THE CONTROL OF THE CONTENT OF CONVERSATION: REINFORCEMENT OF STATEMENTS OF OPINION[1]

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SOME kinds of human behavior have seemed to be resistant to experimental investigation because of both their complexity and their apparent variability. One such class includes the commonplace activities of people —for example, whatever the reader was doing just before he picked up this journal. Perhaps talking to someone.

This paper describes the successful experimental application of some principles of operant conditioning in this area; specifically to conversation between two people. The experimental procedure is based on two assumptions (2, 3). (*a*) Apparently heterogeneous human verbal behavior falls into comparatively simple operant response classes; hence, any one is susceptible to conditioning. The class of verbal behavior chosen is the *stating of opinions*. (*b*) Classes of environmental events can be isolated that have the property of altering any behavior on which their occurrence has depended, i.e., some events are reinforcing stimuli. Specifically, under our conditions, statements of *agreement* or *paraphrase* are hypothesized to be reinforcing stimuli for the verbal behavior of a speaker. According to these assumptions, if someone agrees with every opinion of a speaker, the speaker should show a sharp increase in his rate of stating opinions. The *stating of opinions* has been conditioned.

Since it is both interesting and important to obtain changes in behavior that correspond to those termed conditioning when the subject is not aware that he is "being conditioned" (or, indeed, that his behavior is being manipulated in any way) the present experiments were conducted under conditions in which the occurrence of such "insight" was extremely unlikely.

[1] The first experiments on this subject were carried out by Mr. Ronald M. Dworkin, as an experimental project in an undergraduate course. His exploratory results were indispensable in setting up the procedures followed in this experiment.

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METHOD

General Plan of the Experiment

The experiment was carried out in a series of ordinary conversations between two people, the subject (*S*) who was not informed in any way that he was taking part in an experiment, and the experimenter (*E*). The conversations lasted at least a half-hour which was divided into three 10-minute periods.

During the first 10-minute period, once the conversation was under way, *E* did not reinforce any statement made by *S*, but determined his operant level of "stating opinions" by ticking off the total number of statements and the number of opinion-statements made by *S* in successive one-minute intervals. This treatment for the first 10-minute period is labeled O in the first column of Table 1.

In the second 10 minutes, every opinion-statement *S* made was recorded by *E* and reinforced. For two groups, *E* agreed with every opinion-statement by saying: "Yes, you're right," "That's so," or the like, or by nodding and smiling affirmation if he could not interrupt. This treatment is labeled A, for agreement, in the second column of Table 1. For two other groups, *E* reinforced by repeating back to *S* in paraphrase each opinion-statement that *S* made (labeled P in the second column of Table 1).

In the third 10-minute period, the *E*s attempted to extinguish the opinion-statements of two groups by withdrawing *all* reinforcement, that is, by failing to respond (labeled E for extinguish in the third column of Table 1) in any way to *S*'s speech, and of two other groups by disagreeing with each opinion stated (labeled D in the third column of Table 1).

The design of the experiment is depicted in Table 1. Of the four O-groups of the first period, two become groups in which reinforcement came by agreement (A-groups) in the second period, and two became groups in which reinforcement came by paraphrase (P-groups). In the third period, one of the A-groups was

TABLE 1
TREATMENTS FOLLOWED BY EXPERIMENTERS

N	First 10 Minutes	Second 10 Minutes	Third 10 Minutes
5	O—Measure operant level	A—Reinforce each opinion-statement by agreement	D—Extinguish by disagreeing with each opinion-statement
2	O—Measure operant level	A—Reinforce each opinion-statement by agreement	E—Extinguish by failing to respond to any statement of *S* (silence)
6	O—Measure operant level	P—Reinforce each opinion-statement by paraphrase	D—Extinguish by disagreeing with each opinion-statement
4	O—Measure operant level	P—Reinforce each opinion-statement by paraphrase	E—Extinguish by failing to respond to any statement of *S* (silence)
7	A_1—Reinforce each opinion-statement by agreement	E—Extinguish by failing to respond to any statement of *S* (silence)	A_2—Reinforce each opinion-statement by agreement

extinguished by disagreement (D-group) and one by *E*'s silence (E-group). A similar division was made for the P-groups. Thus, each of the four groups can be designated by the combination of treatments provided in the three consecutive periods of conversation.

