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Effect of suggested compatibility upon verbal conditioning.

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EFFECT OF SUGGESTED COMPATIBILITY
UPON VERBAL CONDITIONING

A Thesis Presented
By
STUART BURTON LERNER

Submitted to the Graduate School of the University of Massachusetts in partial fulfillment of the requirements for the degree of MASTER OF SCIENCE
June 1975
Department of Psychology
EFFECTS OF SUGGESTED COMPATIBILITY
UPON VERBAL CONDITIONING

A Thesis

By

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Psychology Department

June 1975
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This work has waited patiently while I have struggled with my person. Friends, colleagues and teachers have given me their trust and support, and with them I have grown. Committee members Arnie Well and Dave Todd have communicated concern and patience. Marge Roy and Joyce Parsons toiled long and hard as able research assistants, adding the bonus of their vivacious energy.

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Completion of this project is interwoven with the tapestry of my experience. I am deeply grateful to Tom Wolff, my guide through the underground. Finally, I dedicate this work to Roma, who shared the burden of the infant's delivery.
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CHAPTER I
INTRODUCTION

Overview

The verbal conditioning experiment has been valued as a tool for studying operant behavior in humans. Krasner (1971) described verbal conditioning studies as "... a major research technique in the application of operant conditioning to verbal behavior." Greenspoon (1954) innovated an approach to studying human conditioning when he had an experimenter reinforce subjects by saying "mm-hmm" each time the subject used a plural noun. Since his accomplishment, many questions have been posed in well over 1000 studies (Krasner, 1971) about this process of influence. Does learning occur only with awareness? Do the characteristics of the participants and the nature of their interaction affect conditioning results or their interpretation? Can this experimental form be considered an analogue to psychotherapy?

A few years after Greenspoon's work, Sapolsky (1960) investigated an interactional effect, the impact of experimenter-subject "compatibility." In two experiments, he explored whether the effectiveness of the experimenter's influence upon the subject was dependent on perceived or actual compatibility.
The Present Problem

The present study aimed to replicate and extend the portion of Sapolsky's experiment concerned with perceived interpersonal compatibility. The subject was informed on the basis of a "personality test," that she would or would not be compatible with the experimenter she was about to meet. Subjects given the high compatibility instructions were found to condition significantly more than those given low compatibility instructions.

During an extinction period (experimenter absent), "compatible" subjects did not significantly diminish their use of reinforced pronouns. "Noncompatible" subjects, interestingly, increased their use to about the same level as the "compatible" group.

Krasner (1971) cited Sapolsky's study as an illustration of a verbal conditioning experiment used to study the interaction of variables akin to phenomena in psychotherapy. The process of influence was shown to be affected by perceived compatibility, and influence was found to occur after the departure of the noncompatible experimenter. Krasner also described Sapolsky's experiment as demonstrating that a relationship had been successfully manipulated in an experimental setting.

Sapolsky's important study was performed before sophisticated technique became available for the detection of subjects' awareness levels. Thus his conditioning findings
could stand verification. Also, his analysis did not convincingly explain the unusual extinction results in which Low Compatibility subjects increased their use of reinforced pronouns in the absence of the experimenter. The present study extended Sapolsky's by varying the presence of the experimenter during extinction, thus testing his analysis by both replication and extrapolation.

Finally, Sapolsky claimed that his experimental results pertained to events in psychotherapy. We question this, both in the scope of the claim, as well as in whether the relationship events supposed by Sapolsky are not more convincingly replaced by alternative views. To accomplish this, measures were added in the present study to explore the subject's and experimenter's reactions to participating in the experiment. Greenspoon (1962) observed that clinical psychologists have "seized" the verbal conditioning paradigm uncritically and he urged great caution in its application. In this spirit we attempted to replicate and extend Sapolsky's study.

Background of the Method

Soon after Greenspoon's (1954) demonstration of the verbal conditioning effect, Taffel (1955) introduced what was to become the paradigm for the majority of investigations to follow: subjects were asked to make up sentences from index cards, each containing one past tense verb, and the six per-
sonal pronouns, I, You, He, She, We, and They. The subject was asked to make up sentences containing the verb and starting with one of the pronouns, and was reinforced by the experimenter's saying "good" whenever the subject said "I" or "We."

The work of Greenspoon and Taffel was oriented more to the laboratory than to a naturalistic approach. Verplanck (1955) attempted the latter: his students attempted to influence the frequency of others' opinion statements by either nodding or saying "mm-hmm." Difficulties in replication (Azrin, Holz, Ulrich, and Goldiamond, 1961) of Verplanck's experiment led researchers to devote more effort to the laboratory model, rather than attempt the more difficult identification and separation of parameters in the field setting.

Advantages gained in control of the environment through the laboratory model were countered then by doubts of meaning and applicability of limited manipulations, and unfounded assumptions. These experiments presumed to explain situations of covert influence between individuals, analogous in the laboratory to "learning without awareness." Controversy continued as experimentation provided evidence both supporting and opposing that learning occurs without awareness (Eriksen, 1962; Verplack, 1962). If subjects were sensitized to be conscious of the experimenter's behavior because of the setting, results would be less valid as analogues to covert processes in natural settings. Subjects would be exhibiting problem
solving behavior, a matter of influence only on the basis of the general demand characteristics of the experimental environment. Later research examined evidence of awareness more carefully, and in general found that aware subjects conditioned while non-aware subjects did not (see Spielberger, 1962).

Another question about laboratory verbal conditioning studies concerned the actual source of the influence: were subjects directly affected by the experimenter's spoken reinforcers? Or were there other factors also affecting their verbalizations? If the interpersonal relationship was considered minimal and if the subject viewed the experimenter merely as a source of information, then a simple problem solving model of the experiment would seem appropriate. But if the subject's personal needs or interpersonal behaviors also affected results, more than a simple conditioning model is indicated.

Crowne and Strickland (1961) found that verbal conditioning was greater with subjects needing more rather than less social approval. Other studies manipulating social deprivation and satiation (Gewirtz and Baer, 1958; Walters and Parke, 1964) obtained parallel results.

Two separate populations of researchers have studied verbal conditioning. Experimentalists used operant studies in order to understand verbal behavior. Clinicians seeking objective measures and testable theories of therapy also
found the verbal conditioning process useful for study. Goldstein and Simonson (1971) saw a solid basis for design and assessment of therapeutic processes built from a combination of laboratory experiments (analogue studies), naturalistic observation, and content or contextual analysis of actual therapy.

Sapolsky's Study

Sapolsky suggested his work related to phenomena of affinity and influence in psychotherapy. He suggested that attraction and resulting influence were roughly parts of therapeutic transference. Krasner (1971) believed that reinforcement of verbal behavior suggested attention on the part of the experimenter, which is inherently rewarding, as a generalized reinforcer to the subject. Relating this to psychotherapy, he acknowledged that verbal conditioning and therapy were not the same process nor were they analogues to each other. However, "... some verbal conditioning does take place in evocative psychotherapy, and some of the relationship variables of the latter cannot, and should not, be eliminated from the former" (p. 628).

Sapolsky's study can be thought of either as an examination of one aspect of an influence process (verbal conditioning) or as the study of the effect of relationship variables on that process. Krasner (1971) described Sapolsky's study as an example of the use of verbal conditioning to investi-
gate the interaction of variables related to psychotherapy.

Heller (1971) criticized verbal conditioning experiments as lacking full investigation of the parameters of the experimental setting affecting outcome. Sapolsky's study of the influence of experimenter-subject compatibility was one which considered the effects of interactions to some degree.

Sapolsky utilized two approaches. In his first experiment, he pre-biased the attitude of the subject toward the experimenter as either high or low compatibility, using a technique based on Back's (1951) induction of high or low interpersonal cohesiveness. He tried to create high or low experimenter-subject compatibility before the two participated in a verbal conditioning experiment, using a variation of the Taffel (1955) technique.

In his second experiment, Sapolsky selected the experimenter and subject from a test population, with Schutz' (1958) FIRO-B used to establish high or low compatibility. Sapolsky's experiments were tests of the effect of interpersonal relationship upon verbal conditioning. Only the second experiment addressed the effect of the interpersonal relationship. The first experiment would only be confounded by such a relationship, for it tested the effect of attitude pre-bias on verbal conditioning, not actual variables of relationship.

Sapolsky's High Compatibility subjects increased their use of first person pronouns while Low Compatibility subjects maintained the same level of use. These acquisition results
were straightforward, and were predicted by Sapolsky prior to execution of his experiment.

The extinction phase of Sapolsky's experiment also, in part, followed expectation. For the High Compatibility subjects, no decrease in pronoun usage occurred during extinction. Little or no decrement in conditioning level was expected, since previous studies (Cohen et al., 1954) had found no significant decrease in responses during extinction unless alternative pronouns were reinforced.

Some extinction results for the low compatibility condition were unexpected. Extinction began when the experimenter left the room, the subject remaining to complete the experimental task alone. Those in the low compatibility condition increased their use of critical pronouns during this interval, which brought them well up to the response level of their alter-group.

Jones and Gerard (1967) interpret this rise during extinction as indicating that the Low Compatibility subjects did learn from the experimenter, but that their performance had been inhibited by the experimenter's presence. They considered the effect as "... akin to that of the sleeper effect in opinion changes." This analogy does not, however, fit the experimental conditions. The sleeper effect of Hovland and Weiss involved a forgetting process, in which negative associations slowly extinguished over time. This was much longer than the time interval of Sapolsky's experiments.
The alternative view, that learning occurred, but with its behavioral expression inhibited by the experimenter's presence, is more likely, and is closer to Sapolsky's explanation. He suggested that the experimenter provided an aversive stimulus which imposed a decrement on the observed strength of the conditioned response.

The models of both Jones and Gerard, and Sapolsky depict learning as consisting of two processes. One is receptor learning in which associations or potential responses are internalized, though not exhibited. The other is the observable behavioral evidence of the learning. Sapolsky found that the same level of conditioning was ultimately achieved regardless of the subject's compatibility condition. It appeared that the same degree of conditioning occurred for either state of compatibility, even though no behavioral evidence was apparent for the Low Compatibility group during acquisition. Receptor learning seemed to not be affected by the interpersonal variable of compatibility.

