39

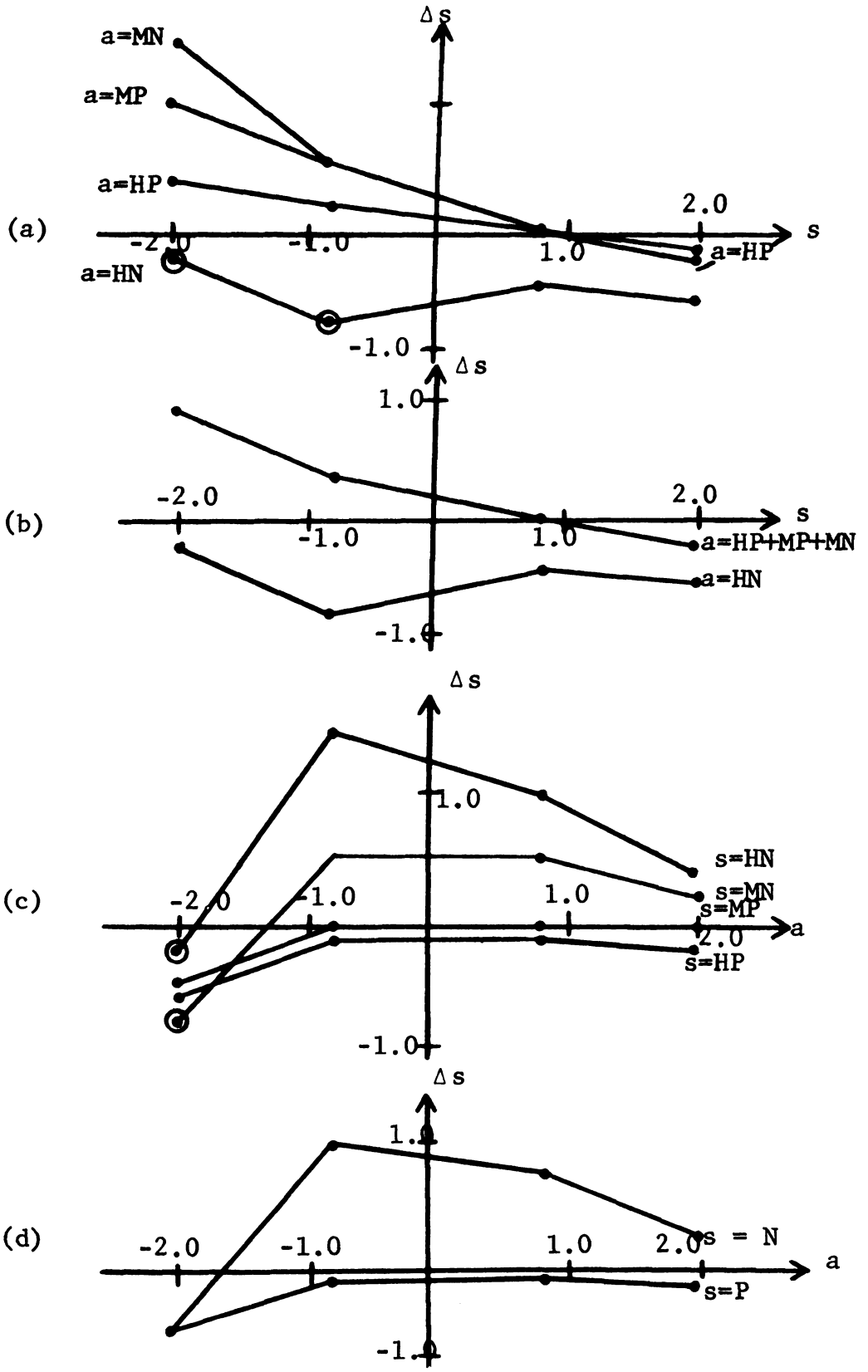


Figure 83. The regression curves for source change in the positive message as a function of pre-message attitudes toward the source and object.

whose ratings were initially positive underwent almost no change (and were actually mildly disparaged if they were highly positive.) When the pre-message attitudes toward the object were highly negative, however, the source was derogated, regardless of whether he was initially liked or disliked.

Figure 83c shows that the degree of source change was not a function of attitude when the source was either moderately or highly positive. When the source was initially disliked, source change was positive (he gained in esteem). This enhancement increased with message discrepancy until the message was extremely discrepant, whereas the source was mildly disparaged. The effect was more pronounced when the source was highly, rather than moderately negative. This discussion is well summarized in Figure 83d. The large "attitude effect" is the drop in the negative source curve at a = HN. The n's for the two points in 83c on which this point is based are 2 and 4. There are two small attitude effects: (1) the drop in source enhancement in the negative source curve as attitude goes from moderately to highly positive and (2) the mild disparagement of the source for the positive source curve when initial attitude is highly negative.

Perhaps the simplest interpretation of the data is represented in Figure 83b which contrasts the curve for highly negative pre-message attitudes with the rest of the results. Ignoring this curve, the data fit a linear source-message discrepancy model.

The source change model grafted onto the information processing models bears no resemblance to the data. Dissonance theory cannot handle the source enhancement (Figure 83c).

The socialjudgment predictions depend on the width of the latitude of acceptance. This latitutde can be inferred from the data on attitude change as being exceeded only for a = -2.0. Thus the curve for negative source in Figure 83d is just about right. However, the curve for the positive source should have been above the curve for negative source rather than flat along the axis.

Congruity theory does predict that Δs on s curves will look like classic discrepancy curves with intercept at s = a. Thus when object attitude is highly positive it is "confounded" with message value. The <u>linear</u> version of congruity theory is only slightly off when a is positive (Figure 83b), though the individual positive attitude curves are almost perfectly inverted (Figure 83a).

When object attitude is negative, it is not confounded with message value. Thus the "discrepancy" curves should shift to intercepts of about s = -.8 and -2.0 for a = MN and HN respectively. The curve for a = HN is very good for the linear congruity model. However, the curve for a = MN is the most positive (or highest) of the four curves (Figure 83a) which is very poor.

Negative Message

Summary statistics for source change, negative message case, are presented in Table 14, and in Appendix V. The regression curves, corrected for unreliability, for Δs on s and a are found in Figures 84a, 84b, 84c, and 84d.

In Figure 84a, it is evident that the source was derogated in virtually every instance. The magnitude of derogation directly increased with the pre-message evaluations of the source--the more positive the ratings, the greater the disparagement.

The only "attitude effect" in the data is shown clearly in Figure 84b. If the subjects feel positively about the object and are already highly negative toward the source, they show a slight disparagement of source while the subjects who feel negatively about the object

TABLE 14

MEANS, STANDARD DEVIATIONS, AND SAMPLE SIZES FOR SOURCE CHANGE IN THE NEGATIVE MESSAGE AS A FUNCTION OF PRE-MESSAGE ATTITUDES TOWARD SOURCE AND OBJECT (SSMO AND MSSO POOLED)

Pre-message Attitude Toward Object		Pre-message Attitude Toward Source HN	MN	MP	HP
HP	$\bar{X}$	-0.19	-0.44	-0.55	-0.66
	s	0.59	0.75	0.85	0.79
	N	11	30	42	31
MP	$\bar{X}$	-0.32	-0.20	-0.43	-0.81
	s	0.66	0.81	0.82	1.01
	N	15	106	139	35
MN	$\bar{X}$	0.05	-0.13	-0.38	-0.64
	s	0.61	0.63	0.84	1.06
	N	27	127	115	46
HN	$\bar{X}$	0.12	-0.01	-0.29	-0.97
	s	1.03	0.80	0.76	1.21
	N	21	43	43	21

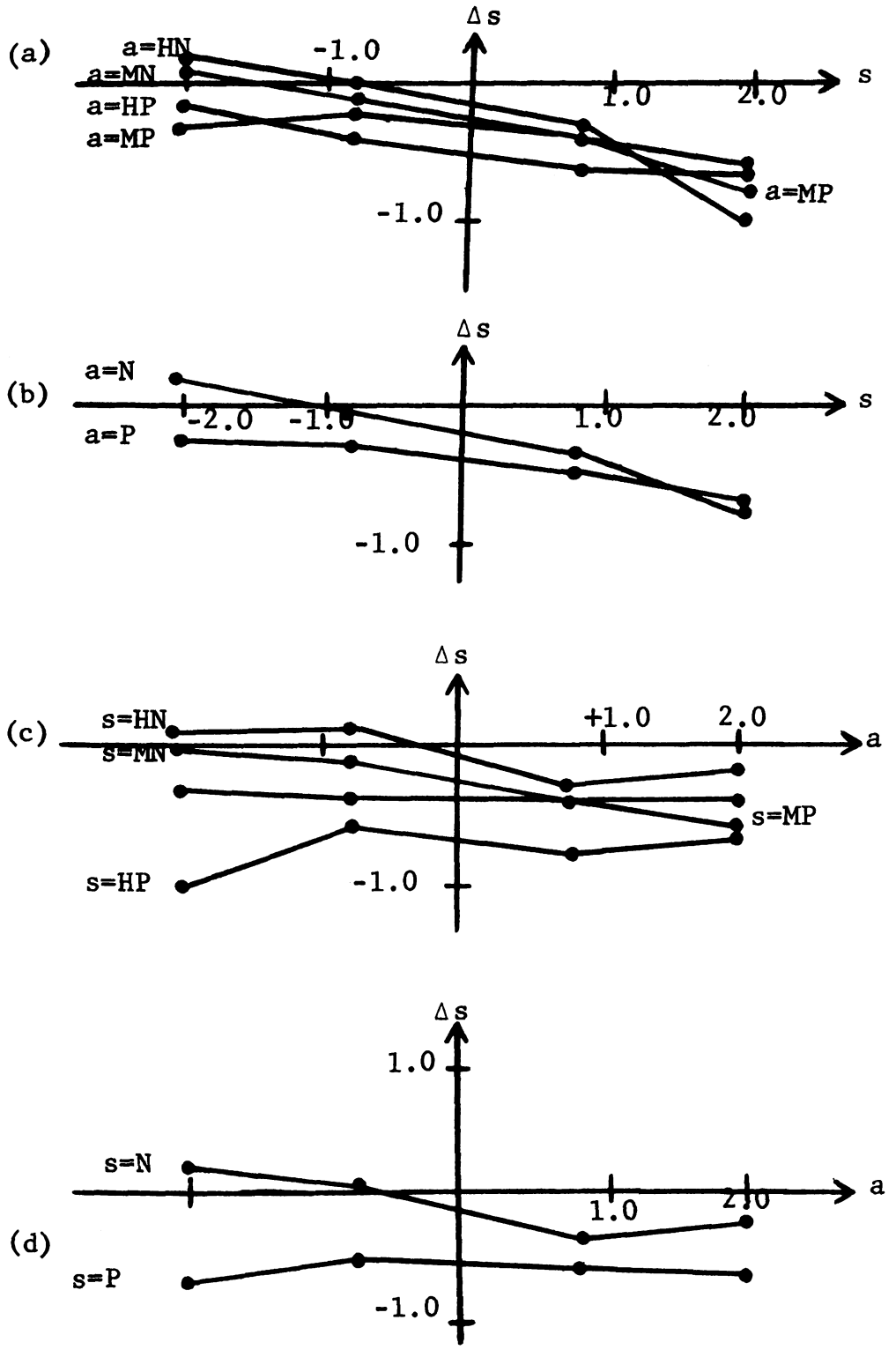


Figure 84. The regression curves for source change in the negative message as a function of pre-message attitudes toward source and object.

show none. This small difference quickly vanishes as the attitude toward the source becomes more positive.