In a fifth, control group (A_1EA_2), run to insure that any changes in *S*'s rate of stating opinions could not be attributed simply to the passage of time during the experiment, *E* reinforced by agreement *S*'s opinion-statements in the first and third 10-minute periods, and withdrew all reinforcement during the second period.

During the first (O) period for the first four groups, and the E period for the fifth group, *E* asked a "neutral" question ("What did you say?") if *S*'s rate of speaking showed signs of declining. Few such were necessary.

Experimental Situation

The *E*s performed the experiment when and where they could, restricted by only three criteria: (*a*) that only two persons be present, (*b*) that there be a clock, and the paper and pencil required for recording, and (*c*) that enough time be available to both *S* and *E* for them to talk for at least a half hour. The *E*s did not suggest to *S*s at any time that an experiment was being carried on, and in the rare cases in which an *S* showed signs of suspicion that this was not an ordinary conversation the experiment was terminated (although the conversation was carried on).

Seventeen *S*s were run in student living quarters, two in restaurants, two in private homes, and one each in a hospital ward, in a public lounge, and over the telephone. In one experiment, contrary to instructions, a third (but uninformed) person was present.

The topics of conversation ranged from the trivial to the "intellectual" and included dates, vacations, Marxism, theory of music, man's need for religion, architecture, Liberace.

Experimenters

Seventeen members of a course[3] in the Psychology of Learning served as *E*s. Twelve were Harvard undergraduates, two were Radcliffe undergraduates, and three (two women and one man) were students in the Graduate School of Education. All the experimenters had had extensive experience in the techniques of conditioning bar-pressing in the rat, and of conditioning chin-tapping in the human (3). Of the 17 students who undertook the experiment, all were able to collect one or two sets of data as the design demanded.

[3] An experiment of this sort very probably could not be successfully performed *de novo* in a laboratory situation suitably equipped for tape-recording and concealed observation. The present strategy was dictated by the need to determine whether positive results could be obtained in conversations on a variety of topics, carried on in a wide variety of situations, and especially in a situation in which it was most unlikely that *S* would suspect that an experiment was being carried on.

Subjects and Experimental Groups

Of the 20 men and four women who served as *S*s, 13 were described by the *E*s as friends, seven as roommates, one a date, one an uncle, and one a total stranger. In all but four conversations, *S* and *E* were of the same sex. All but six *S*s were of college age; of these six, four were in the thirties, and two were 55 and 60, respectively.

These *S*s were distributed over the four experimental groups as follows: OAD, 5; OPD, 6; OPE, 2; OAE, 4; and A_1EA_2, 7.

There were 20 students in the class, and the design called for *N*'s of 5 and 10, but 3 students reported that they were unable to undertake the experiment,[4] and of the 17 *E*s, one placed himself in the wrong group.

The Response Conditioned

The response selected for reinforcement was the uttering by *S* of a statement or "sentence" beginning: "I think . . .," "I believe . . .," "It seems to me," "I feel," and the like. The *E*s were instructed to be conservative in classifying a statement as an opinion, and to do so only if one or another such qualifying phrase began the statement. (*E*s were aware that the experiment was designed to investigate *S*s' behavior, and not their own.) No attempt was made to define what constituted a statement or a "sentence" except that *E* should not expect grammatical sentences (1). These instructions proved adequate; no *E* had difficulty in counting such units of verbal behavior, although doubtless many speech units counted would not parse.

Reinforcing Stimuli

Two classes of reinforcing stimuli were used by the *E*s. The first was *agreement* (A), defined as the experimenter saying "You're right," "I agree," "That's so," or the like, nodding the head, smiling (where *E* did not want to interrupt). The second was repeating back to *S* in paraphrase (P) what he had just said. No further attempt was made to specify paraphrasing. *Extinction* was carried out in one of two ways. In some groups *E* simply refrained from responding in any way to a statement by *S* (E) and in others, he disagreed (D) with each opinion-statement.

The *E*s did not speak, except to reinforce, to disagree, or to "prime" *S* with a question during operant-level determination. They contributed nothing new to the conversation.