Sapolsky attributed the subject's learning, revealed only in the experimenter's absence, as delayed because the experimenter was perceived by the subject as an aversive stimulus. The subject in this view is the recipient of positive and negative stimuli impinging upon her. Learning occurred during acquisition regardless of the stimulus value of the experimenter's personality, but its expression was suppressed until the social setting changed and the experimenter left. Sapol-
sky's explanation portrayed a passive subject, responding to the weighted influences of polarized environmental stimuli. The subject was seen as intimidated or alienated by the non-compatible experimenter, exhibiting influence only after the experimenter's absence relieves the discomfort.

However, when the experimenter left, new conditions existed in addition to the lack of reinforcement and the experimenter's absence. The subject's role shifted from passive respondent to active participant: she turned stimulus cards, spoke into the microphone and set the time pace for task completion while alone in the experimental room. The question posed is whether the subject was affected by this shift in task control, to an extent that contributed to Sapolsky's findings for the extinction phase.

Experimental Plan of Present Study

With the start of the extinction phase, Sapolsky had really changed three different conditions at once. These were the presence of the experimenter, reinforcement of the subject's verbal behavior, and locus of task control.

The three possible states of these variables for extinction are given in Table 1. Reinforcement is omitted, for in all cases, it has ceased.

Condition 1 represents Sapolsky's variation. Condition 2 was employed by Cohen et al. (1954), obtaining the result of
TABLE 1

Possible Conditions during Extinction

<table>
<thead>
<tr>
<th>Condition</th>
<th>Experimenter Present?</th>
<th>Subject Controls Task?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>2</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>3</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>
no significant increase or decrease during extinction of the conditioned response level. Note however there was no manipulation of compatibility in Cohen's study. Sapolsky and Cohen each obtained similar results, comparing the former's high compatibility case with the latter's findings utilizing a neutrally presented experimenter. Condition 3 is the new experimental manipulation offered in this study. With the experimenter still present during the extinction phase and offering no reinforcement, the subject was asked to complete the task on her own, turning cards and saying the sentences at her own pace.

This study attempted to replicate the acquisition phase of Sapolsky's compatibility study, and then randomly select either Condition 1 or 3 for the extinction interval. Condition 1 would provide complete replication, while Condition 3 would enable separation of effects contributed by the experimenter's absence versus those contributed by the use of transfer of task control to the subject.

The hypothesis of the present study is that the extinction rise in pronoun usage by Low Compatibility subjects is due in part to transfer of task control to them when the experimenter leaves. Thus if the Low Compatibility experimenter stays but still transfers task control to the subject, we predict that pronouns usage will increase. From Sapolsky's explanation of the experimenter as a negative stimulus, we would expect no such increase.
CHAPTER II

METHOD

Overview

The basic method paralleled that used by Sapolsky (1960), but experimenter presence varied as well. Subjects were informed by the investigator that on the basis of a compatibility test, they would either be compatible or not with an experimenter they were about to meet. Only one experimenter was actually available for any one subject, and high and low compatibility were pre-determined on a random basis having nothing to do with actual compatibility.

Basic Procedure

The experimenter was introduced to the subject and the investigator then left to observe the interaction from behind a one-way mirror, while the experimenter instructed the subject to make up sentences from a series of cards, each of which bore one verb in the simple past tense (typed in the middle) and six personal pronouns randomly ordered below, "I," "WE," "HE," "SHE," "YOU," and "THEY" (see Appendix C). The cards were randomly shuffled and shown sequentially to the subject; she constructed sentences each of which began with one of the pronouns and used the verb.

Acquisition. There were eight blocks of twenty trials
each. During the first trial block, the experimenter merely turned each card and recorded which pronoun was used to start the sentence, so that a baseline frequency of I's and WE's could be established for the subject. For the next three blocks of twenty trials, the experimenter said "mm-hmm" each time the subject used "I" or "WE" to start a sentence.

**Extinction.** After the fourth trial block, the remaining cards were given to the subject to complete herself. Either the investigator appeared at the door and informed the experimenter of a long-distance call from her family requiring her to leave the room for a while, or there was no interruption by the investigator, with the experimenter remaining present. In both cases, the experimenter informed the subject to continue making up sentences on her own, turning the cards one at a time and speaking into the microphone. Thus with the experimenter either silent or absent, subjects completed Trial Blocks 5 through 8, establishing the extinction interval for the verbal conditioning procedure.

**Awareness.** Both the subject's and the experimenter's awareness were checked after each session. The investigator returned and interviewed the subject about her awareness of the conditioning process, and also her sense of compatibility to the experimenter. The experimenter was aware of the mid-experiment manipulation of her own presence or absence, and knew something was told to the subject prior to their introduction. She did not know the actual nature of the initial
instructions or their purpose, nor the implications of the control of experimenter presence.

Subjects

Subjects were 56 female volunteers from an introductory psychology course at the University of Massachusetts. They were randomly assigned to one of two equal groups of 28 subjects, who received instructions that the experimenter was either compatible with them or not. Within each group, again on a random basis, half the subjects experienced the experimenter's absence during the last half of the experiment, and the others did not. Thus subjects were randomly classified in four separate conditions, derived from the two variables of compatibility expectation and experimenter presence. Seven subjects in each of the four cells of the design were seen by Experimenter #1, and the other seven subjects by Experimenter #2.

Materials

The conditioning stimuli consisted of 160 plain white 76 x 127 mm cards, each with a series of six personal pronouns and a simple past tense verb typed at the card's center. The pronouns "HE," "SHE," "WE," "I." "YOU," and "THEY" were typed in a row below the verbs in random order from card to card; the order was derived from a table of random numbers. The
cards were shuffled after each subject's participation, so that no two subjects encountered the same order of stimuli.

Before conditioning was begun, each subject filled out Schutz's (1958) FIRO-B personality test, which Sapolsky had used. The test contains 54 scaled questions to measure dyadic compatibility. Scores on this test were not used to determine compatibility; the test was given just to convince the subject that a scientific measure had been taken.

Following the 160 trials, an eight-item questionnaire was given to both the subject and experimenter to measure the effectiveness of the compatibility manipulation.

Experimenters

Two female experimenters shared the experimental load; their procedures were practiced so as to be similar as possible in their effect on the subjects. Subjects were assigned randomly across experimenters.

Procedure

Prior to the experiment, the experimenters received instruction and training in the verbal conditioning process, and how to present themselves in the role of experimenter while minimizing distracting or distorting verbal or extra-verbal cues.

Each subject's participation was completed in a single
meeting. First the investigator met with the subject without the experimenter present. The subject was informed:

We are interested in how people construct sentences from minimal information. In an earlier experiment, we discovered that, although this task is simple, the experimenter merely shows you cards and you make up sentences from words on them, the results were not very good when the two persons were not fairly well matched to each other.

It will be important that your statements be natural and spontaneous. This is easiest to do when you are with someone similar to you in certain personality characteristics. I will try to pair you with an experimenter to whom you can give freely flowing sentences, and who will be able to understand them accurately.

We have a questionnaire which helps to indicate compatibility. Before you fill this out, can you describe for me the sort of person you might want to work with?

The subject responded and investigator recorded her statement. Following this, the subject took the Schutz test. The investigator then openly compared the subject's scores with a contrived set of scores for various fictitious experimenters, and pretended to consult time schedules of "compatible" choices for their availability. The experimenter then said:

During each experimental hour, we arrange to have two or three people available to serve as experimenter. On the basis of your responses I will select one close to you. Usually we can provide a reasonable match. Today we have three people available.

For the case of Low Compatibility, the investigator con-
Unfortunately, today, not one of the three people has scores that are close to yours. (Pause) So there is a discrepancy. Scheduling does make this matching difficult. Without a close match, we won't be able to count on getting uninhibited responses or the most accurate analysis. What I'll do though, is select the person closest to you from among the three. I hope it can work out all right.

For the case of High Compatibility, the investigator said:

Usually, we can't match people too closely for compatibility, but for you it will be possible. It's quite lucky that you're matched so well. You should get along very well.

The investigator then left the room to fetch the "selected" experimenter and returned to introduce the pair. The investigator left again, and observed the proceedings from behind a one-way mirror.

The experimenter sat across a table from the subject, with the card deck face down, and her conditioning score sheet hidden behind a shield. A microphone was in view on the table, and the recording machine visible in a corner of the small laboratory room. The experimenter read her instructions, holding a sample card up for view:

You will see a word in the center of each card. I want you to make up a sentence using this word. Below the word in the center, you will see a group of other words. Take any one of these and use it to start your sentence. Do not just make your choice
from one position on the card. (. . . Pause . . .)

Now, it doesn't matter whether the sentence you make up is long or short or even if it is complicated or simple. It is important that you answer with the first sentence that enters your mind. It isn't easy to do this, but you will find that if you try to answer as quickly as possible, you are more likely to give the first thing that comes into your mind. (. . . Pause . . .)

I shall be keeping a record of all the sentences you make up. (. . . Pause . . .)

Do you understand the directions? (. . . Pause . . .)

All right, let's begin.

The experimenter presented each stimulus card in turn for 80 trials, the order randomized for each subject. There were 20 cards per trial block and a total of 8 blocks. The experimenter recorded which pronoun the subject used to start her sentence for all the replies from the cards. For the first trial block, the experimenter was mute and simply recorded which pronouns were used. If the subject asked a question the experimenter answered, but offered nothing beyond a minimal reply. After this unreinforced baseline block of 20 sentences, during the next three trial blocks the experimenter reinforced each use of "I" and "WE" by saying "mm-hmm" in a flat unemotional tone, following the end of the subject's sentence when she began with either of these pronouns.

