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HELPING OR "LEAVING THE SCENE?":

ALTRUISM OR EGOISM?

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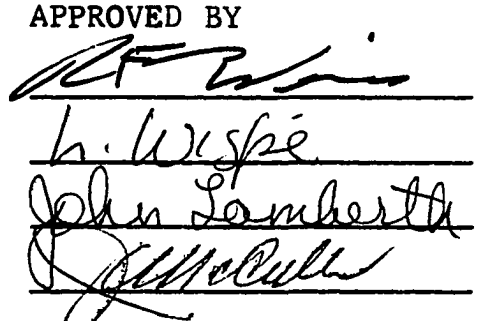

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Abstract

Weiss, Buchanan, Altstatt, and Lombardo (1971) and Weiss, Boyer, Lombardo, and Stich (1973) found that subjects will learn an instrumental response the only apparent reinforcement for which was to deliver another person from suffering. The reward was labeled "altruistic reinforcement." The present paper examined the Weiss et al. situation for a possible non-altruistic source of reinforcement. It was suggested that the disturbing sight of suffering rather than the perception of a fellow human being in need might have been the noxious stimulus motivating learning. An experiment revealed that both helping the suffering person ($p < .001$) and "leaving the scene" of suffering without helping ($p < .05$) were sufficiently reinforcing to produce learning of an instrumental response. Helping was the greater reinforcer ($p < .005$). Conclusions were drawn about the concept of "altruistic reinforcement" and the relationship between altruism and the behavior called "leaving the scene."

Helping or "Leaving the Scene?": Altruism or Egoism?

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Employing the general approach which Neal Miller (1959) has called "extension of liberalized S-R theory" Weiss, Buchanan, Altstatt, and Lombardo (1971) and Weiss, Boyer, Lombardo, and Stich (1973) found that people will learn an instrumentally conditioned response the only apparent reinforcement for which was to deliver another human being from suffering. These studies indicated that the roots of altruistic behavior are so deep that people will not only help others and receive no externally administered reward for doing so, but find the mere act of helping rewarding. In addition, these experiments revealed profound similarities between the reinforcing function of helping another person and the action of more traditional reinforcers in instrumental escape conditioning: not only can learning be based on "altruistic reinforcement," but a number of standard reinforcement variables showed the same pattern of effects with an altruistic reinforcer as they do with conventional non-altruistic reinforcers. Analogs of delay of reinforcement, magnitude of reinforcement, partial reinforcement, and intermittent shock effects were found.

Weiss et al. (1971, 1973) suggested that finding helping behavior intrinsically reinforcing for the helper is compatible with a number of existing views of altruistic behavior which propose that altruism is mediated by: innate altruistic drives (Campbell, 1965); vicariously instigated learned drives (Aronfreed, 1968, 1970; Berger, 1962); guilt aroused by either actively harming another person (e.g., Darlington & Macker, 1966; Freedman, 1970) or by passively witnessing another's harm by a third party (Rawlings, 1970); and motivation to adhere to a norm of social responsibility (Berkowitz & Daniels, 1963).

Weiss et al. (1971, 1973) directed their total efforts towards demonstrating that helping could indeed be reinforcing for the helper. No special distinction was drawn between "helping" and "altruism." The present paper, however, echoes valid traditional concerns with the nature of altruism and differences between altruism and more egoistically motivated helping. While considerable debate over a formal theoretical definition of altruism identifying specific motivational antecedents continues unabated, social scientists since Durkheim (1897) have generally assumed an operational definition of altruistic behavior (see reviews by Krebs, 1970; Macaulay & Berkowitz, 1970). Helping behavior is required to occur in the absence of externally administered reward or the anticipation of such reward for the helper. Despite the flood of recent laboratory and field demonstrations of human behavior

congruent with such a definition of altruism, many theorists have maintained that "there must be something in it for the actor" (see comments on this position by Rosenhan, 1970). To take such a position and then programmatically seek empirical support is not to stubbornly denounce man in Hobbesian fashion; it is rather to strive for desirable integration in both theory and research.

The purpose of the present paper is to explore the possibility of a source of external, non-altruistic reinforcement for the behavior of subjects in the Weiss et al. paradigm. In order to implement this purpose it was necessary to compare the basic conditions of the Weiss et al. paradigm with a crucially different condition in which the external nature of the subject's reinforcement was unambiguously clear. Based on the results of this comparison conclusions will be drawn about the concept of altruistic reinforcement, as well as the relationship between altruism and the behavior called "leaving the scene" (e.g., I. M. Piliavin, Rodin, & Piliavin, 1969; J. A. Piliavin & Piliavin, 1972).

Possible Source of Non-Altruistic Reinforcement

Weiss et al. (1971, 1973) had subjects observe an experimental confederate trying to perform a motor task while the confederate "received" electric shock. At the end of each conditioning trial, the subject pushed a button to "record" his evaluations of the confederate's performance on tape (a deception to mask the actual conditioning experiment).

Each button-pushing response gave the confederate a break from "the shock." The speed (1/latency) of the button-pushing response for experimental subjects in all experiments increased significantly over trials. Subjects in control conditions in which the confederate did not get a break from shock did not learn the button-pushing response, and consequently were always inferior to experimental groups.