Recording

A clock, or watch with sweep-second hand, a pencil, and something to write on were necessary for the recording. One *E* was able to record the whole conversation on a tape-recorder. The *E*s ticked off each statement occurring in successive one-minute intervals by making a series of doodles incorporating marks, or by making marks on the margin or text of a book or magazine. Different marks were used for opinions and other statements. Recording proved inconspicuous, and in only one or two cases did an *E* have to terminate an experiment because *S* seemed to notice his recording.

Although problems arose occasionally, *E*s by and large had no difficulty in arriving at and maintaining a criterion for a "sentence" or "statement," i.e., for the unit of speech that they counted, and for the subclass, statement of opinion.

The criteria varied from experimenter to experimenter, in that the rates of speaking of two subjects reported by the same *E*s are correlated, and the reported rates are a function not only of the subject's rate of speaking, and of *E*'s rate of speaking in reinforcing, but also of the criterion for "statements" adopted by *E*.

In only one case did an *S* comment on *E*'s recording: during extinction he asked *E* what she was doodling, and was satisfied when she showed him her scribbles. The *E*s also noted *S*'s general behavior during extinction, and the mode of termination of the experiment.

Execution

In a few cases, the experiment was begun, and then terminated by phone calls, third persons entering the room, or because *E* feared that *S* had noticed that he was recording. All the experiments completed are reported in this paper, except one from group A_1EA_2, whose data could not be accurately transcribed. Under questioning, no experimenter reported that he terminated the experiment because results did not seem satisfactory to him.

[4] That three *E*s found themselves unable to undertake the experiment is in itself interesting. A fourth resorted to the telephone, with good results.

TABLE 2
MEDIAN AND RANGES FOR EACH 10-MINUTE PERIOD

	10-Minute Period	Groups OAE, OAD, OPE, OPD combined			Group A_1EA_2		
		Proc.	Median	Range	Proc.	Median	Range
Rate (statements/minute)	1st	op	5.3	2.2–12.8	cond	7.1	2.4–14.0
	2nd	cond	5.7	3.2–17.1	ext	6.3	1.9–11.0
	3rd	ext	5.2	1.4–12.8	recond	5.8	2.9–14.5
Relative frequency of opinion - statements	1st	op	0.320	.012–.655	cond	0.574	.208–.653
	2nd	cond	0.558	.071–.702	ext	0.302	.094–.526
	3rd	ext	0.333	.048–.643	recond	0.603	.267–.699

Two *E*s carried out operant-level determination for only 9 minutes, and one went overtime. Four went overtime during reinforcement. The greatest variability appeared during extinction; seven *S*s failed to continue talking for 10 minutes following the beginning of disagreement, or of nonreinforcement, either leaving the room or falling into silence. Eight *E*s carried on the conversation past the 10-minute minimum extinction period. Since *E*s were not consistent in continuing to record or to converse past this time, data are reported only on the first 10 minutes.

In summary, the experiment is designed to determine whether a person, in conversation with another person, can manipulate the second person's conversation by agreeing or disagreeing, or by paraphrasing. The experimenter himself, it should be noted, contributes nothing new to the content of the conversation.

RESULTS

Awareness

No *S* ever gave any evidence that he was "aware" that he was serving as a subject in an experiment, that his behavior was being deliberately manipulated and recorded, or that he recognized that there was anything peculiar about the conversation. The only qualification that must be made is this: during extinction, some *S*s got angry at *E* and commented on his disagreeableness, or noted his "lack of interest," and during reconditioning one member of group A_1EA_2 gave *E* "queer, searching glances," perhaps because of the opinions that *E* was now agreeing with. These changes of behavior are consistent with those found in other situations when *S* is undergoing extinction (3).

Conditioning is demonstrated if the appropriate changes appear in the rate of speaking opinion-statements as a function of the conditions of reinforcement. When reinforcement is given, the rate must increase; when it is withdrawn, the rate must decrease.

Distributions were made of the number of opinion-statements (N_{opin}) and of all statements (N_{all}), and their cumulative values (CN_{opin} and CN_{all}) for each minute of the three experimental periods. From the latter, mean rates of making statements were computed. Relative frequencies of opinions ($RF_{opin} = CN_{opin}/CN_{all}$) were determined for each *S* for each period.