At the end of the fourth trial block, the experimenter discovered whether she would stay or leave for the remaining trials. Before leaving the room, the investigator had left one of two cards face down behind the screen. One card read
"GO" and the other read "STAY." At the fifteenth card of the fourth trial block (the last acquisition block) the experimenter turned up the card left by the investigator and at the eighteenth card of that trial, signaled by hand to the observing investigator the condition of "GO" or "STAY." The turning up of the card and the signal to the investigator were both hidden from the subject's view by the screen. If the experimenter was to leave the room, the investigator knocked and entered the room, saying:

I:  Excuse me. There's a long-distance call for you from home. How far have you gotten?
E.  Well, we're pretty far along but we're not done yet. (. . . Pause. . .) It will be O.K. I'd better get the call.
I:  Fine. (Leaves)
E.  (To subject) Actually, you can go on with this yourself. Continue in the same way. Speak your sentences into the microphone and turn the cards in order until you've used them all. You can go at your own pace. (. . . Pause . . .) I'll use the tape later to record your sentences. If you're finished before I return, please wait. Do you understand what to do? (After the subject's response, the experimenter leaves.)

If the experimenter was to stay in the room, then there was no interruption by the investigator. In this case, the following was said:

(Experimenter pauses to break rhythm)
E:  You're far enough along now to see how this is going. Actually, you can go on with this yourself. Continue in the same way. Speak your sentences into the microphone and turn the cards in order until you've used them all. You can go at your own pace. I'll use the tape later to record your sentences, so you won't have
to wait for me to enter them. Do you understand?

(After the subject's response, the experimenter moves the cards closer to the subject, shifts her position to appear less involved in the subject's actions, and averts gaze from then on.)

If she remained present during extinction, the experimenter continued to record the subject's responses, but tried not to show that she was attending to her. Four trial blocks constituted the extinction period. After the subject completed the cards, the experimenter, if present, collected the materials and left, telling the subject to expect the return of the investigator. If the experimenter had departed at the midpoint, the investigator returned at the end without the experimenter's reappearance.

The investigator then gave the subject an eight-item questionnaire which inquired of her feelings about the experimenter and her own self during the experiment. The investigator left while the subject completed the form, and returned to verbally administer an awareness questionnaire, to determine whether the subject knew of the conditioning contingencies in any way that might have influenced her responses. The subject was told the purpose of the experiment and shown a copy of "Feedback for the Subject" (see Appendix C).
Measures

Frequency of "I" and "WE"

The main dependent variable was the number of reinforced pronouns ("I" and "WE") used by the subject within trial blocks of 20 sentences. Since there were six possible pronouns (also "You," "HE," "SHE," "THEY"), the expectancy for use of the reinforced pronouns in a 20-sentence block was 6.67 times. (In the first trial block, during which there was no reinforcement by the experimenter, the measured mean across all subjects was 6.91 (σ = 2.8).)

On the suspicion that responses of "I" and "WE" might differ, both components of the total score were recorded. If "I" and "WE" each occurred equally, their expected initial scores would be 3.33. The observed mean for "I" prior to conditioning was 4.32 (σ = 2.7); for "WE" it was 2.61 (σ = 1.6).

Positioning Effect

Sapolsky (1960) eliminated all those subjects who restricted their choices of pronouns by preferring some location on the stimulus cards, usually the leftmost position. To maintain a similar check in our study, and also to investigate closely how positioning might affect conditioning scores, the position of every selected pronoun was ascertained after the experimental session. This was done by indexing the pronoun order of each card by verb, and later mo-
onitoring a tape recording of the subject's sentences to recall the positions chosen.

The positioning score was derived as the effective number of positions from which the subject chose. If a subject should choose from only one pronoun position in a block of 20 sentences, her score would be 1. If she chose randomly with respect to position, her score would be nearly 6 (a bit less than 6, since 6 pronouns do not divide into 20 trials without a remainder). Actual positioning scores in the study ranged from 1.3 to 5.6, with a mean of 4.5 (σ = 0.72) (see Appendix B).

Conditioning results become confounded significantly with positioning scores of 3 or less. Few scores were obtained below 4 in the present study. In addition, an analysis where positioning was used as a covariant did not yield more efficient results. Thus positioning in this experiment need not be considered as a confounding effect.

FIRO-B Scores

Although the social contact between subject and experimenter was rather formal, there still might have been effects due to subtle interpersonal cues. The Schutz test of compatibility was actually not used to separate the subjects into High and Low Compatibility groups, but its scores were available for a post-hoc check. For each six scales, the subject's and the experimenter's scores ranged from 0 to 9. These
scores represent the person's description of her actual behavior in terms of Schutz's three basic elements: Inclusion, Control and Affection. For each of these three there is a score for "wanting" and for "expressing" that behavior. The compatibility scores combine these three dimensions into a single score representing the compatibility between the experimenter and each subject; the score can range from 0 (highest compatibility) to 54 (lowest compatibility). Actual compatibility scores ranged from 6 to 33, with a mean of 20.62 (\( \sigma = 6.0 \)).

**Anticipated Compatibility**

A post-experimental check was also made of the effectiveness of the manipulation of anticipated compatibility. Each subject was asked to rate her own comfort and perception of the experimenter on eight 9-point scales. She was also asked to guess how the experimenter would fill out the same form. The self-ratings and other-ratings were also obtained from the experimenter, thus providing four measures on each of the 8 scale items.

Having the subject guess the experimenter's ratings was a protection against her being too polite in expressing negative reactions. Having the experimenter fill out the form provided a way to check on possible bias effects which would not otherwise be detectable; if the experimenter differentially rated the subjects in the High and Low Compatibility
conditions (to which the experimenter was blind), then there would have been a possibility of covert bias. The questionnaire also provided a profile of both the subject's and the experimenter's impressions and suspicions of each other.

Reliability

A check of reliability was performed by asking each experimenter to write log entries following the experiment. The experimenter noted any irregularities, including behavior by the subject which might indicate an awareness of experimental contingencies. This was a qualitative measure, used to decide whether a given subject should be included in the sample.

Awareness Level

The subject's awareness of conditioning was probed using a questionnaire of 15 items. Two questions explored the subject's feelings concerning the midpoint break, when she received control over the stimulus cards. The remaining 13 questions referred to the extent of her awareness of the reinforcement contingency (see Appendix C).

The questions began very generally:

#3 - "What do you think the experiment was about?"

They then funneled in a specific direction:

#12 - "Did you notice that she said "mm-hmm" whenever you said a certain word? Which word?"
Finally, the subject was asked what other thoughts she had about the purpose of the experiment.
CHAPTER III

RESULTS

The data analysis is grouped into two basic sections. First the effectiveness of the experimental manipulation is reported, with the aim of showing, by an intermediary measure, whether the subjects' attitudes toward the experimenter was influenced as intended. The measuring instrument also examines perceptions between the experimenter and the subject, and these are illustrated here as well. The second section of this chapter reports the results of the attempt to influence subjects by verbal conditioning, the measure being the total number of "I" and "WE" pronoun responses. Results are reported for both acquisition and extinction phases. Also within the second section are the results obtained by separately recording the subject's use of "I" and "WE" responses. This analysis yields information hidden in the grouped case.

Effectiveness of the Compatibility Manipulation

The effectiveness of the experimental manipulation of compatibility was checked by having each subject mark a series of eight items (each on a nine-point scale) concerning her perception of the experimenter as well as her own feelings about participating in the experiment. A three way anal-
Analysis of variance (2x2x2) was performed on each of the eight questionnaire items, with factors C (compatibility), P (presence of the experimenter), and I (identity of the experimenter who was present). The Presence and Identity factors were included as a check on possible experimenter effects as well as on the influence upon the subject of the experimenter's departure.

The results of the manipulation check are given in Table 2. Subjects biased to believe themselves highly compatible with the experimenter reported greater comfort participating in the experiment than those in the low compatibility condition (p < .001).

Subjects also reported more comfort in the experiment if the experimenter was present during the extinction phase (p < .003). There were no significant interactions between the factors of compatibility and presence for the comfort variable.

Both experimenters filled out the same post-questionnaire as the subjects. The experimenters knew that the subject was filling out a similar form, but had no awareness of the content or nature of the experimental manipulation of compatibility.

Though the contact between experimenter and subject was minimal in the time they were together, and the experimenter blind to the factor of Compatibility, significant effects were uncovered in the manipulation check. Experimenters re-
TABLE 2

Effects of Manipulated Compatibility, Presence and Identity of Experimenter on Subjects' and Experimenters' Post-Experiment Reactions

<table>
<thead>
<tr>
<th></th>
<th>Subject Results</th>
<th></th>
<th>Experimenter Results</th>
<th></th>
</tr>
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<td>Low High #1 #2 Stay Go</td>
<td>Low High #1 #2 Stay Go</td>
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<td></td>
</tr>
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<td>1) Discomfort</td>
<td>4.72 2.90^3 3.93 3.68 3.00 4.58^2</td>
<td>1.32 1.88^1 1.50 1.71 1.43 1.79</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2) Liking</td>
<td>6.61 6.57 6.29 6.89 6.43 6.75</td>
<td>6.43 5.89 6.54 5.79 6.21 6.11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3) Judge Compatibility</td>
<td>5.93 6.00 5.89 6.04 5.86 6.07</td>
<td>5.61 4.61^1 6.07 4.14^3 5.29 4.93</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4) Unfriendliness</td>
<td>1.86 2.18 2.25 1.79 2.00 2.04</td>
<td>2.21 2.36 2.25 2.32 2.07 2.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5) Dominance</td>
<td>5.04 4.89 5.18 4.75 5.07 4.86</td>
<td>4.60 4.43 4.39 4.64 4.86 4.18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6) Impatience</td>
<td>1.82 2.18 2.07 1.93 2.18 1.82</td>
<td>2.04 2.36 2.18 2.21 2.61 1.79</td>
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<td></td>
</tr>
<tr>
<td>7) Warmth</td>
<td>7.75 7.36 7.43 7.68 7.54 7.57</td>
<td>6.93 6.57 6.25 7.25 6.71 6.79</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8) Inconsiderateness</td>
<td>2.04 2.29 1.96 2.36 2.36 1.96</td>
<td>1.32 1.86 1.14 2.04^2 1.61 1.57</td>
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<td></td>
</tr>
</tbody>
</table>

^1p < .05
^2p < .01
^3p < .001
ported greater comfort participating in the experiment when the subject was instructed to expect low compatibility (p<.05). No significant differences in comfort were reported for manipulation of presence or identity of the experimenter.