If the small "attitude effect" is ignored, the data show perfect fit to the linear source-message discrepancy model. When object attitude is negative source-object and message-object discrepancy are again confounded. Thus the linear congruity model shows good fit for a highly positive object attitude (a = HP in Figure 84a). However, there is no shift in intercepts as object attitude changes. When a = HN, congruity predicts pure source enhancement rather than pure derogation as observed. The only other theory which shows any qualitative fit to the data is dissonance theory. There is source disparagement. However, it is the positive source who is disparaged, and the negative source who is not.

Neutral Message

Table 15 and Appendix V contain the summary statistics for source change from the neutral message. The regression curves, corrected for unreliability, for Δs on a and s are graphed in Figures 85a, 85b, 85c, and 85d.

Figure 85b shows a striking linear source-message discrepancy curve. Liked sources were uniformly derogated

TABLE 15

MEANS, STANDARD DEVIATIONS, AND SAMPLE SIZES FOR SOURCE CHANGE IN THE NEUTRAL MESSAGE AS A FUNCTION OF PRE-MESSAGE ATTITUDES TOWARD SOURCE AND OBJECT (SSMO AND MSSO POOLED)

Pre-message Attitude Toward Object		Pre-message Attitude Toward Source HN	MN	MP	HP
	X	1.61	0.10	-0.64	-0.54
HP	s	1.01	1.04	1.06	1.35
	N	4	26	67	75
	X	0.88	0.08	-0.26	-0.67
MP	s	1.38	0.92	0.74	0.95
	N	6	103	345	128
	X	0.67	0.19	-0.06	-0.66
MN	s	1.09	0.80	0.79	0.92
	N	14	161	330	134
	X	0.51	0.71	-0.01	-0.66
HN	s	1.50	1.26	1.02	0.88
	N	4	28	33	33

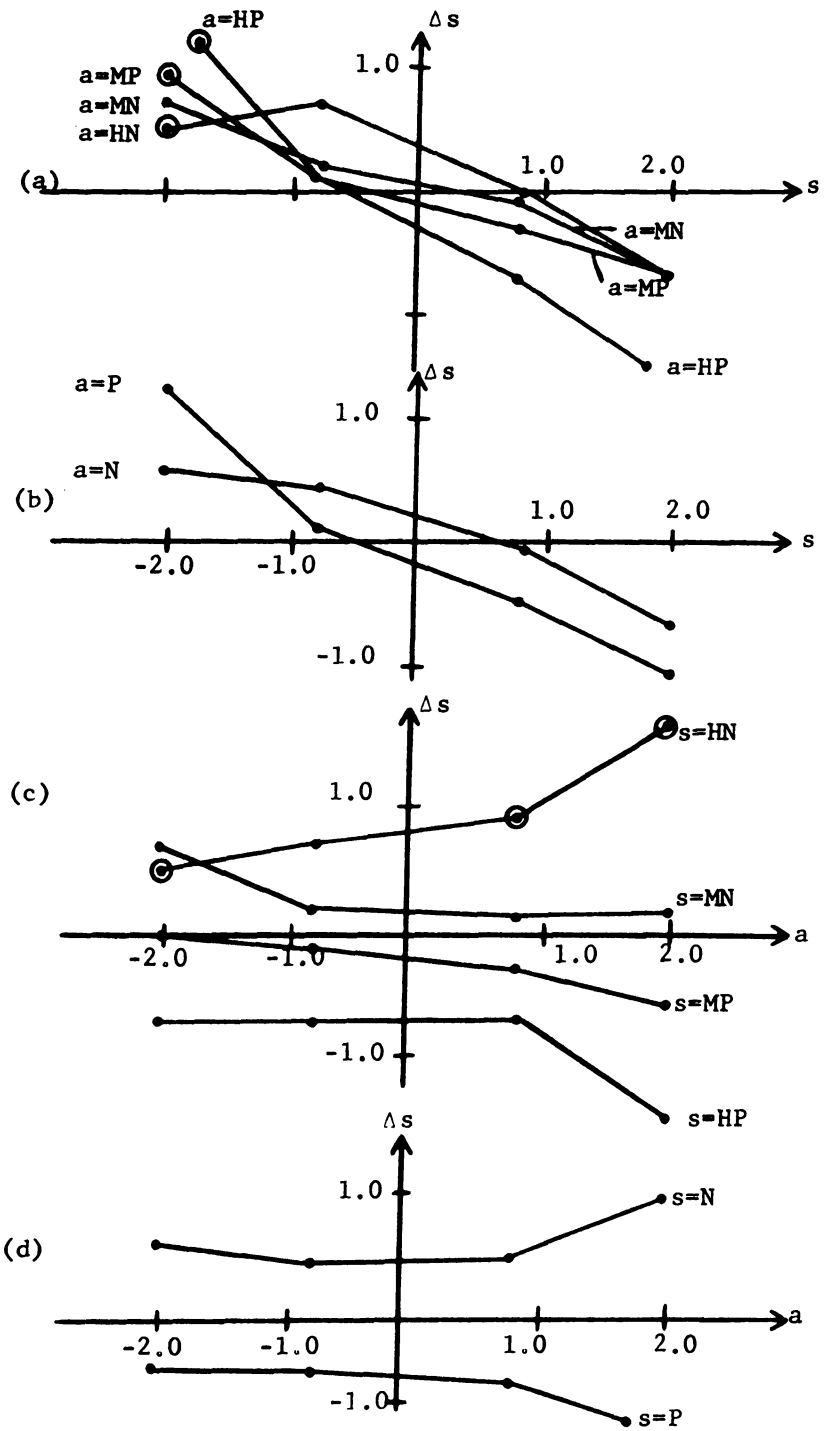


Figure 85. The regression curves for source change in the neutral message as a function of pre-message attitudes toward source and object.

and disliked sources were uniformly enhanced following the delivery of neutral messages (see also Figure 85c). Source change intensified as feelings toward the source became more extreme in either the positive or negative direction, although the magnitude of change did not uniformly correspond with pre-message attitude toward the source.

The effects of attitude toward the object on source change are presented in Figure 85c. Except when individuals had strong positive feelings about the object, source change did not systematically vary with attitude. However, when attitude toward the object was highly positive, there is an augmentation of source change.

The source-message discrepancy model was in substantial agreement with the data for source change. The magnitude of change was proportional to the discrepancy between the receiver's evaluation of the source prior to the message and the message value. The model, however, does not explain the augmented source change for highly positive attitude toward the object (Figure 85c).

None of the theories predict both enhancement and disparagement for the neutral message. The constant change theorists and congruity theorists predict no change. Dissonance predicts disparagement. The

information processing and social judgment models predict enhancement.

Conclusions

Across the three types of messages, the source-message discrepancy model tends to approximate the data quite well. The slope for the neutral message, however, is steeper than the other message types.

The source-message discrepancy model also failed to predict the disparagement of the source of a positive message when pre-message attitude toward the object was highly negative.

A discrepancy equation usually results from the assumption that the subject reacts to the difference between what he expects and what he hears. If this is true in the present case, the data can be interpreted as follows. Individuals who like a source expect him to express positive feelings about other people; or, to at least refrain from overt, derisive comments about others even if such statements are appropriate and deserved. If such negative statements must be issued, then a positive source would "disguise" or couch his impressions in more tactful language. Individuals who dislike a source expect him to make negative remarks about others.

The disliked source would not moderate his statements but would be caustic.

Whenever the affect of the message is congruent with the receiver's evaluation of the source, the evaluation of the source will not change. When there is source-message discrepancy, it is resolved in a rather simple fashion. A source who delivers a message which is more positive than expected gains in esteem. The individual decides that he has misjudged the source, the source must be nicer than he thought. Conversely, a source whose message is more negative than expected must be meaner than was thought. Thus, the message provides information as to the character of the source. The evaluation of the source changes because new information has been introduced and replaces the previous information.

Why does the neutral message have a greater slope? Consider a subject who likes the source. If the "neutral" message consists of both positive and negative elements, the negative elements are inconsistent and therefore more noticeable. If the source was disliked it would be the positive elements that would be salient. If the contrast is so strong that the consistent elements are ignored the results would be exactly as found, i.e. if the source image is positive, a "neutral" message is

negative and vice versa. This argument would be stronger if the neutral message had also provoked greater attitude change.

CHAPTER XII

RESULTS AND DISCUSSION: PHASE PLANE ANALYSIS-- SIMULTANEOUS CHANGE IN ATTITUDES TOWARD SOURCE AND OBJECT

In the preceding chapters, the analyses of attitude change toward the source and object were considered separately. This division was natural because most of the proposed models separated these issues theoretically. On the other hand, the consistency theories--congruity and dissonance-- view the change in attitude toward the source and object as interdependent. Thus a method of presenting these changes simultaneously should aid in the evaluation of the theories.

There is a method for presenting the simultaneous change in two variables: the "phase plane" of cybernetics. In this plane the initial values of the two variables are treated as the coordinates of a first point, say (s, a). The next or transition values are treated as the coordinates of a second point, say (s′, a′). A vector or arrow is drawn from the first to the second, i.e. the change vector, (Δs, Δa).

Each of the phase planes below will have 16 vectors. Each arrow corresponds to one of the 16 cells formed by the partition of the pre-message bivariate distribution of source and object attitude. The base of an arrow denotes mean pre-message attitudes toward source and object, that is, $(\bar{s}, \bar{a})$. The arrowhead indicates mean post-message attitudes toward source and object, that is, $(\bar{s}', \bar{a}')$ for the corresponding cell. The arrow itself is the mean change vector $(\overline{\Delta s}, \overline{\Delta a})$. These definitions are illustrated in the first quadrant of Figure 86. The second and fourth quadrants have arrows showing no change in one variable or the other. The third quadrant shows arrows for the four directions representing the various combinations of non-zero change in both variables. The effects of repeated equivalent messages (for the same source and object) would be shown by the path generated by following the arrows.

All arrows are based on the tables of means discussed above and are therefore corrected for attenuation. Change vectors computed from data cells with small frequencies have been circled to alert the reader to those data points with potentially large sampling error.