Rates

The rates of making statements (CN_{all}/t) showed no significant changes as a function of reinforcement. Table 2 gives, in the upper portion, data on the distribution of these rates for each interval. Several nonparametric tests for significance of difference were made, and none showed that the null hypothesis (no difference as a function of period, manipulation, or group) could be rejected. The "priming" of *S* by means of the question, "What did you say?," seems to maintain the rates in the operant periods, and in the extinction period of group A_1EA_2, although decreases in rate may be obscured by the fact that *E* is saying little during these times. The rank-order correlation of operant-level rates of speech obtained on two *S*s by the same *E*s was 0.65 ($N = 14$). This figure includes data to be reported elsewhere[5] but obtained under the same conditions.

[5] In a paper now in preparation and to be entitled: The control of the content of conversation by reinforcement: topic of conversation.

TABLE 3
MEANS, MEDIANS, AND RANGES OF RATIO-INDEX OF CHANGES IN RELATIVE FREQUENCY OF OPINION-STATEMENTS

Groups Combined	RF Ratios in Distribution	*N*	Mean	Median	Range
A. Conditioning Effect (No effect: Ratio-Index = 1.00)					
OAD, OAE	A/O	9	2.27	1.76	1.50- 5.70
A_1EA_2	A_2/E	7	2.29	2.17	1.09- 4.32
OAD, OAE, A_1EA_2	A/O, A_2/E	16	2.28	1.85	1.09- 5.70
OPD, OPE	P/O	8	4.23	2.02	1.05-11.47
All	A/O + A_2/E + P/O	24	2.91	1.85	1.05-11.47
B. Extinction Effect (No effect: Ratio-Index = 1.00)					
OPE, OAE	E/P, E/A	11	0.71	0.70	0.48-0.86
A_1EA_2	E/A_1	7	0.66	0.52	0.45-1.15
OPE, OAE, A_1EA_2	E/P, E/A, E/A_1	18	0.69	0.52	0.45-1.15
OPD, OAD	D/P, D/A	6	0.65	0.62	0.27-1.01
All	E/P, E/A, E/A, D/P, D/A	24	0.67	0.65	0.27-1.15

Relative Frequency of Opinions

Table 2 (lower portion) presents the medians and ranges of the distributions of RF_{opin} for each period. Each of the 24 *S*s showed an increase in his relative frequency of opinion during the reinforcement period over his operant level, or (for group A_1EA_2) over his preceding extinction period. The probability that this result would have been obtained if there had been no effect of the experimental variable is $(\frac{1}{2})^{24}$. Twenty-one of the 24 showed a *reduced* RF_{opin} in the extinction or disagreement period below that of the preceding period of reinforcement. The probability that fewer than four *S*s would not change in the absence of an effect of the experimental variable is 1.1 $(\frac{1}{2})^{13}$. Signed rank tests (4) of the significance of the differences yield p values well below .01.

The magnitude of the effects can be evaluated by determining two ratios for each *S*: (*a*) that of RF_{opin} obtained during conditioning to RF_{opin} of the operant level or (for group A_1EA_2) RF_{opin} in reconditioning to RF_{opin} in the preceding extinction period, and (*b*) of RF_{opin} during the extinction period to RF_{opin} during the preceding conditioning period. Large values of the former of these ratios are possible only when the operant level RF_{opin} is low. Table 3 presents the mean, median, and range of these values for groupings of the 24 *S*s based on the methods of reinforcement and extinction.

An evaluation was made of the relative effectiveness of agreement and paraphrase in conditioning, and of disagreement and silence in extinction. Fisher's exact test of independence in contingency tables was applied about the medians of Table 3A for groups OAD and OAE taken together versus OPE and OPD, and about the medians of Table 3B for groups OAD and OPD against OAE and OPE. No difference in the number of cases falling above and below the medians was significant at the .05 level, although the difference between agreement and paraphrase is significant between the .05 and .10 levels.

Means and variances were also computed. An F test of the significance of difference in the variances of OAD and OAE and of OPD and OPE gives 8.239 (df = 8, 7), significant at better than the .005 level. Paraphrasing and agreement, although both effective, are not equivalent as reinforcing stimuli; paraphrasing is much more variable in its effectiveness (or perhaps the variety of statements made as paraphrases exceeded those called agreements).