No significant results were obtained from the subjects' judgments of compatibility, but the experimenters' questionnaire yielded an effect of note. Experimenters, though blind to the compatibility manipulation, judged they had been more compatible with Low Compatibility subjects (p<.05). This result, contrary to the direction of the manipulation, agrees with the experimenter's comfort rating. Experimenter #1 judged her subjects as more compatible than did Experimenter #2 (p<.001), but no significant interaction was obtained here between compatibility and experimenter identity factors. Experimenter #1 also judged her subjects as more considerate than did Experimenter #2 (p<.01). No other experimenter effects were uncovered in this area of the manipulation check.

Pronoun Conditioning

Results for both high and low compatibility groups are shown in Figure 1. Both acquisition and extinction are illustrated. An analysis of variance was performed on the data, including the factors of Compatibility, Presence of Experimenter, Identity of Experimenter, and Trials. Analyses were performed separately for acquisition and extinction phases.
Figure 1. Mean Number of Reinforced Pronouns
Used by High and Low Compatibility Subjects
Acquisition Phase

The analysis of variance for acquisition data is shown in Table 3. A significant Trials effect \( (p < .05) \) shows that subjects increased their use of reinforced pronouns as against non-reinforced pronouns. Comparison between trial totals by t-test revealed the increase in usage to occur at Trail Block 2 \( (p < .05) \) with no further significant change through the end of the acquisition interval. No effects involving the compatibility effect were evident.

The significant interaction \( (p < .05) \) between trials, experimenter identity and experimenter presence was examined with particular attention to possible experimenter differences, and whether the presence of absence of the experimenter during extinction might have affected acquisition results. No systematic effects were revealed by use of comparison t-tests.

Extinction Phase

The analysis of variance for extinction data is shown in Table 4. No significant results were obtained for any of the main effects or interaction effects. Thus no evidence was obtained for changes from the number of responses of the fourth Block, which begins the extinction phase.
### TABLE 3

Results of Analysis of Variance for Acquisition Phase

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<th>Source</th>
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<td>1,330.23</td>
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<td></td>
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<td>Compatibility (C)</td>
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<td>.72</td>
<td>.72</td>
<td>0.03</td>
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<td>Experimenter Identity (I)</td>
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<td>21.56</td>
<td>0.82</td>
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<td>Presence (P)**</td>
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<td>.02</td>
<td>.02</td>
<td>0.00</td>
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<td>2.58</td>
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<td>38.77</td>
<td>38.77</td>
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<td>I x P</td>
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<td>9.69</td>
<td>9.69</td>
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<td>C x I x P</td>
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<td>25.59</td>
<td>25.59</td>
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<td>Total Within Ss</td>
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<td>Trials (T)</td>
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<td>44.37</td>
<td>14.79</td>
<td>2.70*</td>
</tr>
<tr>
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<td>5.89</td>
<td>1.83</td>
<td>0.33</td>
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<td>T x I</td>
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<td>3.21</td>
<td>1.07</td>
<td>0.20</td>
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<tr>
<td>T x P</td>
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<td>5.49</td>
<td>1.83</td>
<td>0.33</td>
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<tr>
<td>T x C x I</td>
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<td>8.58</td>
<td>2.86</td>
<td>0.52</td>
</tr>
<tr>
<td>T x C x P</td>
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<td>6.82</td>
<td>1.25</td>
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<tr>
<td>T x I x P</td>
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<td>38.91</td>
<td>12.97</td>
<td>2.37*</td>
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<td>0.25</td>
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<tr>
<td>Error Within</td>
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<td>767.12</td>
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<td>Total</td>
<td>223</td>
<td>2,228.31</td>
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<td></td>
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</table>

*P < .05

**Presence during latter half of experiment, subsequent to Acquisition phase.
### TABLE 4

Results of Analysis of Variance for Extinction Phase

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<tr>
<td>Compatibility (C)</td>
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<td>23.18</td>
<td>23.18</td>
<td>0.68</td>
</tr>
<tr>
<td>Experimenter Identity (I)</td>
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<td>16.48</td>
<td>0.49</td>
</tr>
<tr>
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<td>0.27</td>
<td>0.16</td>
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<td>1.88</td>
<td>0.06</td>
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<td>46.40</td>
<td>46.40</td>
<td>1.36</td>
</tr>
<tr>
<td>I x P</td>
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<td>6.15</td>
<td>6.15</td>
<td>0.18</td>
</tr>
<tr>
<td>C x I x P</td>
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<td>56.13</td>
<td>56.13</td>
<td>1.65</td>
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<tr>
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<td>33.99</td>
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<td>Total Within Ss</td>
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<td>Trials (T)</td>
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<td>4.66</td>
<td>0.97</td>
</tr>
<tr>
<td>T x C</td>
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<td>6.78</td>
<td>2.26</td>
<td>0.46</td>
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<td>T x I</td>
<td>4</td>
<td>20.79</td>
<td>6.93</td>
<td>1.44</td>
</tr>
<tr>
<td>T x P</td>
<td>4</td>
<td>8.13</td>
<td>2.71</td>
<td>0.56</td>
</tr>
<tr>
<td>T x C x I</td>
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<td>15.15</td>
<td>5.05</td>
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<tr>
<td>T x C x P</td>
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<td>19.89</td>
<td>4.63</td>
<td>1.38</td>
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<tr>
<td>T x I x P</td>
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<td>21.84</td>
<td>7.28</td>
<td>1.51</td>
</tr>
<tr>
<td>T x C x I x P</td>
<td>4</td>
<td>6.99</td>
<td>2.33</td>
<td>0.48</td>
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<tr>
<td>Error Within</td>
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<tr>
<td>Total</td>
<td>279</td>
<td>3,898.10</td>
<td></td>
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</table>
Separation of "I" and "WE" Responses

The weak results for the summed pronouns prompted the investigator to perform further analysis, evaluating possible differences in responses between the two reinforced pronouns, "I" and "WE." The results are shown graphically in Figure 2.

Acquisition Phase--"I" and "WE" Responses

An analysis of variance was performed on acquisition data for both "I" and "WE" reinforced pronouns, with results shown in Table 5. It showed a significant rise over trial blocks in the use of "I" but no such equivalent rise in "WE" (p < .025). Thus the significant rise in response for the combined pronouns is attributable to the rise in use of pronoun "I" alone. No other significant effects were discovered for the acquisition phase.

Extinction Phase--"I" and "WE" Responses

Analysis of extinction data for both reinforced pronouns is shown in Table 6. In this phase a significant rise was discovered over trial blocks in the use of "WE" (p < .05), though this effect was not discovered in the analysis which summed responses "I" and "WE" (see Table 4). The two compatibility groups could not be distinguished in their behavior as
Figure 2. Mean Number of Reinforced Pronouns Used by High and Low Compatibility Groups, with "I" and "WE" Differentiated
<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
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<td>Total Between Ss</td>
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<td>0.22</td>
<td>0.22</td>
<td>0.04</td>
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<td>Compatibility (C)</td>
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<td>2.53</td>
<td>0.08</td>
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<td>0.22</td>
<td>0.22</td>
<td>0.04</td>
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<td>36.84</td>
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<td>1</td>
<td>2.88</td>
<td>2.88</td>
<td>0.56</td>
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<td>Presence (P)</td>
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<td>7.17</td>
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<td>1</td>
<td>5.14</td>
<td>5.14</td>
<td>1.00</td>
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<td>18.38</td>
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<td>8.71</td>
<td>8.71</td>
<td>1.70</td>
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<td>12.69</td>
<td>0.42</td>
<td>1</td>
<td>8.58</td>
<td>8.58</td>
<td>1.67</td>
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<td>18.57</td>
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<td>2.15</td>
<td>0.42</td>
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<tr>
<td>C x I x P</td>
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<td>10.01</td>
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<td>1</td>
<td>2.66</td>
<td>2.66</td>
<td>0.52</td>
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<td>Error Between</td>
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<td>246.72</td>
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<td></td>
<td>168</td>
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<td>4.66</td>
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<td>4.14</td>
<td>1.38</td>
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<td>223</td>
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*p < .05
a function of trials. The use of "WE" rose with trials, highest in value in the last trial block. Further analysis by t-test between pairs of trial results shows the increase in usage of "WE" is first significant \( (p < .05) \) at the seventh trial.

Both Compatibility x Presence, and the three-way interaction of Compatibility x Presence x Experimenter Identity were found significant for use of pronoun "WE". These are shown in Figures 3 and 4.

The significant interaction of compatibility and presence of experimenter indicates that High Compatibility subjects responded differently from Low Compatibility subjects, to the absence of the experimenter. From contrasts of this interaction, Low Compatibility subjects used "WE" more often when the experimenter was present than when she was absent \( (p < .025) \). Also, with the experimenter present, Low Compatibility subjects used "WE" more often than did High Compatibility subjects \( (p < .025) \).

When the experimenter effect is included, the above results are further clarified. Analyzing contrasts, no significant results were found for Experimenter #2. For Experimenter #1, Low Compatibility subjects used "WE" more often when the experimenter was present than when absent \( (p < .01) \) and also more often than High Compatibility subjects in the experimenter's presence \( (p < .05) \). High Compatibility subjects used "WE" more often when the experimenter was absent
Figure 3. Subjects' use of "WE" during extinction as affected by experimenter presence and compatibility.
<table>
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<tr>
<th>Source</th>
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<th>Pronoun &quot;WE&quot;</th>
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<td>Experimenter Identity (I)</td>
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<td>Presence (P)</td>
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<tr>
<td>C x P</td>
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<td>0.00</td>
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<tr>
<td>I x P</td>
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<td>C x I x P</td>
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<td>645.08</td>
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<td>Trials (T)</td>
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<td>T x I x P</td>
<td>4</td>
<td>36.24</td>
</tr>
<tr>
<td>T x C x I x P</td>
<td>4</td>
<td>24.64</td>
</tr>
<tr>
<td>Error Within</td>
<td>192</td>
<td>485.76</td>
</tr>
<tr>
<td>Total</td>
<td>279</td>
<td>2,183.29</td>
</tr>
</tbody>
</table>

*p < .05; **p < .01
Figure 4. Subjects' use of "WE" during extinction as affected by compatibility, Experimenter identity, and Experimenter presence.
TABLE 7
Subjects' Use of "WE" during Extinction as Affected by Compatibility, Experimenter Presence, and by Identity of Experimenter

C x P table:

| Compatibility | High | 3.11 | 2.23 |
|               | Low  | 2.26 | 3.08 |
|               | Go   |      |      |
|               | Stay  |      |      |
| Presence      |      |      |      |

C x P X I table:

| Compatibility | High | 3.51 | 2.00 | I = 1 |
|               | Low  | 1.74 | 3.29 |
|               | Go   |      |      |
|               | Stay  |      |      |
| Presence      |      |      |      |

| Compatibility | High | 2.71 | 2.46 | I = 2 |
|               | Low  | 2.77 | 2.86 |
|               | Go   |      |      |
|               | Stay  |      |      |
| Presence      |      |      |      |
than when present (p < .05), and also more often than Low Compatibility subjects in the experimenter's absence (p < .01).