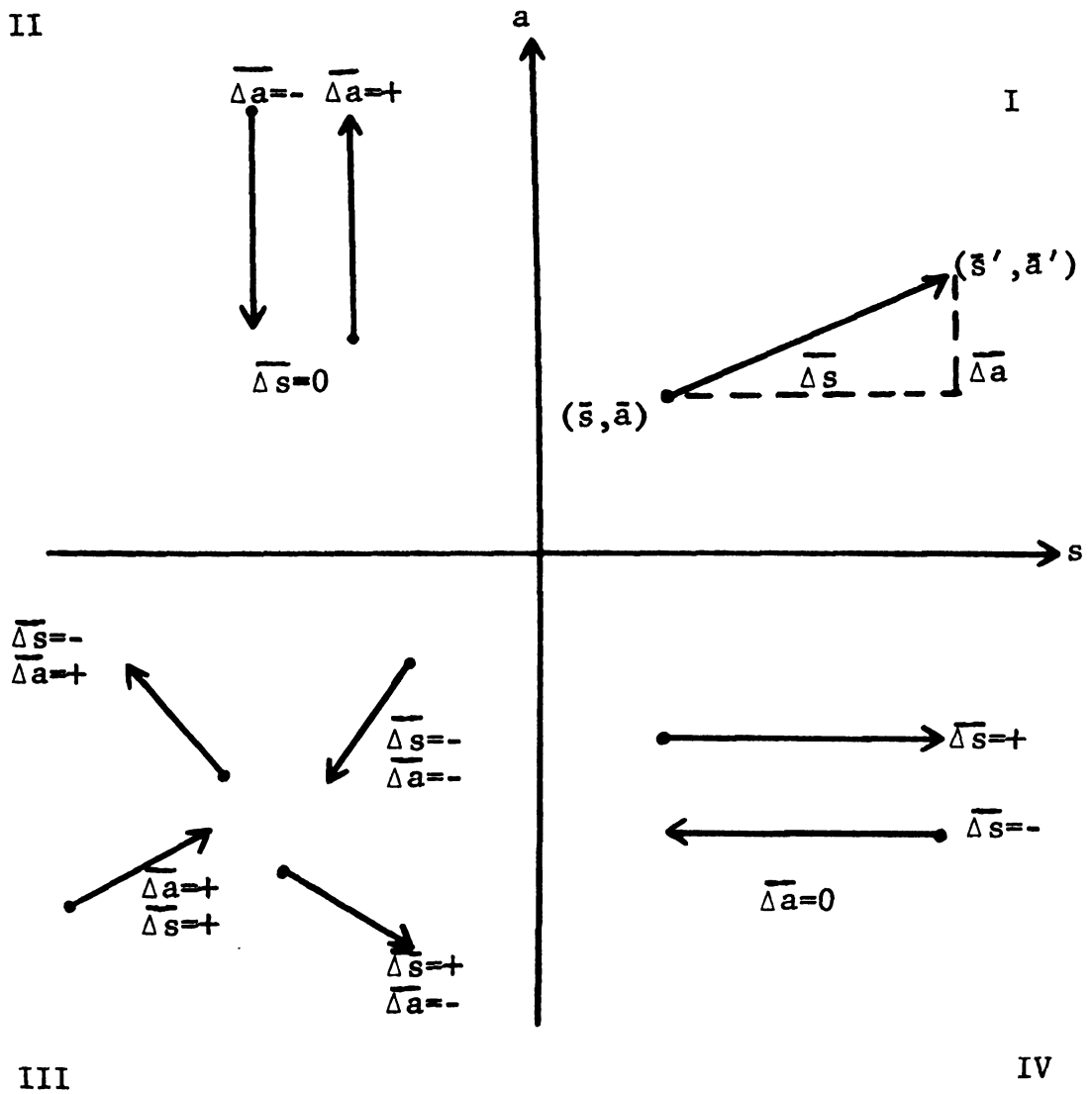


Figure 86. Illustration of mean change vectors in the phase plane.

Positive Message

The observed phase plane together with the predicted phase planes for the congruity and dissonance models which gave the best overall fit are displayed in Figures 87a, 87b, 87c. Construction of the observed phase plane proceeded from Tables 10 and 13.

The basic premise of the dissonance model is that the dissonance produced by message discrepancy is dispelled through source derogation and a change in attitude toward the position advocated by the message. The magnitude of dissonance aroused is directly related to attitude-message discrepancy and the likeability of the source.

A comparison of Figure 87a with Figure 87b reveals that when the source was positive (right half plane) the observed phase plane was consistent with the predicted phase plane. When the message was consonant with the receiver's attitude, source and object change was insignificant. With increasing message discrepancy (from top to bottom), the magnitude of attitude change heightened as predicted but at the cost of source disparagement.

For negative attitude toward the source, the predicted phase plane showed very poor fit. There is

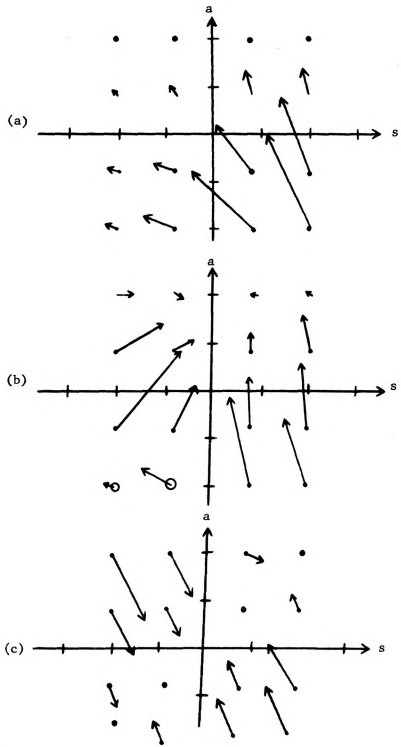


Figure 87. Positive message phase planes for attitude change toward source and object: observed (b), predicted by dissonance (a), predicted by congruity (c).

prominent enhancement in source attitude in four cells, small enhancement in two cells, and derogation in only those two cells with unreliable frequencies (n = 2 and 4). If we look at the first and second quadrants, we see that attitude change is as large for the disliked source as the liked source (though all attitude change is in the predicted direction).

Figure 87c shows the predicted phase plane for congruity theory without polarity and with the linear incredulity assumption. For the positive message, congruity is defined as equality of the attitudes toward source and object. Thus all arrows point toward the line a = s.

Comparison of Figures 87b and 87c shows that the congruity model fit the observed data in the region of the phase plane where s > a (the half plane below the line a = s). The vectors in the lower right quadrant of the observed phase plane are not, however, tilted as sharply to the left as predicted by source-object symmetry. As in the Tannenbaum data, the source changes less.

In the region of the phase plane given by s < a (the half plane above the line a = s), the congruity model showed poor agreement with the observed data. The points (s = -1.0, a +2.0) and (s = -.80, a = +2.0)--

where the joint change in Δa and Δs should have been greatest--had the least change. In this region, Δa should have been negative everywhere. Instead, attitude toward the object became more positive. This last point is true of all the congruity models.

Negative Message

The observed phase plane for a and s is presented in Figure 88b along with the theoretical phase planes from the dissonance and the congruity models, Figures 88a and 88c, respectively. The observed phase plane was prepared from Table 11 and Table 14.

The dissonance predictions (Figure 88a) were strongly substantiated in the observed results (Figure 88b). Attitude change was proportional to message discrepancy and declined as the source became disliked. The source was always disparaged. The source was disparaged less as message discrepancy and regard for the source decreased.

There were, however, some inconsistencies worth noting. When the source was highly positive, the degree of source derogation did not diminish with decreasing message discrepancy even though attitude change did. Thus there was considerable source derogation in the third

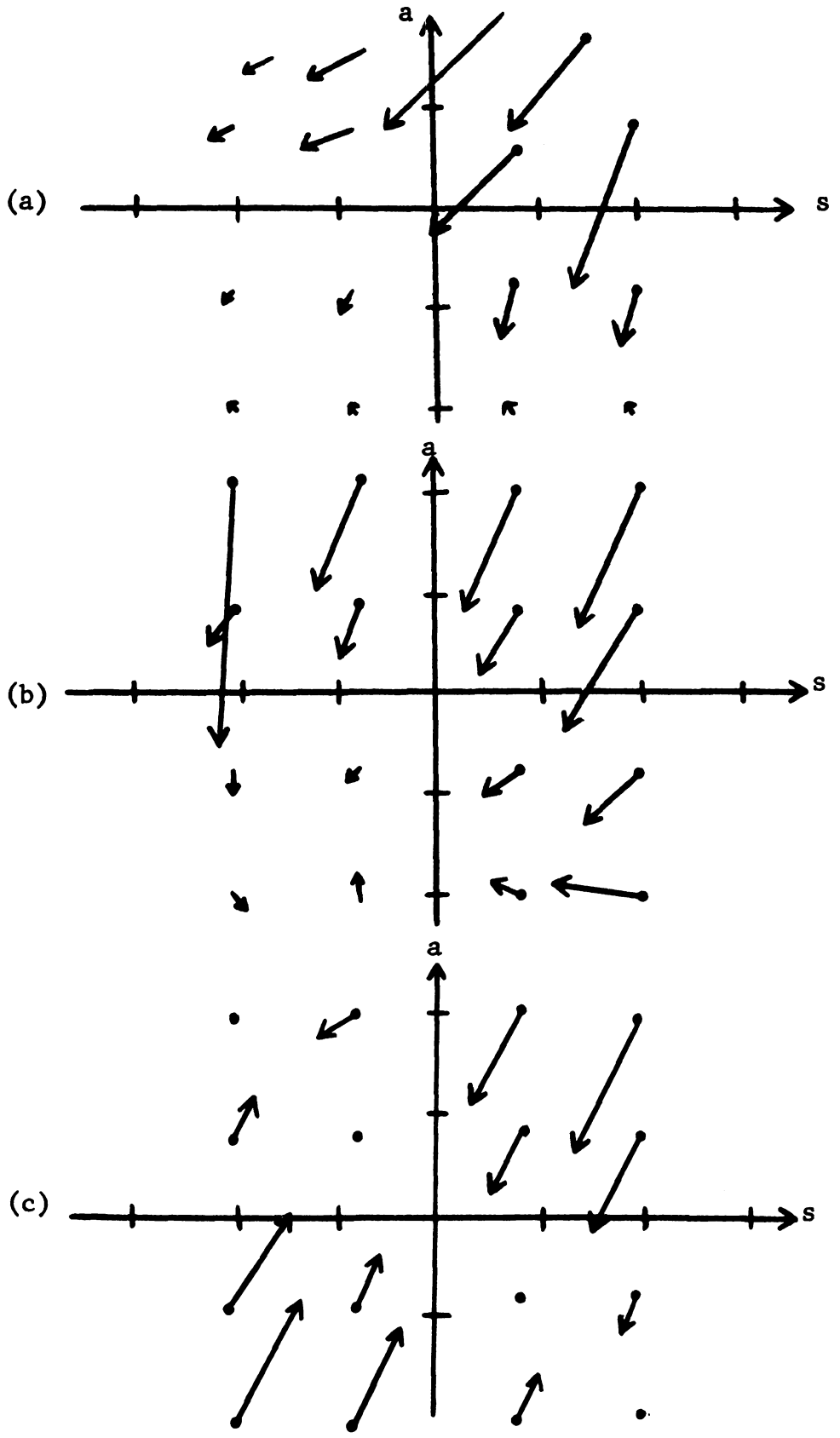


Figure 88. Negative message phase planes for attitude change toward source and object: observed (b), predicted by dissonance (a), predicted by congruity (c).

quadrant even though there was theoretically little or no dissonance there. For a highly disliked source, the dissonance model predicts relatively small source derogation and no attitude change. In the second quadrant, source disparagement was small, but attitude change was considerable. The point (s = -2.0, a = +2.0) was particularly noteworthy in this regard.

Figure 88c shows the predicted phase plane for congruity theory without polarity and with the linear incredulity assumption. For the negative message, the two attitudes are congruous if they are opposite in affect. Thus all arrows point to the line a = -s.

A comparison of Figures 88b and 88c shows that the congruity model exhibited good fit above the line a = -s. Thus change was toward the line a = -s and source and object change were symmetrical.

However all four points on the line a = -s, the line of perfect congruity, showed large shifts away from that line. Furthermore all show change toward the s = -, a = - quadrant: a region of qualitative incongruence.

If we disregard the "zero" change in the two corner vectors, all vectors in the plane below the line a = -s are wrong in the sign of both attitude change and source change.

Neutral Message

The observed phase plane for a and s is presented in Figure 89b. The figure was prepared from Tables 12 and 15. The dissonance predictions for the phase plane are graphed in Figure 89a, and the congruity predictions are shown in Figure 89c.