The method of extinction also yielded a significant difference in variance: F = 5.175 (df = 10, 5), significant at the .05 level. Despite these differences in variance, group curves were constructed. All four groups were combined without respect to method of reinforcement or extinction. The median N and CN of opinions, and of all sentences, were then determined for each successive minute of each of the three periods. Figure 1 presents these medians for the groups OAD, OPD, OAE, and OPE, and for group A_1EA_2.

Figure 2 demonstrates that the median

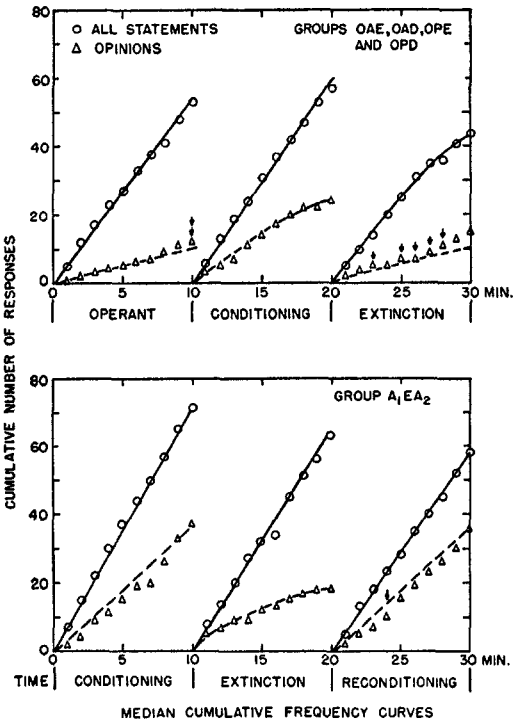

FIG. 1. MEDIAN CUMULATIVE FREQUENCY CURVES OF OPINION-STATEMENTS, AND OF ALL STATEMENTS, . . FOR EACH 10-MINUTE PERIOD OF THE EXPERIMENT

For the upper graphs $N = 17$, for the lower, $N = 7$. At each arrow, N on that and successive trials is diminished by one. In the extinction period of the upper graph, each S that dropped out, "had to leave." In the other cases, E discontinued the procedure at the time indicated.

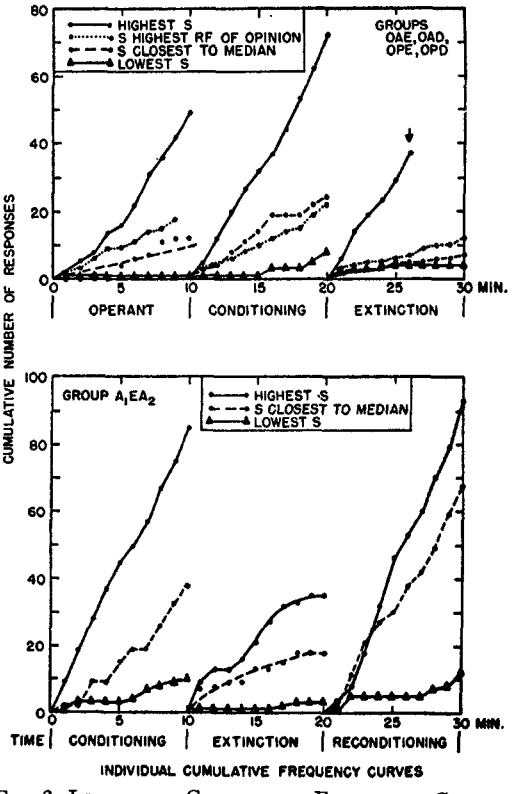

FIG. 2. INDIVIDUAL CUMULATIVE FREQUENCY CURVES OF OPINION-STATEMENTS FOR EACH 10-MINUTE PERIOD OF THE EXPERIMENT, DEMONSTRATING THE CONSISTENCY OF THE EFFECT AND ITS RANGE

curves are indeed representative. In it are plotted the experimental points obtained during the operant level period from (*a*) the *S* giving a CN_{op} equaling the median, together with the *S*s giving (*b*) the lowest and (*c*) the highest values among the 17 *S*s of the combined groups, and from the corresponding *S*s of group A_1EA_2, chosen about the median of the extinction period. Any other sets of individual data might have been presented, but these give some view of the spread, as well as of the consistency of results of the various subjects.