Another significant interaction was obtained for use of pronoun "I" during extinction, dependent on experimenter presence, compatibility, and trials. To facilitate the comparison with Sapolsky's study the interaction is shown for the condition of the experimenter absent in Figure 5.

Use of pronoun "I" for Low Compatibility subjects rises significantly (p < .01) at the end of the first extinction trial, T_5, and levels off. For High Compatibility subjects, the level is constant except for a dip at the end of the third extinction trial, T_7, (p < .05) which restores by the last trial, T_8 (p < .01). For comparison, Sapolsky's results are superimposed, and assuming his data consisted of an equal number of "I" and "WE" responses, are divided by two for a closer comparison of his results to the present findings.

Awareness of Reinforcement

Of the 56 subjects whose data was used for analysis, five were aware to some extent that the experimenter was saying "mm-hmm". Four reported that "I" and "WE" pronouns were being selectively reinforced, and one subject reported awareness of the contingency but was unsure about the connection.

In all, of 63 subjects who ever came, 13 were aware to some extent that interacted with their pronoun choices. Of
Figure 5. Mean Number of Reinforced Pronouns "I" used by High and Low Compatibility Subjects for Condition of the Experimenter Absent
these 13, 11 were in the High Compatibility group, and 2 in the Low Compatibility group. Sapolsky found with his 30 subjects, only three were aware, two from the Low Compatibility group and one from the group influenced to High Compatibility. In the present study, no significant trends were evident for the five subjects.
CHAPTER IV
DISCUSSION

This chapter begins with a review of the procedures of Sapolsky's and the present study, followed by an introduction to a new interpretation of results in verbal conditioning experiments which use reinforcement of personal pronouns. The degree of replication of Sapolsky's work is then described, with findings generally negative. However, the present study's extension of his work provides new findings stimulating the hypotheses of "loss" and "demand": these are that subjects miss High Compatibility experimenters when they are absent, and feel tension with Low Compatibility experimenters when they are present.

We will consider two paradigms: 1) the traditional "conditioning" paradigm in which the process of reinforcement is germaine, and 2) a proposed "experiencing" paradigm which features the experiences of the subjects and experimenters. The "experiencing" model is further explored, and the chapter continues with an analysis of comparative methodology between Sapolsky's and the present study. Focus is upon the different results obtained from the two studies. Finally, a simple experiment is suggested to test the hypotheses of "loss" and "demand."
Review of Procedures

The present work attempted to replicate and extend Sapolsky's experiment, in which an experimenter attempted to condition a subject's verbal responses under conditions of high or low suggested "compatibility." The compatibility suggestion to the subject was made by the principal investigator before he introduced her to the experimenter.

Midway through the sentence completion task, Sapolsky's experimenter left the room for a phone call, directing the subject to continue the task on her own. The subject's sentences were tape recorded in the experimenter's absence, who never returned. The present study extended Sapolsky's original procedures by introducing a new condition after the midpoint: a) for half the subjects, the experimenter left the room, just as in Sapolsky's case; b) for the other subjects, the experimenter remained present but withdrew from the task. In either case, the subject was given role responsibility for constructing sentences.

New Interpretations of Sapolsky's Study:
Hypotheses of Loss and Demand

Sapolsky considered his subject's use of pronouns to depend on the combined effect of verbal conditioning and suggested "compatibility." He did not take into account that the relationship or immediate perceptions of the participants
would affect the use of personal pronouns.

Based on analysis of the present findings, this study proposes the idea that pronoun usage was affected by aspects of the interaction between the subject and experimenter beyond a simple conditioning procedure. These include the subject's perception of the relationship and the reaction of the subject to the experimenter's staying or leaving for the latter half of the experiment.

Let us empathize with the subject, and notice two conditions in this experiment which may have evoked tension. One was the departure of the experimenter, whom the subject may then have missed. We may imagine that High Compatibility subjects would experience a greater tension of loss than Low Compatibility subjects, who might even have felt relief when the experimenter left.

A second possibility for tension occurred when the experimenter interrupted proceedings but remained present; this tension might be felt as the demand upon the subject to continue on her own, but with a non-participating experimenter sitting close by. The unpleasantness of demand from the still-present experimenter would be greater for Low Compatibility rather than High Compatibility subjects.

Symbolically, the absent High Compatibility experimenter can be retained, and the present Low Compatibility experimenter assuaged, through use by the subject of a single device: this is the subject's shifting her pronoun choice to increase
use of the pronoun "WE." Raush (1970) found that married couples shifted from high use of pronoun "I" early in their relationship to greater use of pronoun "WE" as their intimacy developed. I propose that a similar phenomenon has been observed in the present study, in a new relationship of less than one half hour's duration.

The findings of the present study suggest the following hypotheses for the subject's behavior midway through the experiment:

1) Following the experimenter's departure, High Compatibility subjects will increase use of pronoun "WE" as a symbolic means of regaining a lost experimenter, and will do this more than Low Compatibility subjects.

2) In the experimenter's continued presence, Low Compatibility subjects will increase use of pronoun "WE" to smooth perceived tension. High Compatibility subjects, not under tension in the presence of the experimenter, will not increase use of pronoun "WE."

Degree of Replication

One of Sapolsky's major findings was that subjects led to expect high compatibility with the experimenter increased their use of reinforced pronouns under the experimenter's influence more than subjects led to expect low compatibility (see Figure 1).

The present study failed to verify Sapolsky's finding; although subjects significantly showed the effects of influence, they did not differ by compatibility group membership.
Sapolsky's second major finding occurred after his experimenter departed. After the experimenter reinforcement had ceased, he found that Low Compatible subjects began to increase their use of the critical pronouns; High Compatible subjects did not do so. Sapolsky explained this unexpected result on a post hoc basis as the release by the subject of learned but unexpressed behavior upon the removal of an inhibiting (Low Compatibility experimenter) force. Since his result was here viewed with some skepticism, we made an attempt both to replicate it and to explore alternative explanations.

In this replication study, neither compatibility group showed any evidence of influence not already shown prior to the experimenter's departure. Thus Sapolsky's finding for conditioning effects during extinction was not verified.

Extension of Replication

Use of "I" versus "WE"

Sapolsky summed the total use of pronouns "I" and "WE", considering them equivalent. Summed together, the measured use of these critical pronouns led to the negative findings described above. However, findings similar to Sapolsky's were discovered when pronouns were separately counted. As trial blocks continued after the experimenter stopped reinforcing the critical pronouns, subjects significantly increased their use of pronoun "WE". This result does not ex-
actly replicate Sapolsky's extinction findings (as it omits all "I" responses), but it does suggest similar evidence of influence upon the subject, expressed only after reinforcement ends.

**Varying Experimenter Presence**

Varying presence of the experimenter during the extinction trials did not in itself result in any significant effects. But when use of pronoun "WE" was separately measured, the impact of the experimenter's departure was revealed.

High Compatibility subjects used "WE" more with the experimenter gone than did Low Compatibility subjects (but not so for Experimenter #2; see Figure 4). Similarly, Sapolsky's High Compatibility subjects used critical pronouns more in the experimenter's absence than did his Low Compatibility subjects. In the present experiment the above effect reversed when the experimenter remained present, and the use of pronoun "WE" was significantly greater for Low Compatibility subjects than High Compatibility subjects.

The above would not have been predicted from Sapolsky's hypothesis of released evidence of learning, from which no increase in pronoun response would have been expected for either compatibility group remaining in the experimenter's presence.

Furthermore, subjects in the present study, regardless of compatibility group, significantly increased their use of
pronoun "WE" during extinction. Sapolsky observed this effect for only his Low Compatibility subjects. Perhaps Sapolsky's High Compatibility subjects had saturated in their level of pronoun response during the phrase of acquisition, leaving only the Low Compatibility subjects to show the response rise. If this was true, his theory of released behavior with the departure of the Low Compatibility experimenter is doubtful.

Alternative Interpretations of Sapolsky's Experiment

Sapolsky's findings after his experimenter departed are curious, if they are to be considered extinction effects of a conditioning process. The present finding that use of "WE" varied both with degree of compatibility and with experimenter presence suggests that more was going on than a simple conditioning process. Greenspoon (1962) points out that:

... verbal conditioning is essentially reclassifying previously learned verbal responses into new or different classes. No new responses have been added to the behavioral repertoire of the subject. Under these conditions, it is possible that variables other than the reinforcing stimulus may affect the performance of subjects in the extinction period.

To follow Greenspoon's suggestion, two opposing interpretations of Sapolsky's experiment will be developed through the contrasting paradigms of "conditioning" and "experiencing." We shall consider the experiment as a play with three
characters, and two possible scripts. These narratives are: 
a) the "conditioning" script and b) the "experiencing" script. 
If the reader cares to review this play, he would do well to bear in mind that though the scripts differ, they may also exist simultaneously.

Following further development toward an understanding of the "conditioning" and "experiencing" paradigms, evidence will be offered in support of the experiential view.

A "Conditioning" View

Within the framework of "conditioning," an assumption underlies Sapolsky's experiment that the subject's use of critical pronouns is attributable to the experimenter's rein-forcement, as well as the investigator's prior instruction about subject-experimenter compatibility. Furthermore, it is assumed in his model that the subject's use of the conditioned pronouns does not depend on other aspects of the experimenter-subject interaction.

In this view, other interpersonal events are seen as irrelevant to the meaning of either compatibility or reinforcement, given just a half-hour session.