From an inspection of Figures 89a and 89b, it is apparent that the dissonance model was only partially confirmed by the observed data. There was good fit when the source was positive (the right half plane). In this region, an interaction between message discrepancy and source incredibility did result. Attitude change increased with message-attitude discrepancy and decreased as the source became more negative. There was the predicted concomitant source disparagement. The degree of derogation did increase with message-attitude discrepancy and diminished as the source became less liked.

The left half plane, where the source was negative, did not follow the dissonance predictions. The source was enhanced rather than disparaged. Moreover, the more disliked the source, the greater the enhancement. While attitude change was approximately proportional to message discrepancy, no systematic interaction was detected between source credibility and the degree of change.

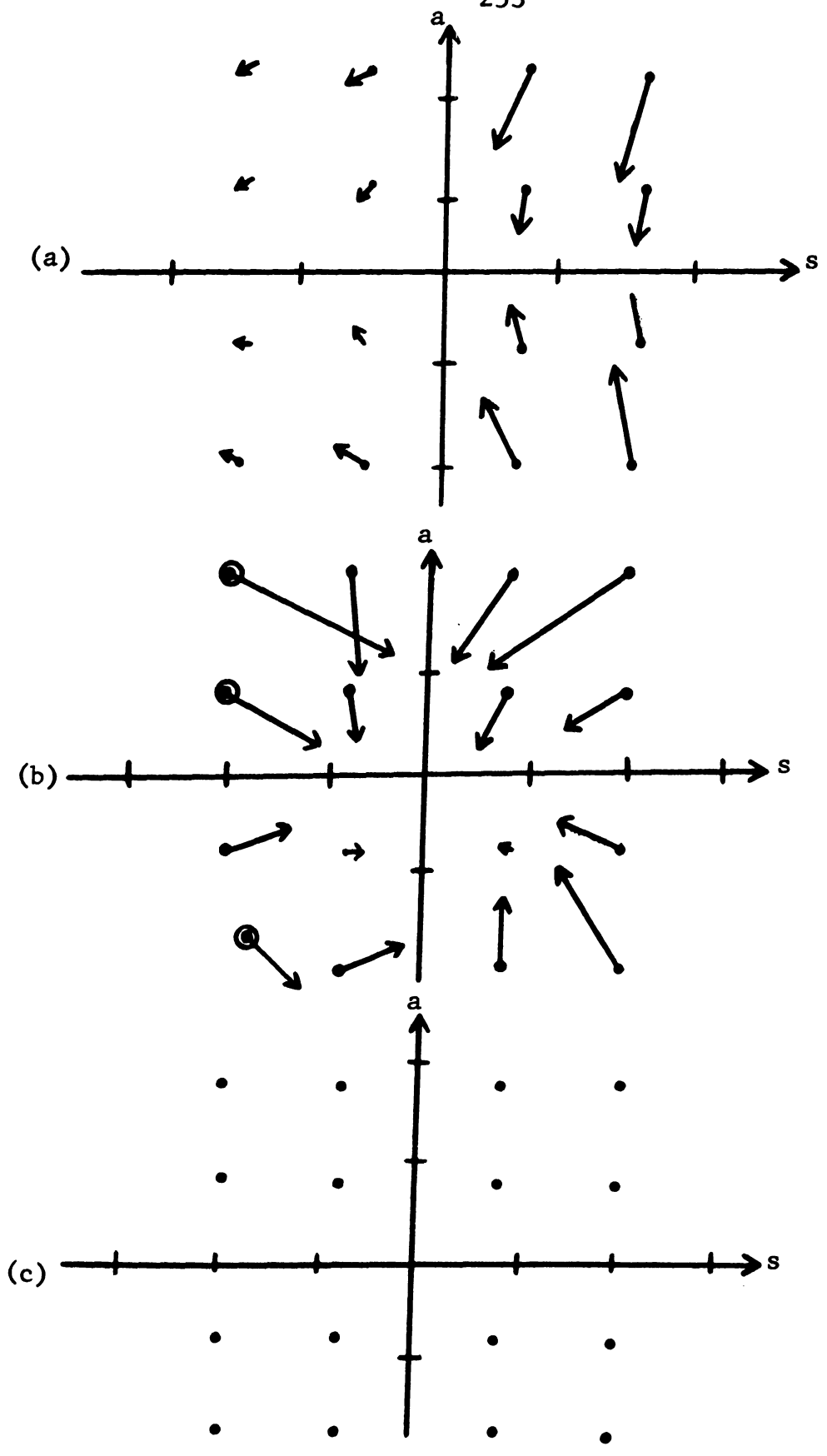


Figure 89. Neutral message phase planes for attitude change toward source and object: observed (b), predicted by dissonance(a), predicted by congruity (c).

The results in the observed data are, however, somewhat obscured by the highly fallible points for s = -2.0.

The mean message value for the neutral message was slightly negative. However the fit for the congruity model in Figure 88c appears to be just as bad as the fit of the model in Figure 89c.

Dissonance and Congruity

Dissonance theory worked well for the negative message which yielded no source enhancement. However for both the positive and neutral messages the negative source produced both attitude change and source enhancement. This combination is inconsistent with the most basic tenet of dissonance theory, i.e. that the dissonance produced by discrepancy is reduced by source derogation.

Congruity theory failed both quantitatively and qualitatively on all three messages. This was most striking for the negative message, where some of the largest changes were for points on the line of perfect congruity!

Balance Theory

The affective-consistency theories, can be analyzed and evaluated at two criterial levels: a strong form and a weak form. The theoretical models proposed

and examined in the present research represent the strong form. Resolution of inconsistency through attitude and source change was assumed to comply with rigorous, precise, and exact mathematical expressions or laws.

The weak form of congruity theory is balance theory. Balance theory divides the a, s phase plane into "good" (consistent) quadrants and "bad" (inconsistent) quadrants. At this primitive level, a source-object dyad with identical affect signs should be positively related and a dyad with unlike signs should be negatively associated, if the dyad is to satisfy the weak consistency criterion. Otherwise, the dyad is in an inconsistent state.

If the dyad is in an imbalanced state; then equilibrium, or a balanced condition, is restored when the sign of either dyadic element is reflected so as to achieve compatability between the affect signs of the dyad and the sign of the link connecting the elements.

For example, in the positive message case (positive link), the weak form implies that source-object pairs in either the s = +, a = + quadrant or s = -, a = - quadrant are balanced. The other pairs are in bad quadrants and should seek equilibrium by shifting into one or the other of the good quadrants.

Theoretically an imbalance could also be resolved by changing the link. However in the present context, this means calling the source a liar which seems highly unlikely.

The data from the positive message supported the global predictions of weak consistency theory (Figure 84b). Dyads in imbalanced quadrants are displaced toward the balanced quadrant s = +, a = +. Those in that quadrant tend to remain there. Points in the "balanced" quadrant s = -, a = - were irregular, though. Two of the points, (s = -.80, a = -.80) and (s = -2.0, a = -.80), leave the region (and traverse toward the other balanced quadrant). The other two points remain in the quadrant. These last two points were highly fallible and must be cautiously interpreted.

The data from the negative message did not fit the weak form (Figure 88b). The dyads shift out of the balanced quadrants (s = +, a = - and s = -, a = +) and toward an imbalanced quadrant (s = -, a = -). Points in the bad quadrant s = +, a = + are displaced into the other bad quadrant s = -, a = -. Dyads in this imbalanced quadrant continue there.

Balance theory makes no explicit predictions for

the neutral message. In fact Abelson and Rosenberg (1958) explicitly make a nonprediction.

CHAPTER XIII

CONCLUSIONS

Attitude change satisfied a simple linear discrepancy law. The subject changed his attitude toward the object by a constant fraction of the distance to the position advocated by the message. Attitude change was independent of the subject's attitude toward the source.

Source change also satisfied a simple linear discrepancy law. The subject's attitude toward the source changed in proportion to the difference between the subject's feeling toward the source and the affect expressed in the source's statement. Source change was independent of the subject's attitude toward the object and hence independent of whether or not the subject and source agreed or disagreed about the object.

In an era dominated by consistency theory, the most startling result is that source change and attitude change were completely independent.

Constant Change Theorists. The constant change theorists assume that attitude change is primarily a function of message value alone and dependent on attitude only in so far as there may be increased resistance at the extremities. This is completely at odds with the relativistic message effects of the discrepancy law and hence the present data.

Congruity and Balance Theory. Congruity theory assumes that the heart of the communication paradigm is the relation between attitude toward source and attitude toward object. For a positive message, the discrepancy between source and object affect should decrease. Attitude and source change should be almost perfectly negatively correlated. For the negative message, these attitudes should each change toward the negative of the other, and the resulting changes should therefore be almost perfectly positively correlated. Congruity theory failed on all three counts:

(1) it posits the wrong discrepancy (source-object) for attitude change (object-message)

(2) it posits the wrong discrepancy (source-object) for source change (source-message) and

(3) it posits a near perfect correlation between attitude

change and source change which were independent. The weak or qualitative form of congruity theory is balance theory. Balance theory posits the same critical discrepancies without predicting the specific form of the remedy. The critical failure of balance theory was in its predictions for the negative message. All change was toward the negative-negative quadrant which is unbalanced for the negative message.

Dissonance Theory. Dissonance theory assumes that object-message discrepancy is the cause of attitude change. Thus it gave good qualitative fit to the attitude change results. However the predicted source effect did not occur. Dissonance theory could interpret this as a negation of the assumption that source credibility is a function of the subject's affect toward the source. Moreover if source credibility was not only independent of the subject's attitude toward the source but generally very high then dissonance theory would degenerate to the linear discrepancy model for attitude change. However if source credibility is independent of source affect, source change is a function of object-message discrepancy and independent of attitude toward the source. Furthermore, the greater the credibility, the greater the

dissonance and for equal discrepancy the greater the source derogation (ignoring extreme values). Source enhancement such as occurred for the positive and neutral messages is impossible within dissonance theory.

Social Judgment Theory. Sherif assumes that message-object discrepancy is at the very core of the communication situation. Furthermore if ego involvement is so low that social judgment theory degenerates to the linear discrepancy law of attitude change, there should be no source credibility effect. Thus the attitude change results are consistent. But if the latitude of acceptance is so wide that there are no non-linearities, then there should be no source derogation. Furthermore source change when it occurs should be a function of object-message discrepancy, not source-message discrepancy.

Information Processing Models

The most elemental form of the information processing models of attitude change is the simple linear discrepancy law without credibility effects. Thus the information processing theories fit the data for attitude change without special assumptions.

On the other hand, the model put forward for source change (Figure 13) showed no fit at all. However,

this model was not derived from information processing theory but grafted on by assuming that source change would be a function of whether the subject could "identify" with the message or not.

The more natural question for information processing is, what does the message say about the source? The answer is that the message indicates how the source feels about other people. Thus a positive message is an indication that the source is a nice guy while a negative message indicates that the source tends to dislike other people. So a message from the source is a message about the source and should even have about the same value. In short, this argument would appear to derive the source-message discrepancy law from an information processing base.

If the source-message discrepancy model is accepted as an information processing model, then the information processing models are the only class of models that account for both attitude change and source change in the present data.

In any case, the simplest model that gives reasonably good fit over all the data is

$$\Delta a = .4\ (m-a)$$

$$\Delta s = .3\ (m-s)$$

where the .3 for source change is the average of the .4 for the neutral message and the .2 for the positive and negative messages.