In summary, the rate of stating opinions changed in accordance with the assumptions made. All *S*s increased their rate of stating opinions, regardless of the topic of conversation, its setting, or *S*'s particular relationship with the *E*. The order of magnitude of the effect depended upon the kind of reinforcement employed. How it may be related to the variables noted above cannot be inferred from the present data.

DISCUSSION

Individual differences in the rates of speech, and of giving opinions, are most striking and highly significant. We have already noted that they are the joint outcome of *S*'s rate of speech, the length of his sentences, of *E*'s discrimination of his speech, and of *E*'s own speech rate. Of the two *S*s with the lowest rate of making statements, one was a Finn who spoke English with difficulty, and the other was a young woman who talked very fast and in very long sentences indeed. (She was also the most opinionated, according to our rate of giving opinions.) Since the experiment was performed, Fries's (1) work has become available, and a study of it suggests the basis of our *E*s' criteria.

The statements that the *E*s counted during

the period of reinforcement are evidently identical with Fries's "utterance units" (1, p. 36), i.e., stretches of speech bounded by a change of speaker. During reinforcement and during extinction by disagreement, each stretch of *S*'s speech is bounded by *E*'s delivery of successive reinforcements or disagreements. The cues in *S*'s speech that determine *E*'s delivery of a reinforcement probably cannot yet be specified. However, the facts that the rate of uttering "statements" is stable, and that the rates reported by the same *E* are correlated with each other suggest that the "statements" or "sentences" counted during the operant level, and during extinction (although these are by definition not Fries's "utterances," since *E* says nothing) are stretches of speech such that *E* is *stimulated* to respond (1, p. 49). He does so, not by speaking, but rather by making a mark in his record. If this analysis is correct, then our *S*'s statements are what Fries also terms statements, i.e., "sentences that are regularly directed to eliciting attention to continuous discourse."

Magnitude of the effect. These data do not permit us to draw conclusions about the magnitude of the effect, although it is clearly some function of the values of reinforcement variables. If *S* rarely states an opinion, it is difficult for the number of reinforcements to become very great, and the effect is necessarily small.

Acquisition effects. The not-quite-significant difference in the median effects of paraphrasing and of simple agreement, and the significant difference in their variances are interesting. Probably many different kinds of paraphrases were employed; the differential effectiveness of these as reinforcing stimuli needs investigation. Both the smallest and the greatest changes in the rate of stating opinions were produced by paraphrasing.

Extinction effects. During extinction by disagreement, some *S*s "marshalled the facts," others changed the topic. Some subjects who were extinguished by either treatment became "disturbed," or angry. There is more than a suggestion that when *S* undergoes complete nonreinforcement, his speech tends to extinguish and, indeed, he tends to leave the experimental situation earlier ("for study," "to go to dinner," and the like), but the 10-minute extinction period is too brief, and the variation among *E*s in continuing to record is too great to permit evaluation of this tendency.

General remarks. Certain problems, soluble by further research, set limitations on the generality of the present results.

Only one of our *E*s was able to use a tape recorder, and clearly, the use of such an instrument, perhaps in conjunction with independent judges, might yield counts of all statements and opinion-statements that were less dependent on *E*'s own criteria. However, it is not at all clear that there would be less dependence on *E*'s criteria (1), since the delivery of reinforcements will necessarily continue to depend on *E*'s speech habits. A variety of specific utterances by *E* were employed as reinforcing stimuli; a study of the variability in the effectiveness of various kinds of statements by *E* would be most useful.

The present results do not permit us to state how important is the particular social relationship between *S* and *E*. Would agreement by an *E* whom *S* disliked reinforce his verbal behavior? These conversations were relatively short, with the result that extinction was carried out to its asymptote in only a few *S*s, and hence differences between the effect of disagreement and of complete nonreinforcement, although suggested, cannot be tested. Similarly, neither "satiation" effects of continuous and repeated reinforcement nor complete "talking-out" of *S* on a topic could occur. (It should be recalled that our procedure does not allow *E* to contribute anything new to the conversation.)

The topics of conversation were, in only a few cases, such that *S* might be "ego-involved" in their outcome. Perhaps if *S* were subjected to these procedures when he was talking about something he "felt deeply" about, the results might differ, e.g., acquisition might be greater and extinction far slower. Orderly *changes* in the topic of conversation should also be observable (see footnote 5 above).