An "Experiencing" View

An alternative interpretation is that a variety of other interpersonal influences affected and confounded the "simple" variables considered with Sapolsky's "conditioning" model.
This alternative will be called the "experiencing" model.

Within the experiential framework, we hypothesize that the use of critical pronouns is a function of:

1) the differing degree of tension of loss experienced by High and Low Compatibility subjects when the experimenter departs.
2) the differing degree of tension of demand experienced by High and Low Compatibility subjects in the presence of the experimenter.

The Experiment as a Play: A "Conditioning" Script

Interaction is assumed to be minimal between experimenter and subject, because they are strangers, spend just a short time together, and carry out a highly formalized task. After a brief introduction, the experimenter, trained to offer a brief greeting, reads to the subject from a printed set of instructions. She then shows the subject index cards from which the subject constructs sentences. Midway through the deck of cards, the experimenter announces to the subject that she is to continue the task alone. The experimenter either remains present or departs at that point.

If the experimenter departs, she does not return. If she remains during the second half, she finally leaves the room after the subject completes the remainder of the sentences, telling her the investigator will shortly return.

The events portrayed above do not result in rich processes of relationship effects. Rituals of acquaintance are observed, and uniformity is maintained in the experimenter's
behavior and attitude toward each subject.

The Experiment as a Play: An "Experiencing" Script

Two persons, subject and experimenter, meet in a small room; they exchange greetings, deal briefly with initial anxieties to facilitate a task, and then rhythmically and repetitively together carry out a verbal task which involves a series of reciprocating actions in a conversation including linguistic, paralinguistic, and nonverbal communication.

Some times passes: then either of two events occur. Either the experimenter is called away for a phone call, leaving the subject with an expectation of her return before completion of the sentences; or the experimenter interrupts the task and gives control over its performance to the subject, withdrawing only her apparent attention, but not her presence. In either event, the subject completes the task alone, expecting no further participation from the experimenter.

This alternative script of the experiment focuses on the events of interpersonal acquaintance, task sharing, and subsequent separation. It does not focus on reinforcement. Though the meeting is brief and the relationship rather shallow, findings suggest that the experimenter-subject separation has a definite effect on the subject.

Present Findings Confound the Conditioning View

Findings of the present study throw some doubt upon the
appealing simplicity of the "conditioning" script. Experimenters were unaware of the manipulation of the subjects' compatibility condition. Nevertheless, experimenters were found to react differently to the subjects' differing compatibility.

In addition, behavior of the subjects during extinction in the use of pronouns depended on the identity of the experimenter, as well as on whether she stayed or not. The arguments of a "conditioning" view do not appear adequate in accounting for the collection of findings in the present study. Let us therefore take a more careful look at the "experiencing" alternative.

Toward an "Experiencing" Interpretation

The experimenter departs. Consider the hypothesis that the experimenter's departure evokes tension in the subject. The simplest interactional view of this event is that the subject's security in a repetitive and predictable task relationship is disrupted, and new behaviors become necessary on her part. We may expect that the subject misses the experimenter and wishes she would return. At a deeper level, the subject experiences tensions, however composed in content, of separation and threatened loss of a significant other, or the relationship itself. The subject is constrained to give up the shared experience for an isolated one, and resists. She may attempt security operations to maintain the illusion of a still present experimenter, if there is no clear expec-
tation of her return. Furthermore, the tension of loss will differ depending on the degree of attachment or investment felt by the subject toward the experimenter.

Schutz's (1958) interpersonal theory offers another perspective on the effect of the experimenter's departure. He proposes that new relationships move sequentially through stages of inclusion, control, and affection. Inclusion can involve offers of engagement and responses of acceptance. As transactions of a dyad move through the issue of inclusion, questions of control emerge: who dominates and who submits must be negotiated. As the tension of control becomes more manageable, and assuming the outcome of these transactions is not a regression to the stage of inclusion, the dyad moves on to feelings and exchanges involving affection.

By the time the experimenter breaks the pace of the sentence task, it is likely that issues of inclusion and control are fairly settled: the investigator had formally prepared the subject and introduced her to the experimenter. The task orientation of the experiment also helped provide convenient role definitions for both subject and experimenter, which should have made the issues of inclusion and control both easier to handle.

By the time the experimenter left, the subject and experimenter were either ready to, or may already have begun to experience elements of affection. The experimenter's departure might then jolt the subject, forcing dormant issues of
inclusion and control to reappear abruptly. The experimenter's leaving was a controlling act, and it also literally disrupted inclusiveness. The subject had to regress to either attempting to re-establish some control, or work at the problem of inclusion. One subject chose the latter, actually refusing to participate further in the experiment, and demanding the right to leave. Since the choices from the inclusive realm were limited and quite costly to the subject, most turned to manipulation of control. With the experimenter gone, the subject could not literally have power to affect her absence, but she could act symbolically to restore her.

I propose that the subject attempted symbolic restoration of the experimenter by increasing use of the pronoun "WE" in her absence. The tension of the loss would differ depending on the degree of attachment felt by the subject toward the experimenter. If the compatibility instructions to subjects were effective, then subjects in the high compatibility group would experience greater loss when the experimenter left than those in the low compatibility group.

Thus, the hypothesis of loss, may be stated:

In the absence of the experimenter, High Compatibility subjects will increase use of pronoun "WE", and will do this more than those of low compatibility.

One finding supporting this hypothesis is that High Compatibility subjects reported significantly greater comfort than did Lows. Subjects also reported significantly greater
comfort when the experimenter remained present than when she departed. Also, when the experimenter left, High Compatibility subjects used "WE" significantly more than did Low Compatibility subjects.

In the present study, High Compatibility subjects reported significantly greater comfort than Low Compatibility subjects. High and Low Compatibility subjects not only reported different levels of comfort, but also must have behaved differently, for the experimenters, blind to the manipulation of expected compatibility, paradoxically judged Low Compatibility subjects to be significantly of higher compatibility with them than the Highs.

These results imply that the Lows engaged in compensatory behavior, that they tried harder to be pleasant and agreeable when told the experimenter would be less compatible. Or perhaps the Low Compatibility subjects were fearful, and thus perceived by the experimenters as easier to deal with. Both experimenters reported their own concerns about doing well in their unfamiliar role: they may have appreciated greater deference by the Lows.

Regardless of the precise reason, both Lows and Highs must have shown their feelings so as to affect the experimenters' behavior and feelings. Let us presume that in the presence of a Low Compatibility experimenter, the subject felt a pressure to reduce the tension between herself and an unresponsive figure in close quarters. The attempt of the
subject to reduce the discomfort with the Low Compatibility experimenter is a response to a demand. It is emitted as if literally demanded by the experimenter.

The experimenter remains. The scenario up to the point that the experimenter leaves or stays is described above. If the experimenter then remains and gives the subject full task control, a possible tension arises. The subject must maintain task competence in the presence of a silent, inattentive experimenter who has partially withdrawn contact with her. Tension would be greater in the presence of an experimenter perceived as low in compatibility.

The tension of demand would be greatest for the conditions of the experimenter present and of low compatibility. If the experimenter departed, the tension of demand would be low or absent. If the experimenter remained present but was of high compatibility with the subject, demand tension would again be low or absent.

Thus the hypothesis of demand may be stated:

In the experimenter's presence, Low Compatibility subjects will increase use of pronoun "WE" more than will High Compatibility subjects.

One finding supporting this hypothesis is that when the experimenter remained present, Low Compatibility subjects used "WE" significantly more than did High Compatibility subjects.
Differences between Sapolsky's and the Present Method

Although Sapolsky's findings were not replicated in toto, some results were obtained which were similar. General conditioning effects were demonstrated, as was a greater rise in pronoun usage for Low rather than for High Compatibility subjects after the experimenter left the room.

The main failures of replication were the weakness of the conditioning effect, and the lack of difference between High and Low compatibility groups during acquisition. In this section, we consider differences of method which may account for the limited degree of replication.

Some differences may be attributed to the attempt in the present study to be more careful and complete in the experimental design, than was Sapolsky. Directions to our subjects were amended from Sapolsky's version, which seemed unconvincing to us. We suspected that at the time of Sapolsky's experiment, subjects were less wary; what then was an effective manipulation may now no longer work. We used more natural and subtle instructions concerning compatibility, and constructed a more thorough awareness questionnaire than Sapolsky's. Without having the same "awareness" data for Sapolsky's subjects, and without directly observing his method of influence, we cannot know if his reinforcement was more effective because it was obvious. Sapolsky's inadequate measure of awareness would not detect if the subjects had merely
chosen to comply when they perceived what the experimenter was after.

Other differences between Sapolsky's and the present study's methods may account for the weaker conditioning effects in the present effort. His experimenters were closer in age to his subjects than were ours; we did not replicate his condition that the experimenters could be mistaken for undergraduates: the age difference here between subjects and experimenters was ten to fifteen years.

Sapolsky's subjects and experimenters knew each other to some extent through sharing classes. In the present study, subjects and experimenters met for the first time at the experiment. Prior acquaintance and similarity in appearance are both likely to increase interpersonal influence; their absence here may account in part for the weakness in the present study's effects. Greenspoon (1962) suggests in his review of verbal conditioning studies that pre-experiment interactions significantly increase verbal conditionability of subjects, regardless of the nature of the interactions. Katkin, Risk and Spielberger (1966) found conditioning stronger if the experimenters' status was low rather than high when working with undergraduate subjects.

There is no way to know the style of Sapolsky's experimenters when they reinforced subjects by saying "mm-hmm." In the present study a desire for naturalness may have created too restrained an application of the verbal reinforcer. Per-
haps also, the results would have been stronger if not for experimenter differences, which Sapolsky seems not to have encountered. This may relate to the age discrepancy noted above, sensitizing the subjects more than if they had been working with peers.

Finally, verbal conditioning research has produced wide variations in level of conditioning achieved. Greenspoon (1962) observes that some subjects do not show any evidence of conditioning. Many studies have attempted to investigate the effect on verbal conditioning of subjects' moods and personality characteristics. These include such variables as hypnotizability, need for approval, deference, defensiveness, sex, anxiety, manifest hostility, aggressiveness and dependency. These variables are all potential sources of variance which may weaken conditioning results.