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APPENDICES

APPENDIX I

APPENDIX I

Experimental Materials

Biographical Sketch

Mary

Mary is 29, widowed (her husband was killed in Vietnam), and has two children ages 3 and 5. She supports herself by working as a waitress at a local steakhouse. Mary has been associated with the group for two years. She isn't part of the current generation and finds no satisfaction in protests, social movements, or the other things identified with the present scene. Being more mature she is sometimes short with the others if they're not being serious. She gets very involved in her acting and has taken full advantage of the opportunity to participate in a supervised drama production. When she loosens up, she could be an excellent actress.

Biographical Sketch

Joe

Joe is from a small town in Mississippi and has the usual racial and religious prejedices. However, he knows he's parochial and as long as you stay away from his "blind spots" he makes a real effort to be open-minded. He's rather confused about the now generation with everything happening in the political and social arenas. He has very deep religious convictions and current events upset him, especially the moral revolution we're now experiencing. Joe is a newcomer to the group. He joined us early this year when one of our regulars had to leave school. Joe shows great promise but he is still at the stage of learning the fundamentals of dramatic acting. We have been working together closely since he had joined us so late in the season. He practices diligently on all of the assignments I have given him and has shown some improvement. We all have the highest regards for his sincerety and integrity.

Biographical Sketch

Bill

Bill is from a suburb of Boston. His father owns a long-established securities and investments firm in downtown Boston. Bill's education, prior to entering college, was from private schools in the East. Bill has been with the group for two years - by now he's a senior member. He's a very able performer and has had several outstanding performances. He can accomplish almost any assignment and usually without close supervision. Bill is not the outgoing type. He rarely attends any of our social functions but he is dedicated to the group's objectives and can always be depended upon in any situation. He has chosen to involve himself in only these group activities that are strictly professional. It is difficult to really get to know Bill and I believe he hasn't availed himself of the personal relationships that usually arise in a drama group. But I must stress that he is a very reliable and honest individual who never shirks his duties and responsibilities on stage

Biographical Sketch

Jane

Jane is from Detroit. Her father practices law in that area. She came through excellent private schools. Her second passion, after drama, was campus politics even before she entered college. She is a member of the local chapter of SDS. Despite her rather sweet disposition, she fancies herself a revolutionary Maoist weatherman. Jane is a long standing regular in the group. She tries to participate in all of our productions. She is moderately competent but I can't seem to stimulate her enough and consequently she isn't achieving her full potential. Jane, however, is so pleasant to work with. She is so quick-witted. The group really enjoys having her around on those days when we have to repeatedly retake a scene. Jane always finds a way to break up the time with a good joke or story. She seems to take acting seriously but she can be so easily distracted into other activities. Jane can concentrate when whe wants to though. Our relationship has been strong and I feel very close to her though at times I wish she would be more concerned and sensitive about her character portrayals.

Biographical Sketch

Sam

Sam is Jewish and from New York City. His family are well-to-do Manhatten furriers. His parents sent him to Europe to study opera but he didn't have the voice. He returned home and wandered aimlessly until he discovered drama. Sam is probably the most talented individual I have every supervised. There's nothing ameteurish about him. He was quite experienced even before he joined us, having been involved in a civic theatre group and traveling in a summer company. There's no question in my mind that he has a brilliant career ahead of him. There's very little coaching I can give him and, quite frankly, I depend on him to help the others when I'm not here. Sam is ambitious and will achieve anything he sets out to do.

Personal Sketch

Mary

The theatre is the most important thing in my life. Everything else takes a secondary place. To me the stage is a reflection of the extremes in life. Characters in a play represent the absolute extension of reality. A dramatic performance requires you to see beyond the lines. You have to fully sense the character's worth or worthlessness as a person. You almost have to become obsessed with the person you are playing. A role in a play makes great demand on your skills for reacting as the character would. The theatre has given me a much richer perspective on life than I would have had ordinarily.

Personal Sketch

Joe

Participating in this drama group has been the most gratifying experience in my entire life. I've never been in such close contact with a group or people before. It's so nice to have five individuals all working for one common goal...and achieve it. Everyone goes out of their way to help one another. I have personally learned a great deal about acting and, from my own point of view, about other human beings' problems and aspirations. I know I've received more help than I have given. Everyone is so genuine and open about their feelings. There's always at least one person who can take control and smooth out any snags we're having with the play or among ourselves. I hope I've done my share of work around here because I know everyone else has contributed greatly to me. Someday I want to be able to set up a drama group like this one so other people can have the same benefits I did.

Personal Sketch

Bill

I think acting is like any other way of life. You only get out what you put in. Anything that gets in the way of honest work and dedication to a project must be dealt with accordingly. Humor is one thing, frivolity is another. That's the reason why I hate the catiness and petty backstabbing that characterize so many people in this profession. A serious actor can work with anyone as long as they don't actively hamper progress of the group. Over the four years I've been here my work in this small group has meant much more to me than all my classes combined.

Personal Sketch

Jane

Acting is another outlet I have for inner expression. Each role seems to add a new dimension, a new facet to my own personal development. It is true that we understand ourselves least. And acting forces you to compare your own personality dynamics with those of the personality you are portraying. But you shouldn't limit self-expression to the stage. I've widened my horizons by becoming active in campus groups that are dissatisfied with today's values. Everyone needs to confront the system whether it is a political, social, educational or some other institution.

Personal Sketch

Sam

I came to college to get some formal training in acting. After I decided not to go into opera I returned to this country. I was set to enter a small school of fine arts in New York City but after some interviews there I didn't think the school offered me any additional opportunities beyond those I already had. Besides you usually make more contacts at larger schools and are more likely to be cast into major roles. I didn't finish my degree here but will tryout for parts in off-Broadway shows next season. I need some time away from school anyway to think about the kind of career I want. It's amazing how fast you can become type-cast in this field. At first I had decided to stay in the legitimate theatre but Hollywood appears to be enlarging their spectrum of films so I may consider movies. Movies do give you a lot more recognition...and larger audiences.

Mary about Bill

Bill is a dependable sort of guy. But he doesn't seem to share in the responsibilities of the group. He doesn't make an effort to offer suggestions and criticisms about other peoples' performances. Bill is competent himself; but he doesn't drive the others in the group to put out their best. He's so quiet all the time that I think he might even be disinterested in what we are doing. We don't spend much time together outside of the play but I guess that's the way he wants it. I have no particular praise or disaffection for him although he is a reliable person and does work at his part. He probably needs tobecome more extroverted and much less withdrawn than he appears. He's such an honest person that he doesn't seem to be "with it" at times. He doesn't realize what others say about you. He should come out of his shell.

Mary about Jane

She isn't very dedicated to acting. This group play is just something to keep her busy...break up the week. She's always missing rehersals and usually isn't on time when she does come. When she's here she messes around. She's not serious about her role. She never concentrates on the scene and chatters all the time... disturbing everybody else. She's the quote-typical college coed - here to get an MRS degree. She's certainly not talented. She expects this play to be all fun and won't do any hard work to accomplish her role. She needs discipline. She always ignores and brushes aside any suggestions for improving her performance.

Mary about Joe

Joe is the stick-to-it type. He's a rather simple person and not very talented but does try to use the ability he has. He works day in and day out. It's unfortunate that he just doesn't have a natural gift for acting. Any improvement he makes is so small and drawn out. Joe does put out his best and that's why I like him around the group. But he doesn't really understand what a good performance is all about. Joe has no sense for the fine arts and drama. But he is a sincere person and might make it someday.

Mary about Sam

I admire Sam somewhat. He's talented and dedicated to acting. He's polished enough so he doesn't have to be constantly supervised and directed. He's not a warm person but he's really effective on stage. Sometimes, however, he rejects suggestions for improving his performances. I guess he feels no one else can adequately judge him. He's not the kind of person that you can walk right up to and talk with. He's not aloof but rather very independent from everyone. He's the best actor in the group but he lacks social skills. His concern for the group is mostly a matter of how we reflect on him.

Joe about Bill

Bill is a personal model for me. You can always trust him and be confident in whatever he says and does. He's always willing to help me out and give up his own times when necessary....to me or anyone that asks. He develops his roles. He goes beyond the lines and acts out the total character in each part. He's certainly reliable. Doesn't miss any deadlines. He works hard. Bill is the most constructive guy around here to each of us. He believes that a play is a unit...tries to integrate us together and make our individual parts blend into a single performance.

Joe about Jane

Jane is a very thoughtful person. She believes in helping everyone. The first time I met her she was interested in what I wanted to do here in the play. She understands people. I've learned so much from her. She's a bright light around here. Jane isn't like a lot of people that are self-centered or just shallow and empty beyond the surface. This play and the people in it are part of her family. She's enthusiastic in whatever she does. She has faith in you when others are in doubt.

Joe about Mary

Mary is a hardworker...and drives the others to practice their roles. If everyone dedicated themselves to acting like she does, we'd have the best drama group around. I've learned a great deal from Mary. She's made me think critically about my part and brought out every ounce of energy I have to better myself as an actor. She's not the gushy type that turns you on right away... but when you get to know her you find that she loves other people she deserves. This group would collapse without her driving force and sound advice. I shall always be grateful for the opportunity of knowing her and being around her.

Joe about Sam

Sam has the talent and confidence that will make him great someday. Acting is so natural for him. He's so smooth and sure in everything he does. He's a true professional. I really admire him. He's so lively... knows the right thing to say all the time. He's brilliant and stimulating to be around. Nothing upsets him. He takes everything in its stride. I enjoy being around him and could listen to him for hours. Sam can handle himself in any situation. Sometimes you even forget he's Jewish.

Bill about Jane

Jane's easygoing and perfectly suited to her part in the play. She's warm and sincere...the kind of person who makes the time fly by. She holds the group together. Jane keeps all of us relaxed and comfortable with our parts. She sets the mood...cheers us up and lets us openly talk about our difficulties in the play. She really sacrifices a lot of her own time for tohers' benefits. Jane is a terrific person to have around. I look forward to and enjoy working with her at every session. She is so imaginative...knows exactly how a role should be played. She's the number one asset here.

Bill about Joe

Joe is a nice guy to have around. He's extremely eventempered. He practices hard. It takes him a long time to do a part but he ends up doing a competent job. He always carries out his assignments without any static. He becomes involved with his parts. I respect him personally both on and off stage. I always look forward to working with Joe. He's always patient when things go wrong. He just goes around with a smile on his face and tries to cheer us all up.

Bill about Mary

She's loud and sometimes quite offensive. Mary makes her points too many times. She just doesn't know when to stop. Most of her comments about our acting are completely unnecessary. Some of the time her criticisms are personal and not about our professional performances on the stage. I really don't believe she wants to be constructive but is out to antagonize us. Everyone wants to improve himself and put on the best possible play but no one wants the kind of insults she hands out. She is always interrupting us even when we ignore her. What she needs is for someone to dish it back to her but we don't want to descend to her level. I have given up trying to make her realize the damage she does to us all. Her problems must go beyond this play because other people that know her outside the group have the same reaction to her I do. She's just sour on life...and takes it out on us. She just doesn't understand the meaning of decency and courtesy. And even if we listen to her she keeps harping more and more on what she thinks is wrong with us and the play.

Bill about Sam

Sam's a good actor...no two ways about it. He's really good. But he does think he's God's gift to women and the rest of the world. Sam cracks the coolest jokes but sometimes he's overbearing and doesn't know when to get serious. With Sam in this group, people are going to say great things about us and this play...we'll get a lot of recognition but he'll gloat over it. He's concerned about the play but I wonder if it's just selfish. I get along with Sam but I wouldn't go out of my way to be with him.