Finally, it should be remembered that our *E*s were all well trained in conditioning before undertaking this experiment, and this experience may prove necessary for the successful completion of the experiment.

Despite these limitations, this experiment shows that if, in what is ostensibly an ordinary conversation, one agrees with opinions ex-

pressed by a speaker, the speaker will give still more opinions, and that returning the speaker's words in paraphrase has the same effect. It also shows that disagreement reduces the number of opinions given, as does ignoring the speaker's statement. The verbal behavior of a speaker, apparently without regard to its content or setting, is under the control, not only of the speaker himself, but also of the person with whom he is conversing.

These results are in accord with the two hypotheses made. But one may ask, is this operant conditioning? By any empirical, nontheoretical definition of conditioning, the changes in behavior found conform with those of conditioning, and the present results may be classified as conditioning. What are some of the alternatives?

Two can be noted, and both suggest that the data depend upon the *E*s' behavior, rather than the *S*s'. The *E*s may have "made up" the data, since they knew that certain kinds of data were expected of them. This alternative can be rejected without hesitation. The *E*s' previous performances, and the internal consistency of the data lend it no credulity. A second alternative is that "suggestion" may have altered the *E*s' discrimination of speech. If this were so, it would itself be a finding of interest. The writer is inclined to doubt very much that this occurred to any extent, in view of the phenomenon of "negative suggestibility," and of the frank skepticism of some *E*s as to the experiments' outcome before the data were collected and tabulated. Repetition of the experiment, with tape-recording of the verbal behavior of both *S* and *E* will permit ready evaluation of both these possibilities.

The results of this experiment make psychological and scientific sense of common-sense descriptions of conversation. ("People like to talk to people who are interested in what they are saying"; "if you ignore him, he'll go away"; "all right, if you don't believe me, here are the facts. . . .") and, indeed, other social and political behaviors. The data suggest that, once the appropriate simplifying assumptions are made, a very high degree of order can be revealed in "complex" situations, and that a still higher degree of order can be introduced into them.

The simplifying hypotheses made here are derived from the concepts of *response* and of *conditioning*, and they have proved experimentally fruitful in the present instance. This complex behavior is available to direct experimental investigation, and the orderliness and lawfulness of the behavior exhibits itself when irrelevant details are ignored. The heuristic advantages of much of present stimulus-response theory, when it is applied in the field of verbal behavior in a social context, are clear.

If our interpretation is correct, experimental work on a wider variety of human social behavior is possible. The isolation in conversation of independent variables susceptible to direct manipulation and of dependent variables showing orderly change, should give a much wider and more significant scope to experimental investigation. The experiments now possible provide new techniques for the investigation of client-therapist relationships and of therapeutic techniques in clinical psychology. They may be applied to the study of the behavior of small groups, and of personality.

They suggest how cooperation may be ensured. They lead to questions such as, "Can one, by pairing oneself with a reinforcing stimulus, come to control effectively the behavior of a total stranger?" That is to say, if a person agrees with everything said by someone whom he has not previously known, will he then have other means of reinforcing, or of exerting other types of control over, the stranger's behavior? The possibilities are interesting.

SUMMARY AND CONCLUSIONS

Seventeen *E*s carried on conversations with 24 different *S*s.

Two assumptions are made, (*a*) that "stating an opinion" is a class of behavior that acts as a response, and (*b*) that statements of agreement with, or paraphrases of, such statements of a speaker act as reinforcing stimuli. From these it is inferred that the rate at which a speaker states opinions varies with the administration of agreement or of paraphrase by the person with whom he is conversing. The experimental conversations were carried out on a wide variety of topics of conversation, in a wide variety of places, and in a group of *S*s, most of whom were college students. The expected results appeared. Every *S* increased in his rate of speaking

opinions with reinforcement by paraphrase or agreement. Twenty-one *S*s decreased in rate with nonreinforcement. Over-all rates of speaking did not change significantly.

In no case was the *S* aware that he was the subject of an experiment, or that the conversation was an unusual one.[6]

[6] The writer, after having described the experiment to someone in casual conversation, had the illuminating experience of then being used as *S* by the person to whom he had described it. He showed the effect and, like, it would seem, *all S*s in this experiment, was quite unaware that he had been an *S*.

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