Conclusions

The present study did not literally replicate Sapolsky's findings. However, general effects were demonstrated of a verbal conditioning process, and additional measures and manipulations produced interesting and suggestive findings related to the phenomenological aspects of the verbal conditioning paradigm. The particular use of pronouns "I" and "we" for reinforcement may be contraindicated since subjects appear to vary their use of them in response to interpersonal events unrelated to the conditioning paradigm. Events such
as an experimenter departing may result in significant changes in the subject's choice of personal pronouns.

We may question Sapolsky's assumption that the different responses of high and low compatibility groups to the experimenter's influence demonstrated that the compatibility instructions facilitated influence. The present study revealed that the experimenter responded to conditions of which she was presumably unaware. If the experimenter was found to react differently to the two compatibility groups, the possibility is open that she could also affect the subjects in turn, based on her reaction to them. Thus we must consider a wider range of interactive possibilities, less controlled and more complicated than has been previously assumed. Analysis here is difficult, as the experimenters could not verbalize their awareness of the different reactions they had to the two subject groups.

Perhaps thanks to the weak conditioning effects in the present experiment, we have learned that subjects' behaviors differ between the two compatibility groups, aside from differences in verbalizations of pronouns. The present experiment was not designed to analyze such effects: indeed, they were unexpected. It is possible, but not certain, that such effects may have influence upon conditioning rates in a way that has not previously received attention.

The discovery of different subject behaviors for the two pronouns "I" and "WE" has suggested hypotheses concerned with
loss and demand. The viability of this phenomenological view of verbal conditioning studies using pronoun reinforcement may be tested with a simple experiment. Subjects would be given the same task as described in the present experiment, varying compatibility conditions and experimenter presence. However, reinforcement would not be given for the critical pronouns. Rather, the experimenter would reinforce sentences randomly during the acquisition interval. If the "loss" and "demand" hypotheses are valid, we may expect the use of pronoun "WE" to increase when the compatible experimenter leaves the room, or the incompatible experimenter remains.
REFERENCES


Sapolsky, A. Effect of interpersonal relationships upon ver-


APPENDIX A

Selection of Verbs for Taffel Type Tasks

Based on the prototype of Taffel (1955) for verbal conditioning experiments, simple past tense verbs were used for the formation of sentences by the subject. These sentences started with one of six personal pronouns and utilized the verb. Verbs were selected for use in the experiment which were simple and likely to be understood by all subjects.

In a pilot experiment, subjects sometimes interrupted the task for assistance from the experimenter to explain certain verbs. These interruptions broke the flow between them, which had been proceeding at a fairly regular rate after the first few sentences. The relationship between subject and experimenter seemed less uniformly controlled in these cases, since the amount of interaction depended on a combination of verb difficulty and inclination of the subject. The verbal conditioning literature does not elaborate the phenomenology of the conditioning process, so it is hard to judge uniformity of conditions of subject-experimenter interactions.

The prior experimental runs also uncovered the phenomenon of the "stuck" verbs. Certain verbs seemed to command the use of certain pronouns. The verb 'struck' was almost always paired with the pronoun "HE." Some of these pairings seemed to reflect sex role stereotypes, involving functionality or the dimension of activity/passivity. The verbs which were
coupled with the pronoun "HE" by many of the pilot subjects included: uncapped, fixed, gestured, hacked, kicked, cheated, owned, knelt, penalized, and urged.

Verbs coupled by subjects to the pronoun "SHE" were fewer in number, but also distinctive. These included: nursed, interfered, rubbed and yelled.

Verbs that elicited use of pronoun "I" above the others were: entered and valued.

'Stuck' verbs were eliminated from the verb list used in the actual experiment. Below is a list of the pronouns either favored or tending to be omitted in usage:

<table>
<thead>
<tr>
<th>Use</th>
<th>Verbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;THEY&quot; favored</td>
<td>elected, vanished, yelled, cheated, noted, joked</td>
</tr>
<tr>
<td>&quot;WE&quot; favored</td>
<td>joked, walked</td>
</tr>
<tr>
<td>&quot;I&quot; and &quot;WE&quot; favored</td>
<td>agreed, doubled, graduated</td>
</tr>
<tr>
<td>singular pronouns favored</td>
<td>bit</td>
</tr>
<tr>
<td>&quot;I&quot; avoided</td>
<td>exhibited, gave, generated, left</td>
</tr>
<tr>
<td>&quot;WE&quot; avoided</td>
<td>handed, left</td>
</tr>
</tbody>
</table>

In addition, certain verbs tended to be used in the passive voice, and also biased to avoid use of "WE". These included: healed, freed, degraded.

Verbs which were too difficult for some subjects included: equated, degraded, ousted, conceded, and quibbled.
APPENDIX B

The Effects of Subjects' Positioning on Pronoun Choices

Sapolsky screened out certain subjects from consideration who tended to select their pronouns from a particular portion of the index cards, usually the leftmost position. In the present experiment, similar screening was performed. In the pilot study, 3 subjects out of 20 were eliminated on the basis of their preferring the first or second positions on the cards. Instructions were added to warn the subject that she should freely choose her responses from all positions, not favoring any one.

An attempt was made to derive a probabilistic measure of the effects of positioning by the subject in the selection of pronouns. Sapolsky did not state his criterion for eliminating of positioning subjects, and it did not seem clear just how much degradation of the data occurs for a given amount of selectivity. Further, there was no apparent quantitative measure of positioning. The following analysis lays the groundwork for formal analysis of the data:

Given: Stimulus cards, each containing \( W \) pronouns in number. \( B \) of the \( W \) pronouns are reinforced by the \( E \). The \( S \) tends to select from only \( G \) of the \( W \) available positions.

Within the \( G \) positions the \( S \) may choose, she may

1) Select under the influence of the reinforcer

or

2) Select a pronoun randomly.
1) and 2) above are assumptions which provide an arbitrary but complete model for the selection process by a S under the influence of a reinforcer. The model allows for either covert or overt reinforcement.

The basic assumption about selection of a reinforced pronoun over the non-reinforced pronoun is that it is either a random one, or that the S, aware or not, is making some purposeful decision, preferring the reinforced pronoun in the particular instance. Furthermore, in the present model, the choice of pronoun is limited by the mask provided in the particular positions the S is willing to utilize. Thus, if only the leftmost and second positions are utilized, only their content will be effective in the statistics of outcome of choice. Instead of choice between six positions, there would be choice only of whichever pronouns happened to occupy the two slots.

Stated more formally, the pronouns are selected to be randomly distributed among their positions from card to card. The probability that a reinforced pronoun appears in any particular position is \( \frac{B}{W} \), where B is the number of reinforced pronouns, and W the total number of pronouns on a card. If the S is selecting randomly rather than purposefully, then the probability of selecting a reinforced pronoun is simply based on the relative frequency of these among the total number of pronouns on a card, and is not affected by the mask of the positioning strategy.
Assumption: The $S$ is either choosing randomly, or purposefully selecting the reinforced pronouns, if they are available within the positioning mask.*

Let $d = \text{fraction of time that } S \text{ chooses purposefully,}$ and $(1 - d) = \text{fraction of time that } S \text{ chooses randomly.}$

For the case of random selections, the probability of selection is:

$$p_r = P(\text{selecting reinforced pronouns}) = \left( \frac{B}{W} \right)$$

where $B = \# \text{ of reinforced pronouns.}$

$W = \# \text{ of pronouns on each card.}$

For the case of purposeful selections,

$$p_p = P(\text{selecting reinforced pronouns})$$

$$\phi^* = (B, g)$$

$$P_p = \sum_{i=1}^{\phi^*} \binom{g}{i} \cdot \binom{W-g}{B-i}$$

where $g = \text{effective } \# \text{ of positions available for pronoun selection}$

$\phi^*(a, b) = \text{minimum value of } a \text{ and } b.$

When the data is actually collected, the measured fraction of selected reinforced pronouns is $p_m.$ Thus if $S$ uses ten reinforced pronouns out of twenty trials, $p_m$ would be 0.50. $p_m$ may be broken down into the two component parts representing random and purposeful choice:

*The assumption does not allow for the "malevolent" $S,$ who purposefully elects to avoid the reinforced pronoun.
\[ p_m = (d \cdot p_p) + (1 - d) \cdot p_r \]

Solving the above for \( d \),

\[
d = \frac{p_m - \frac{B}{W}}{p_p - \frac{B}{W}}
\]

\( d \) represents a corrected \( p_m \). It adjusts for positioning effects and removes the random contribution to totals for response levels. It thus represents the increment above the random choice response level, with the effects of positioning bias corrected. Consider the example of six pronouns, two of which are reinforced. If reinforcement is withheld, the expected ratio of reinforced pronouns to total responses would be 1:3. Thus the expected value of \( p_m \) would be 1/3, or 0.33. The corrected version of \( p_m \) is \( d \) from above, and it would have the value of zero. \( d \) provides an unbiased measure of conditioning, since if no reinforcement occurs, it yields the value of zero.

During the first trial interval of the conditioning process in the present experiment, the E does not reinforce the S. During this baseline period, \( d \) provides a direct measure of the S's propensity to use the (later to be) reinforced pronouns.