Jane about Bill

He's fairly talented. He treats everyone all right...on the surface...but I have my doubts about him. Sometimes I think he's not sincere. I've seen him be kind to people that I know he doesn't like. I guess he puts on a show at times. Bill does try to be friendly to everyone around here. He and I get along with respect to the play...but we don't have much contact otherwise. There's nothing about him that would make you dislike him. Although I prefer to limit my time with him to just what happens around here. Bill can be depended on but doesn't always seem enthusiastic about the play... almost mechanical.

Jane about Joe

Joe is a fine, fine person. He never thinks ill of anyone. He isn't fast...somewhat slow...but he get's there. Joe hasn't tuned out of society. He isn't a member of the now scene...on drugs or the like. Joe still senses the worth in mankind. He's a humanist...in his own way. Joe never complains. He's the first to volunteer and offer his services for any job. He sees the best in all of us. He's happy just knowing each of us. [I know this is trite, but Joe will go to heaven.] I have the highest regards for Joe and just wish that there were more of his type around...sincere, genuine, concerned about the welfare of others. Knowing him gives you a refreshed and better outlook on life. His kind will make the significant contributions in the future. Joe respects others and receives respect in return. There's nothing artificial about him.

Jane about Mary

Mary is a pushy person. Everything has to be done her way. She's usually aloof from the group. She's always critical of everybody and she's the only one who knows how to do a part right. She's too dedicated... doesn't understand that others have interests outside drama and other things to do. Whenever I try to approach her she becomes cold. She always responds to my comments in a bitter manner. Last week I tried to see her after practice. She saw me coming and just briskly walked away...purposely avoiding me. Just because she works so hard at her parts is no reason for her to treat everyone in such an indecent manner. No one measures up to her standards. She's always jumping on me to sharper up this scene or some other scene. She's a self-proclaimed star.

Jane about Sam

He's very talented...and I certainly respect him for it. But, he always lets you know it. He looks down on the others for whom acting doesn't come as naturally. I suppose everyone should have his standards but he doesn't sympathize with those of us who are novices and just starting our training. It's difficult to relate to him. I don't feel comfortable around him...as an equal - a peer. Sam treats me more like I was a student and he the teacher. He does try to make us do our best and tries to positively help us with our parts. But sometimes he gets frustrated with us and gets mad. Sam doesn't have enough patience to really help us grad[illegible] improve ourselves. If he were nicer, we'd listen to him more.

Sam about Bill

I don't think he's as cool as he's made out to be. He certainly presents an air of smug confidence. He's the kind of Boston prep school product that gives you the glad hand and diplomatic smile when he looks down his nose at you. I didn't join his fan club like some of the others. He's been lucky enough to run into the gullible types so far. But one day somebody's going to ask, "He's good looking, but can he act?"...and he's finished. When he hits New York, he'll find expensive clothes don't make the man. That front of his will fall apart someday and his true character will be revealed. The less I associate with him, the more I like it.

Sam about Jane

Jane is an uncomplicated person...in a positive sense. She's genuine and sincere. She realizes...and appreciates the value of others' criticism for improving her acting. She keeps our spirits up with her witty remarks. She doesn't rush into her parts but kind of meditates and thinks through the character. She's thoughtful and understanding about everyone's feelings. Jane tries to be warm to us all. Everybody's problems are her own. She always asks how things are going. She likes people...and likes acting because it is concerned with people.

Sam about Joe

He has no talent and never will but he really works hard. He fawns over everybody to where it gives me the creeps...but he thinks he's being sincere. He's straight but tasteless. I wish he'd quit flattering Jane. He's so sincere she believes him and I'm afraid it will set her up for a fall. It's a tough choice to decide between a guy that's talented and a guy that's nice. It takes all kinds to make a world. I wish he'd show some improvement in acting but he doesn't have what it takes. When everybody else is ragged and on edge it's good to have Joe around. I really appreciate him on those days. Maybe he should change fields. He'd probably be a success somewhere else. But he doesn't want to admit his failure at acting.

Sam about Mary

There's no other way to describe her other than she's incompetent and untalented. She should not be allowed to participate in a play. Mary always reacts negatively to criticism...she doesn't admit her inabilities and doesn't want to improve herself. I don't understand why she wants to study drama. It seems that she can't learn a role...even with constant practice. She just can't feel her roles. She projects her own lack of talent on others. She's constantly downgrading everyone's performance. She's a bitter person...cold towards everybody and everything around her. She's so destructive that I'm worried that she might even break our group up.

APPENDIX II

Sense Sheets and Fortran Scoring Program



MARY

Mary is 29, widowed with two children.



JOE

Joe is from a small town in Mississippi.



BILL

Bill is from a suburb of Boston.



JANE

Jane is from Detroit.



SAM

Sam is Jewish and from New York City.

PRINTED IN U.S.A.

RESSIVE	TIMID
PETENT	INCOMPETENT
HONEST	HONEST
WOLVED	ALOOF
MODEST	ARROGANT
ELAXED	TENSE
ELFISH	UNSELFISH
WORTHY	UNTRUSTWORTHY
IENDLY	FRIENDLY
NEROUS	GENEROUS
LENTED	TALENTED
VAIN	HUMBLE
WARM	COLD

PRINTED IN U.S.A.

BILL

TIMID	
INCOMPETENT	
HONEST	
ALOOF	
ARROGANT	
TENSE	
UNSELFISH	
UNTRUSTWORTHY	
FRIENDLY	
GENEROUS	
TALENTED	
HUMBLE	
COLD	

JOE

TIMID	
INCOMPETENT	
HONEST	
ALOOF	
ARROGANT	
TENSE	
UNSELFISH	
UNTRUSTWORTHY	
FRIENDLY	
GENEROUS	
TALENTED	
HUMBLE	
COLD	

Stop! PLEASE DO NOT TURN TO THE NEXT PAGE UNTIL AFTER YOU HAVE VIEWED THE NEXT SKETCH.

```
      PROGRAM DATA
C  NEW ORDER. SCALES CENTERED AT 4.  REVERSALS INDICATED
CUNF=FR
CWARM=COLD (REV)
CSEL=UNSEL (REV)
CUNG=GEN
CAGR=TIM
CREL=TEN (REV)
CCOMP=INCOM  (REV)
C UNT=TAL
C MOD=ARR (REV)
C VAIN=HUMB
C INV=ALOOF (REV)
C DISHON=HON
C TRUST=UNTRUST (REV)
C FORMAT FOR NEW ORDER... 2 SCALES /CARD. SAME SEQ. AS QB.
C ID IN COLS. 1-10 .  SOCIO. ON LAST CARD. .29 CARDS/S)
      DIMENSION X(1000),Y(1000),K(13),XK(13),XXK(13)
      DATA(K=9,13,7,10,1,6,2,11,5,12,4,3,8)
      DATA(XK=0.,8.,0.,0.,0.,8.,8.,0.,8.,0.,8.,0.,8.)
      DATA(XXK=-1.,1.,-1.,-1.,-1.,1.,1.,1.,-1.,1.,-1.,1.,-1.,1.)
      READ 5,NSUBJ
    5 FORMAT(I3)
      DO 100 J=1,NSUBJ
      READ 1,ID,(X(I),I=1,735)
    1 FORMAT(I5,5X,5(13F1.0,X)/10(10X,5(13F1.0,X)/),10X,30F1.0)
      DO 101 II=1,715,13
      L=II-1
      DO 101 JJ=1,13
      Y(L+JJ)=XXK(JJ)*(XK(JJ)-X(K(JJ)+L))-4.
  101 CONTINUE
      DO 102 I=1,28
      LL=((I-1)*26)+1
      ML=LL+25
      IF(ML.GT.715)ML=715
  102 PUNCH 2,ID,I,(Y(M),M=LL,ML)
    2 FORMAT(2I5,26F2.0)
      LL=29
      PUNCH 3,ID,LL,(X(I),I=716,735)
    3 FORMAT(2I5,20F1.0)
  100 CONTINUE
      END
```

APPENDIX III

APPENDIX III

Instructions for SSMO and MOSS Conditions

General Instructions

We are conducting research on the topic of interpersonal perception--how people form impressions about one another. You have been kind enough to volunteer and aid us in gathering data on this topic. Today you are going to read a series of sketches drawn from interviews our research team held with a local drama group on campus. The drama group is an extracurricular activity provided for students in the Department of Theatre and gives them the opportunity to supplement their coursework by participating in the making of several short plays. This particular group had five student members and a faculty advisor who directed and produced the plays.

Our research team interviewed the advisor and the five members last quarter. We asked the advisor to prepare a short biography of eachmember and to include in it a summary of their performances, progress, futures,

etc. We asked each member of the drama group about himself and about his relationships with the other four members in the group. Both the faculty advisor and the group members consented to our request for using the interviews in later research projects.

By having you study the interview material we hope to understand how individuals in their everyday lives form impressions of one another. We have edited this material and shall be presenting it to you in a few moments.

Rather than have you read through all of this material we decided to "simulate" parts of the interviews. We enlisted other students in the Department of Theatre to substitute for the members of the drama group but to present the material from the interviews on videotape. Thus, the identity of the drama group would remain anonymous and confidential. We anticipated that presenting the interview segments on videotape would be more natural to you than reading through a long text. Thus, the persons you see on the videotape are not the actual members of the drama group but are students who we have hired to deliver the interpersonal descriptions we collected in the interviews. But the material they present was obtained from interviews with the drama group.

After you have read the sketches you will be asked to describe the impressions you have formed of the persons in the drama group. Please do not indicate your judgments until you are instructed to do so. After you complete each section of this questionnaire booklet, wait until the next sketch begins. Please do not look ahead in the questionnaire booklet until you are instructed to do so.

Instructions for the Scales

At several points during today's session, you will be asked to describe the members of the group. The procedure you are to follow is discussed in the proceeding paragraphs.

Beneath the name of the person you are to describe will be a set of scales. You are to use these scales to indicate how you feel about each person. Each scale consists of a pair of adjectives separated by seven spaces. For example,

kind ==== ==== ==== ==== ==== ==== ==== unkind

If you believe that the person is extremely kind you would blacken in the space as follows:

kind ■■■■ ==== ==== ==== ==== ==== unkind

or extremely unking, you would blacken the space as follows:

kind ▬▬▬ ▬▬▬ ▬▬▬ ▬▬▬ ▬▬▬ ▬▬▬ ▬▬▬ unkind

If you believe that the person is somewhat kind, then you would blacken in the space as follows:

kind ▬▬▬ ▬▬▬ ▬▬▬ ▬▬▬ ▬▬▬ ▬▬▬ ▬▬▬ unkind

or somewhat unkind, then you should blacken in the space as follows:

kind ▬▬▬ ▬▬▬ ▬▬▬ ▬▬▬ ▬▬▬ ▬▬▬ ▬▬▬ unkind

If you believe that the person is only slightly kind, then you should blacken in the space as follows:

kind ▬▬▬ ▬▬▬ ▬▬▬ ▬▬▬ ▬▬▬ ▬▬▬ ▬▬▬ unkind

or only slightly unkind then you should blacken in the space as follows:

kind ▬▬▬ ▬▬▬ ▬▬▬ ▬▬▬ ▬▬▬ ▬▬▬ ▬▬▬ unkind

If you consider the person to be neutral on the scale, both sides of the scale equally descriptive of the person, or if the scale is completely irrelevant (unrelated to the person), then you should blacken in the middle space (colored blue):

kind ▬▬▬ ▬▬▬ ▬▬▬ ▬▬▬ ▬▬▬ ▬▬▬ ▬▬▬ unkind

Thus, the direction toward which you check depends upon which of the two ends of the scale seem most characteristic of the person you're judging.