Continuing the derivation for \( d \), we substitute the expression for \( p_p \) from above, and obtain:
\[
d = \frac{p_m - B/W}{\sum_{i=1}^{\phi-(B,g)} \left( \begin{array}{c} W \\ B \end{array} \right) \cdot \left( \begin{array}{c} g_i \\ i \end{array} \right) \cdot \left( \frac{W-g}{B-i} \right)} - B/W
\]
or,
\[
d = \frac{\left( \begin{array}{c} W \\ B \end{array} \right) p_m - \frac{S(W)}{W(S)}}{\sum_{i=1}^{\phi-(B,g)} \left( \begin{array}{c} g_i \\ i \end{array} \right) \cdot \left( \frac{W-g}{B-i} \right) - \frac{S(W)}{W(S)}}
\]

Finally, we have the general computational formula for the amount of conditioning, removing the effects of both positioning and random choice:

\[
d = \frac{\left( \begin{array}{c} W \\ B \end{array} \right) \cdot p_m - \frac{(W-1)!}{(W-B)! \cdot (B-1)!}}{\sum_{i=1}^{\phi-(B,g)} \left( \begin{array}{c} g_i \\ i \end{array} \right) \cdot \left( \frac{W-g}{B-i} \right) - \frac{(W-1)!}{(W-B)! \cdot (B-1)!}}
\]

In particular, this experiment has \( W = 6, \ B = 2, \) and \( g \geq 2. \) Then,
\[
d = \frac{\left( \begin{array}{c} 6 \\ 2 \end{array} \right) \cdot p_m - \frac{5!}{4! \cdot 1!}}{\left( \begin{array}{c} g \\ 1 \end{array} \right) \cdot \left( \begin{array}{c} 6-g \\ 1 \end{array} \right) + \left( \begin{array}{c} g \\ 2 \end{array} \right) \cdot \left( \begin{array}{c} 6-g \\ 0 \end{array} \right) - \frac{5!}{4! \cdot 1!}}
\]
\[
= \frac{15p_m - 5}{g \cdot (6-g) + 1/2 \ g(g-1) - 5}
\]
or,
\[
d = 10 \cdot \frac{3p_m - 1}{g (11-g) - 10}
\]
While the above formula is a direct conversion from the S's conditioning performance to a measure free of positioning and random choice effects, it is more convenient for calculation as well as clearer to the reader to modify its terms. Since in this experiment the trials each consist of twenty sentences, we can convert the frequency measure, \( p_m \) into the actual number of reinforced responses within a trial. \( p_m \) will then represent the actual number of sentences beginning with pronouns I or We, within a block of twenty sentences. \( p_m \) is related to \( p_m \) by:

\[
p_m = 20 \cdot p_m
\]

In a like manner, \( d \) may be converted to \( D \). Recalling that \( d \) was the frequency with which Ss choose the reinforced pronouns, excluding chance selections, then \( D \) is the number of times such a choice is made within a twenty sentence trial. \( d \) is related to \( D \) as follows:

\[
D = 20 \cdot d
\]

Finally, we may express the number of reinforced nonrandom responses to the number obtained by experimental measure (\( p_m \)) within each twenty trial block as:

\[
D = 10 \cdot \frac{3 \cdot p_m - 20}{g (11 - g) - 10}
\]

It remains only to derive a direct measure of \( g \). The reader may recall that \( g \) is the effective size of the mask
for S's selection of only certain positions on the card. g in fact provides a finer measure of positioning than that. g provides a continuous measure, able to take on non-integer values. It reflects the favoring of one or more positions even if within a given trial, all are used to some extent. Any deviation from random selection of positions will be indicated. It is convenient to derive an algorithm which obtains g as a function of a conveniently measured quantity, the number of times within twenty trials that each position is chosen.

We define the frequency with which position i (i varies from 1 to W, the total number of pronouns on a card) is chosen as \( n_i \).

The total number of trials in a block is \( N \), and,

\[
N = \sum_{i=1}^{W} n_i
\]

The mean expected value for the frequency of occurrence of any position without any bias of choice by the S is \( M \).

\[
M = \frac{N}{W}
\]

Then,

\[
g = 6 - 0.15 \sum_{i=1}^{W} |n_i - M| = 6 - 0.15 \sum_{i=1}^{6} |n_i - 3.33|
\]
COMPATIBILITY QUESTIONNAIRE

Please read each statement below and circle the number representing the response which is most true for you. Work as rapidly as you can.

Responses for Questions 1 - 16:

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<th>never</th>
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</table>

1. I try to be with people.  
2. I let other people decide what to do.  
3. I join social groups.  
4. I try to have close relationships with people.  
5. I tend to join social organizations when I have an opportunity.  
6. I let other people strongly influence my actions.  
7. I try to be included in informal social activities.  
8. I try to have close, personal relationships with people.  
9. I try to include other people in my plans.  
10. I let other people control my actions.  
11. I try to have people around me.  
12. I try to get close and personal with people.  
13. When people are doing things together I tend to join them.  
15. I try to avoid being alone.  
16. I try to participate in group activities.
Responses for Questions 17 - 40:

<table>
<thead>
<tr>
<th>Question</th>
<th>1</th>
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<th>3</th>
<th>4</th>
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<th>6</th>
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<td>I try to be friendly to people.</td>
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<tr>
<td>I let other people decide what to do.</td>
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<tr>
<td>My personal relations with people are cool and distant.</td>
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<tr>
<td>I let other people take charge of things.</td>
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<td>I try to have close relationships with people.</td>
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<tr>
<td>I let other people strongly influence my actions.</td>
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<tr>
<td>I try to get close and personal with people.</td>
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<tr>
<td>I let people control my actions.</td>
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<tr>
<td>I act cool and distant with people.</td>
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<td>I am easily led by people.</td>
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<tr>
<td>I try to have close, personal relationships with people.</td>
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<tr>
<td>I like people to invite me to things.</td>
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<tr>
<td>I like people to act close and personal with me.</td>
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<td>I try to influence strongly other people's actions.</td>
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<tr>
<td>I like people to invite me to join their activities.</td>
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<tr>
<td>I like people to act close toward me.</td>
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<tr>
<td>I try to take charge of things when I am with people.</td>
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<tr>
<td>I like people to include me in their activities.</td>
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<tr>
<td>I like people to act cool and distant toward me.</td>
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<td>I try to have other people do things the way I want them done.</td>
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<td>I like people to ask me to participate in their discussions.</td>
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<tr>
<td>I like people to act friendly toward me.</td>
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<tr>
<td>I like people to invite me to participate in their activities.</td>
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<td>I like people to act distant toward me.</td>
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Responses for Questions 41 - 54:

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41. I try to be the dominant person when I am with people.     1  2  3  4  5  6
42. I like people to invite me to things.                   1  2  3  4  5  6
43. I like people to act close toward me.                  1  2  3  4  5  6
44. I try to have other people do things I want done.     1  2  3  4  5  6
45. I like people to invite me to join their activities.  1  2  3  4  5  6
46. I like people to act cool and distant toward me.      1  2  3  4  5  6
47. I try to influence strongly other people's actions.  1  2  3  4  5  6
48. I like people to include me in their activities.       1  2  3  4  5  6
49. I like people to act close and personal with me.       1  2  3  4  5  6
50. I try to take charge of things when I'm with people.  1  2  3  4  5  6
51. I like people to invite me to participate in their activities.  1  2  3  4  5  6
52. I like people to act distant toward me.                1  2  3  4  5  6
53. I try to have other people do things the way I want them done.  1  2  3  4  5  6
54. I take charge of things when I'm with people.         1  2  3  4  5  6
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SIWA/CI: 4.4 5.3 4.2 2.3 5.5 5.1
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Sample Card

COLORED

WE YOU THEY SHE HE I
QUESTIONNAIRE

WE ARE INTERESTED IN YOUR REACTIONS TO THIS EXPERIMENT. WE HAVE FOUND IN THE PAST THAT SUBJECTS OFTEN AVOID NEGATIVE RATINGS, WISHING TO BE "HELPFUL". YOU CAN CONTRIBUTE MOST BY ENTERING THE FRANKEST RATINGS YOU CAN, EVEN IF THEY ARE NOT COMPLIMENTARY. ANSWER BY PLACING AN "X" IN THE APPROPRIATE SLOT.

1. How comfortable did you feel while taking part in the experiment?
   - comfortable: 4: 3: 2: 1: -: 1: 2: 3: 4: 
   - uncomfortable

2. How much did you like the person you worked with?
   - liked her just a little: 1: 2: 3: 4: 5: 6: 7: 8: 9: 
   - liked her a great deal

3. How compatible do you think the two of you were?
   - not compatible: 1: 2: 3: 4: 5: 6: 7: 8: 9: 
   - very compatible

4. Below are some adjectives for describing the person you worked with. Please indicate as nearly as you can your rough impression of her.

NOW, HOW DO YOU THINK THE EXPERIMENTER WOULD INDICATE HER REACTIONS TO THE EXPERIMENT? PLACE A "Y" IN THE APPROPRIATE SLOTS IN QUESTIONS 1 TO 4 ABOVE TO INDICATE WHAT YOU THINK HER RATINGS WOULD BE.

USE THIS SPACE FOR ANY COMMENTS YOU WISH TO MAKE:
1) There was a point when the E left (or stopped) and you finished the cards. How did you feel about this?

2) Did you feel more comfortable before or after the break?

3) What do you think the experiment was about?

4) Did you notice yourself using any words more than others? Which words were these?

5) Why did you choose these words? On what basis did you select the words you did?

6) Did you favor a portion of the card when selecting words?

7) Did you favor particular positions?

8) Did you notice the E saying or doing anything during the experiment?

9) What did you think about this?

10) When did you notice her doing this? How often? When did it start?

11) Did you think it had a connection with what you said?

12) Did you notice that she said "mm-hmmm" whenever you said a certain word? Which word?

13) Were you pleased or displeased with her saying "mm-hmmm"?

14) Did you try to answer so that she would say "mm-hmmm" more often? Why?

15) Do you have any other thoughts about what this experiment was for?
FEEDBACK TO THE SUBJECT

The experiment in which you have participated is a study of verbal conditioning and influence. When you began a sentence with the pronouns "I" or "We", the Experimenter reinforced your response by saying "um-hum". In the second half of the experiment the reinforcement was withheld, to determine whether your use of "I" or "We" would increase or decrease. The tests and questions to which you responded were designed to evaluate the level at which you were aware of the reinforcements and their meanings, and how you reacted to the experimenter. There was one available person to serve as your experimenter.

By studying this process of influence between two people, we hope to learn more about how people react to each other in different situations, such as psychotherapy.

IMPORTANT

DO NOT DISCUSS THIS EXPERIMENT WITH ANYONE INCLUDING THE EXPERIMENTER. THE DATA WILL BE VALID AND USEFUL IF THE SUBJECT REMAINS BLIND ABOUT THE EXPERIMENT. AFTER DATA IS COLLECTED, YOU WILL RECEIVE A COPY DESCRIBING THE EXPERIMENT AND ITS RESULTS. AT THAT TIME, YOU WILL BE FREE TO DISCLOSE ANYTHING YOU PLEASE. YOUR COOPERATION IS MOST APPRECIATED.