IMPORTANT: (1) Blacken within the spaces, not on the boundaries:



(2) Be sure to mark every scale for every person--do not omit any.

(3) Never put more than one mark on a single scale.

We realize that you will have only a limited amount of information on which to base your judgments but try to do your best anyhow. Do not worry or puzzle over each scale. It is your immediate impression about the person that we want. On the other hand, please do not be careless, because we want your true impressions.

Pick up the packet marked ADVISOR SKETCHES and read the instructions on page 1.

Now fill out the scales on the next five pages for each person in the group. Feel free to reread any of the advisor sketches if you want to before or while you are filling out the scales. (Review pages 3 and 4 of the Questionnaire Booklet if you need further Insturctions for using the scales.)

In a few moments you will view on the T.V. screen in front of you the simulated self-descriptions we obtained from each member of the drama group. Superimposed at the bottom of the screen will be the member's name. Refer to the photograph gallery at any time.
PLEASE DO NOT TURN TO THE NEXT PAGE UNTIL YOU ARE INSTRUCTED TO DO SO.

Please pick up the packet marked PERSONAL SKETCHES. These are transcripts of the same self-descriptions you just viewed on the T.V. screen. Read through these self-descriptions to refresh you memory of the five persons in the group and then fill out the scales on the next five pages for each person in the group.

In a few moments you will view on the T.V. screen the simulated interpersonal sketches for the members of the drama group. These sketches were taken from (and extensively shortened) the interviews we had with each member. We asked each member to describe his interpersonal relationships with the other four members of the drama group. During each sketch there will be a sign superimposed at the bottom of the screen to indicate who is describing whom. For example, for the first sketch,

Mary about Bill

denotes that the sketch is taken from the interview with Mary and is what Mary said about Bill. To repeat, the first name specifies who was interviewed and the second name specifies whom he (she) talked about. After each sketch you will fill out the scales for both the person who was interviewed and the person whom he (she) talked about. Please do not look back at any of the other sketches or scales which you have previously read or filled out. But, refer to the photograph gallery if you are not certain of the referents in the sketches.

APPENDIX IV

APPENDIX IV

Instructions for the ROC Scaling Experiment

General Instructions

We are conducting research on the topic of interpersonal perception--how people form impressions about one another. You have been kind enough to volunteer and aid us in gathering data on this topic. Today you are going to read a series of sketches drawn from interviews our research team held with a local drama group on campus. The drama group is an extracurricular activity provided for students in the Department of Theatre and gives them the opportunity to supplement their coursework by participating in the making of several short plays. This particular group had five student members and a faculty advisor who directed and produced the plays.

Our research team interviewed the advisor and the five members last quarter. We asked the advisor to prepare a short biography of each member and to include in it a summary of their performances, progress, futures,

etc. We asked each member of the drama group about himself and about his relationships with the other four members in the group. Both the faculty advisor and the group members consented to our request for using the interviews in later research projects.

By having you study the interview material we hop to understand how individuals in their everyday lives form impressions of one another. We have edited this material and shall be presenting it to you in a few moments.

On the next several pages are the sketches we obtained from the advisor and the members of the drama groups (names were eliminated from the sketches). As you read through each sketch try to determine the characteristics of the person described in the sketch as they are indicated in the sketch. Ignore the question of whether you believe the sketch but judge <u>how the sketch describes the person</u>. For example, if a sketch stated:

"He always ignores me."

then you would rate the person described in this sketch as unfriendly on the friendly-unfriendly scale since the sketch presented this information.

INSTRUCTIONS FOR THE SCALES

After the sketch of the person will be a set of scales. Each scale consists of a pair of adjectives separated by seven spaces. For example,

kind ____ ____ ____ ____ ____ ____ ____ unkind

If you believe that the person as indicated in the sketch is <u>extremely</u> kind you would blacken in the space as follows:

kind ■■■■ ____ ____ ____ ____ ____ ____ unkind

or <u>extremely</u> unkind, you would blacken the space as follows:

kind ____ ____ ____ ____ ____ ____ ■■■■ unkind

If you believe that the person as indicated in the sketch is <u>somewhat</u> kind, then you would blacken in the space as follows:

kind ____ ■■■■ ____ ____ ____ ____ ____ unkind

or <u>somewhat</u> unkind, then you should blacken in the space as follows:

kind ____ ____ ____ ____ ____ ■■■■ ____ unkind

If you believe that the person as indicated in the sketch is <u>only slightly</u> kind, then you should blacken in the space as follows:

kind ____ ____ ■■■■ ____ ____ ____ ____ unkind

or only slightly unkind then you should blacken in the space as follows:

kind ==== ==== ==== ==== ■■■■ ==== ==== unkind

If you consider the person as indicated in the sketch to be neutral on the scale, both sides equally descriptive of the person, or if the scale is completely irrelevant (unrelated to the person), then you should blacken in the middle space (colored blue):

kind ==== ==== ==== ■■■■ ==== ==== ==== unkind

Thus, the direction toward which you check depends upon which of the two ends of the scale seem most characteristic of the person you're judging.

IMPORTANT: (1) Blacken within the space, not on the boundaries:

THIS NOT THIS

kind ==== ==== ■■■■ ==== ■■■■■■ unkind

(2) Be sure to mark every scale for every person--do not omit any.

(3) Never put more than one mark on a single scale.

We realize that you will have only a limited amount of information which to base your judgments but try to do your best anyhow. Do not worry or puzzle over each scale. It is you immediate impression that we want. On the other hand, please do not be careless, because we

want your true impressions.

To repeat, as you read through each sketch try to determine the characteristics of the person described in the sketch as they are indicated in the sketch. Ignore the question of whether you believe the sketch but judge how the sketch describes the person.

Rating Instrument for the ROC Scaling Experiment

RINTED IN U.S.A.

ESSIES	=	TIMID	
RETENT	=	INCOMPETENT	
HONEST	=	HONEST	
VOLVED	=	ALOOF	
MODEST	=	ARROGANT	
ELAXED	=	TENSE	
ELFISH	=	UNELFISH	
NORTHY	=	UNTRUSTWORTHY	
LENDLY	=	FRIENDLY	
VEROUS	=	GENEROUS	
LENTED	=	TALENTED	
VAIN	=	HUMBLE	
WARM	=	COLD	

SKETCHES

She is 29, widowed (her husband was killed in Vietnam), and has two children ages 3 and 5. She supports herself by working as a waitress at a local steakhouse. She has been associated with the group for two years. She isn't part of the current generation and finds no satisfaction in protests, social movements, or the other things identified with the present scene. Being more mature she is sometimes short with the others if they're not being serious. She gets very involved in her acting and has taken full advantage of the opportunity to participate in a supervised drama production. When she loosens up, she could be an excellent actress.

He is from a small town in Mississippi and has the usual racial and religious prejudices. However, he knows he's parochial and as long as you stay away from his "blind spots" he makes a real effort to be open-minded. He's rather confused about the now generation with everything happening in the political and social arenas. He has very deep religious convictions and current events upset him, especially the moral revolution we're now experiencing. He is a newcomer to the group. He joined us early this year when one of our regulars had to leave school. He shows great promise but he is still at the stage of learning the fundamentals of dramatic acting. We have been working together closely since he had joined us so late in the season. He practices diligently on all of the assignments I have given him and has shown some improvement. We all have the highest regards for his sincerity and integrity.

He is from a suburb of Boston. His father owns a long-established securities and investments firm in downtown Boston. His education, prior to entering college, was from private schools in the East. He has been with the group for two years - by now he's a senior member. He's a very able performer and has had several outstanding performances. He can accomplish almost any assignment and usually without close supervision. Bill is not the outgoing type. He rarely attends any of our social functions but he is dedicated to the group's objectives and can always be depended upon in any situation. He has chosen to involve himself in only these group activities that are strictly professional. It is difficult to really get to know him and I believe he hasn't availed himself of the personal relationships that usually arise in a drama group. But I must stress that he is a very reliable and honest individual who never shirks his duties and responsibilities on stage.

She is from Detroit. Her father practices law in that area. She came through excellent provate schools. Her second passion, after drama, was campus politics even before she entered college. She is a member of the local chapter of SDS. Despite her rather sweet disposition, she fancies herself a revolutionary Maoist weatherman. She is a long standing regular in the group. She tries to participate in all of our productions. She is moderately competent but I can't seem to stimulate her enough and consequently she isn't achieving her full potential. She, however, is so pleasant to work with. She is so quick-witted. The group really enjoys having her around on those days when we have to repeatedly retake a scene. She always finds a way to break up the time with a good joke or story. She seems to take acting seriously but she can be so easily distracted into other activities. She can concenteate when she wants to though. Our relationship has been strong and I feel very close to her though at times I wish she oould be more concerned and sensitive about her character portrayals.

He is Jewish and from New York City. His family are well-to-do Manhatten furriers. His parents sent him to Europe to study opera but he didn't have the voice. He returned home and wandered aimlessly until he discovered drama. He is probably the most talented individual I have ever supervised. There's nothing ameteurish about him. He was quite experienced even before he joined us, having been involved in a civic theatre group and traveling in a summer company. There's no question in my mind that he has a brilliant career ahead of him. There's very little coaching I can give him and, quite frankly, I depend on him to help the others when I'm not here. He is ambitious and will achieve anything he set out to do.

The theatre is the most important thing in my life. Everything else takes a secondary place. To me the stage is a reflection of the extremes in life. Characters in a play represent the absolute extension of reality. A dramatic performance requires you to see beyond the lines. You have to fully sense the character's worth or worthlessness as a person. You almost have to become obsessed with the person you are playing. A role in a play makes great demand on your skills for re-acting as the character would. The theatre has given me a much richer perspective on life than I would have had ordinarily.

Participating in this drama group has been the most gratifying experience in my entire life. I've never been in such close contact with a group or people before. It's so nice to have five individuals all working for one common goal...and achieve it. Everyone goes out of their way to help one another. I have personally learned a great deal about acting and, from my own point of view, about other human beings' problems and aspirations. I know I've received more help than I have given. Everyone is so genuine and open about their feelings. There's always at least one person who can take control and smooth out any snags we're having with the play or among ourselves. I hope I've done my share of work around here because I know everyone else has contributed greatly to me. Someday I want to be able to set up a drama group like this one so other people can have the same benefits I did.

I think acting is like any other way of life. You only get out what you put in. Anything that gets in the way of honest work and dedication to a project must be dealt with accordingly. Humor is one thing, frivolity is another. That's the reason why I hate the catiness and petty backstabbing that characterize so many people in the profession. A serious actor can work with anyone as long as they don't actively hamper progress of the group. Over the four years I've been here my work in this small group has meant much more to me than all my classes combined.

Acting is another outlet I have for inner expression. Each role seems to add a new dimension, a new facet to my own personal development. It is true that we understand ourselves least. And acting forces you to compare your own personality dynamics with those of the personality you are portraying. But you shouldn't limit self-expression to the stage. I've widened my horizons by becoming active in campus groups that are dissatisfied with today's values. Everyone needs to confront the system whether it is a political, social, educational, or some other institution.

I came to college to get some formal training in acting. After I decided not to go into opera I returned to this country. I was set to enter a small school of fine arts in New York City but after some interviews there I didn't think the school offered me any additional opportunities beyond those I already had. Besides you usually make more contacts at larger schools and are more likely to be cast into major roles. I probably won't finish my degree here but will tryout for parts in off-Broadway shows next season. I need some time away from school anyway to think about the kind of career I want. It's amazing how fast you can become type-cast in this field. At first I had decided to stay in the legitimate theatre but Hollywood appears to be enlarging their spectrum of films so I may consider movies. Movies do give you a lot more recognition...and larger audiences.

He's very talented...and I certainly respect him for it. But, he always lets you know it. He looks down on the others for whom acting doesn't come as naturally. I suppose everyone should have his standards but he doesn't sympathize with those of us who are novices and just starting out training. It's difficult to relate to him. I don't feel comfortable around him...as an equal - a peer. He treats me more like I was a student and he the teacher. He does try to make us do our best and tries to positively help us with our parts. But sometimes he gets frustrated with us and gets mad. He doesn't have enough patience to really help us gradually improve ourselves. If he were nicer we'd listen to him.

She is a pushy person. Everything has to be done her way. She's usually aloof from the group. She's always critical of everybody and she's the only one who knows how to do a part right. She's too dedicated...doesn't understand that others have interests outside drama and other things to do. Whenever I try to approach her she becomes cold. She always responds to my comments in a bitter manner. Last week I tried to see her after practice. She saw me coming and just briskly walked away...purposely avoiding me. Just because she works so hard at her parts is no reason for her to treat everyone in such an indecent manner. No one measures up to her standards. She's always jumping on me to sharpen up this scene or some other scene. She's a self-proclaimed star actress.

He's fairly talented. He treats everyone all right...on the surface... but I have my doubts about him. Sometimes I think he's not sincere. I've seen him be kind to people that I know he doesn't like. I guess he puts on a show at times. He does try to be friendly to everyone around here. He and I get along with respect to the play...but we don't have much contact otherwise. There's nothing about him that would make you dislike him. Although I prefer to limit my time with him to just what happens around here. He can be depended on but doesn't always seem enthusiastic about the play...almost mechanical.

He is a fine, fine person. He never thinks ill of anyone. He isn't fast...somewhat slow...but he get's there. He hasn't tuned out of society. He isn't a member of the now scene..on drugs or the like. He still senses the worth in mankind. He's a humanist...in his own way. He never complains. He's the first to volunteer and offer his services for any job. He sees the best in all of us. He's happy just knowing each of us. I know this is trite...but he will go to heaven. I have the highest regards for him and just wish that there were more of his type around...sincere, genuine, concerned about the welfare of **others.** Knowing him gives you a refreshed and better outlook on life. His kind will make the significant contributions in the future. He respects others and receives respect in return. There's nothing artificial about him.

He's a good actor...no two ways about it. He's really good. But he does think he's God's gift to women and the rest of the world. He cracks the coolest jokes but sometimes he's overbearing and doesn't know when to get serious. With him in this group, people are going to say great things about us and this play...we'll get a lot of recognition but he'll gloat over it. He's concerned about the play but I wonder if it's just selfish. I get along with him but I wouldn't go out of my way to be with him.

There's no other way to describe her other than she's incompetent and untalented. She should not be allowed to participate in a play. She always reacts negatively to criticism...she doesn't admit her inabilities and doesn't want to improve herself. I don't understand why she wants to study drama. It seems that she can't learn a role....even with constant practice. She just can't feel her roles. She projects her own lack of talent on others. She's constantly downgrading everyone's performance. She's a bitter person...cold towards everybody and every thing around her. She's so destructive that I'm worried that she might even break our group up.

He has no talent and never will but he really works hard. He fawns over everybody to where it gives me the creeps...but he's honest. He's straight but tasteless. I wish he'd quit flattering __. He's so sincere she belives him and I'm afraid it will set her up for a fall. It's a tough choice to decide between a guy that's talented and a guy that's nice. It takes all kinds to make a world. I wish he'd show some improvement in acting but he doesn't have what it takes. When everybody else is ragged and on edge it's good to have him around. I really appreciate him on those days. Maybe he should change fields. He'd probably be a success somewhere else. But he doesn't want to admit his failure at acting.

She is an uncomplicated person...in a positive sense. She's genuine and sincere. She realizes...and appreciates the value of others' criticism for improving her acting. She keeps our spirits up with her witty remarks. She doesn't rush into her parts but kind of meditates and thinks through the character. She's thoughtful and understanding about everyone's feelings. She tries to be warm to us all. Everybody's problems are her own. She always asks how things are going. She likes people...and likes acting because it is concerned with people.

I don't think he's as cool as he's made out to be. He certainly presents an air of smug confidence. He's the kind of Boston prep school product that gives you the glad hand and diplomatic smile when he looks down his nose at you. I didn't join his fan club like some of the others. He's been lucky enough to run into the gullible types so far. But one day somebody's going to ask, "He's good looking, but can he act?"..and he's finished. When he hits New York, he'll find expensive clothes don't make the man. That front of his will fall apart someday and his true character will be revealed. The less I associate with him, the more I like it.

She's loud and sometimes quite offensive. She makes her points too many times. She just doesn't know when to stop. Most of her comments about our acting are completely unnecessary. Some of the time her criticisms are personal and not about our professional performances on the stage. I really don't believe she wants to be constructive but is out to antagonize us. Everyone wants to improve himself and put on the best possible play but no one wants the kind of insults she hands out. She is always interrupting us even when we ignore her. What she needs is for someone to dish it back to her but we don't want to descend to her level. I have given up trying to make her realize the damage she does to us all. Her problems must go beyond this play because other people that know her outside the group have the same reaction to her I do. She's just sour on life...and takes it out on us. She just doesn't understand the meaning of decency and courtesy. And even if we listen to her she keeps harping more and more on what she thinks is wrong with us and the play.

He is a personal model for me. You can always trust him and be confident in whatever he says and does. He's always willing to help me out and give up his own times when necessary...to me or anyone that asks. He develops his roles. He goes beyond the lines and acts out the total character in each part. He's certainly reliable. Doesn't miss any deadlines. He works hard. He is the most constructive guy around here to each of us. He believes that a play is a unit...tries to integrate us together and make our individual parts blend into one performance.

She is a very thoughtful person. She believes in helping everyone. The first time I met her she was interested in what I wanted to do here in the play. She understands people. I've learned so much from her. She's a bright light around here. She isn't like a lot of people that are self-centered or just shallow and empty beyond the surface. This play and the people in it are part of her family. She's enthusiastic in whatever she does. She has faith in you when others are in doubt.

She is a hardworker...and drives the others to practice their roles. If everyone dedicated themselves to acting like she does, we'd have the best drama group around. I've learned a great daal from her. She's made me think critically about my part and brought out every ounce of energy I have to better myself as an actor. She's not the gushy type that turns you on right away...but when you get to know her you find that she loves other people. Someday she'll receive the appreciation from other people she deserves. This group would collapse without her driving force and sound advice. I shall always be grateful for the opportunity of knowing her and being around her.

He has the talent and confidence that will make him great someday. Acting is so natural for him. He's so smooth and sure in everything he does. He's a true professional. I really admire him. He's so lively...knows the right thing to say all the time. He's brilliant and stimulating to be around. Nothing upsets him. He takes everything in its stride. I enjoy being around him and could listen to him for hours. He can handle himself in any situation. Sometimes you even forget he's Jewish.

She's easygoing and perfectly suited to her part in the play. She's warm and sincere...the kind of person who makes the time fly by. She holds the group together. She keeps all of us relaxed and comfortable with our parts. She sets the mood...cheers us up and lets us openly talk about our difficulties in the play. She really sacrifices a lot of her own time for others' benefits. She is a terrific person to have around. I look forward to and enjoy working with her at every session. She is so imaginative...knows exactly how a roll should be played. She's the number one asset here.

He is a nice guy to have around. He's extremely even-tempered. He practices hard. It takes him a long time to do a part but he ends up doing a competent job. He always carries out his assignments without any static. He becomes involved with his parts. I respect him personally both on and off stage. I always look forward to working with him. He's always patient when things go wrong. He just goes around with a smile on his face and tries to cheer us all up.

I admire him somewhat. He's talented and dedicated to actinn. He's polished enough so he doesn't have to be constantly supervised and directed. He's not a warm person but he's really effective on stage. Sometimes, however, he rejects suggestions for improving his performances. I guess he feels no one else can adequatley judge him. He's not the kind of person that you can walk right up to and talk with. He's not aloof but rather very independent from everyone. He's the best actor in the group but he lacks social skills. His concern for the group is mostly a matter of how we reflect on him.

She isn't very dedicated to acting. This group play is just something to keep her busy...break up the week. She's always missing rehersals and usually isn't on time when she does come. When she's here she messes around. She's not serious about her role. She never concentrates on the scene and chatters all the time...distrubing everybody else. She's the quote-typical college coed-here to get an MRS degree. She's certainly not talented. She expects this play to be all fun and won't do any hard work to accomplish her role. She needs discipline. She always ignores and brushes aside any suggestions for improving her performance.

He is the stick-to-it type. He's a rather simple person and not very talented but does try to use the ability he has. He works day in and day out. It's unfortunate that he just doesn't have a natural gift for acting. Any improvement he makes is so small and drawn out. He does put out his best and that's why I like him around the group. But he doesn't really understand what a good performance is all about. He has no sense for the fine arts and drama. But he is a sincere person and might make it someday.

He is a dependable sort of guy. But he doesn't seem to share in the responsibilities of the group. He doesn't make an effort to offer suggestions and criticisms about other peoples' performances. He is competent himself; but he doesn't drive the others in the group to put out their best. He's so quiet all the time ahat I think he might even be disinterested in what we are doing. We don't spend much time together outside of the play but I guess that's the way he wants it. I have no particular praise or disaffection for him although he is a reliable person and does work at his part. He orobably needs to become more extroverted and much less withdrawn than he appears. He's such an honest person that he doesn't seem to be "with it" at times. He doesn't realize what others say about you. He should come out of his shell.

APPENDIX V

Individual Message Tables for SSMO, MSSO, and Combined

TABLE A 1. SU

ATTITUDE CH

****** -3.63 -

****** 0.02 -

****** 0.52

****** 1.09 -

OBJECT PREATT

****** 2.38

****** 0.32

****** -0.69 -

****** -1.59 -

OBJECT POSTAT

****** -1.25

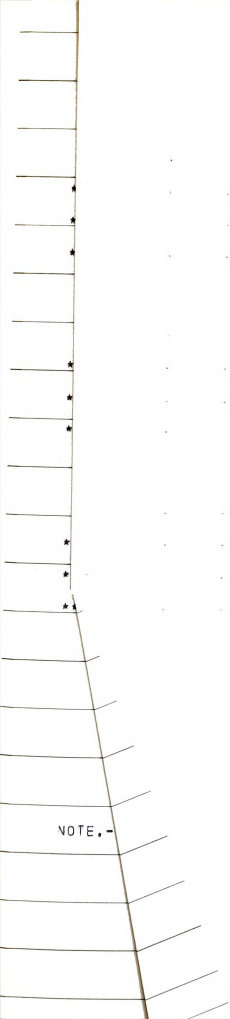
****** 0.33

****** -0.17 -

****** -0.50 -

NOTE.-- ASTER


NOTE.--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