In contradistinction to these experiments, more naturalistic situations permit a commonly chosen alternative to helping: getting away from the disturbing sights and sounds of a victim's suffering as quickly as possible. Human beings may choose to leave the scene of an emergency (e.g., Latané & Darley, 1970; I. M. Piliavin, Rodin, & Piliavin, 1969; J. A. Piliavin & Piliavin, 1972) while animals may show other non-helping reactions to distressed victims (e.g., Lavery & Foley, 1963; Rice, 1964). While the difference between stopping to help someone in need and abandoning him is immediately obvious, both actions can have the similar effect of removing from the observer's presence the signs of suffering and of consequently reducing any emotion in the observer aroused by the suffering. When experimental subjects in the Weiss et al. (1971, 1973) studies made their button-pushing responses at the end of each conditioning trial, they witnessed both the apparent offset of the shock to the confederate and the confederate's heaving a noticeable sigh of relief. Leaving the scene of suffering was, therefore, a

natural consequence of button-pushing for these subjects. Did leaving the scene of suffering constitute an external source of reinforcement for these subjects? It could be equally cogently argued that the instrumental response learned by subjects was either entirely reinforced by helping a "suffering" person or entirely reinforced by leaving the scene of suffering without regard for the welfare of the sufferer. If it could be shown that subjects will learn an instrumental response reinforced by "leaving the scene" without helping the "distressed" confederate (as opposed to "leaving the scene" as a consequence of helping), then the appropriateness of calling helping the confederate "altruistic reinforcement" should be reconsidered.

It should be mentioned that, while the purpose of the present experiment was not to study leaving-the-scene behavior per se, the procedure, deceptions, and masking task used create an ideal situation for the isolated study of leaving-the-scene behavior in a "pure state." The kind of emergency situation (e.g., those studied by Latané & Darley, 1970; I. M. Piliavin, et al., 1969; J. A. Piliavin & Piliavin, 1972) in which "leaving the scene" typically occurs is one in which bystanders who leave the scene do so by choice; in choosing to leave they reject the alternative of staying to help. The present experiment, on the other hand, removed leaving-the-scene behavior from the context of a helping situation. Subjects were given no choice between "leaving

the scene" and helping. The experiment was not represented as a helping experiment, and the process by which subjects in the appropriate condition "left the scene" appeared to be a regular part of a pre-programmed apparatus cycle.

Comparison of Helping and "Leaving the Scene"

Subjects in the present experiment observed and evaluated the performance of an experimental confederate who was "receiving" electric shock. Subjects pushed a button to "record" their evaluations of the confederate at the end of each conditioning trial. There were three groups of subjects: (1) A Helping group for which a button push "turned off" the confederate's shock. (2) A No-Reinforcement Control group for which a button push caused no change in the situation; the shock "stayed on." (3) A novel condition called the Leaving-the-Scene group for which a button push did not "turn off" the shock but did cause a masonite shutter to be lowered between the subject and the confederate for the duration of each inter-trial period; thus, the subject could not see the "suffering" confederate and, in effect, "left the scene."

The performances of the helping group and the no-reinforcement control group were expected to replicate those of similarly treated groups in the Weiss et al. studies. The helping group's instrumental button-pushing responses should significantly increase in speed over conditioning trials, it already having been established that some effective reinforcer operates in this condition. At the end of conditioning the

helping group's response speed should be significantly faster than that of no-reinforcement controls, whose performance should not improve over trials. A prediction of the leaving-the-scene group's performance was more difficult. A number of hypotheses concerning the reward value of removing from view the disturbing signs of another's suffering, without helping the sufferer, were possible. A growing literature indicating that man does indeed often act altruistically and anecdotal evidence from the Weiss et al. (1971, 1973) experiments that subjects seemed very much concerned for the confederate's welfare (one subject insisted on driving the "shaky" confederate home) pointed to the following supposition: that even if it was reinforcing to remove from view the noxious signs of suffering it would be more reinforcing to actually help the sufferer. Response speeds for the leaving-the-scene group were thus predicted to increase over trials to a point where they would be intermediate between the speeds of the other two groups. The effects on behavior of helping, leaving the scene, and no reinforcement were expected to be respective analogs of high, medium, and zero magnitude-of-reinforcement effects in discrete-trials instrumental escape conditioning (e.g., Bower, Fowler, & Trapold, 1959; McAllister & McAllister, 1967).

Two specific hypotheses were made: (1) Response speeds for both helping and leaving-the-scene subjects would significantly increase over trials, while those for no-reinforcement

controls would not; (2) Asymptotic response speeds would have a specified rank order, i.e., asymptotic speed for the helping group would be faster than that of the leaving-the-scene group, and the control group would have the slowest speed.

Method

Experimental Paradigm

A procedure analogous to traditional instrumental escape conditioning was used. In escape conditioning the subject learns to terminate a noxious stimulus by making an instrumental response such as running down an alley or pressing a lever. The subject learns to make this instrumental response, on each discrete trial, upon presentation of a cue which serves as a conditioned stimulus, and the termination of the noxious stimulation is called negative reinforcement (e.g., D'Amato, 1969; Logan, 1970). Whereas the typical noxious stimulus is electric shock or continuous loud noise, the noxious stimulus in the present experiment was the simulated suffering of another human being. The reinforcement given subjects in the two experimental groups of this study involved the removal of the "suffering" from the subject's presence by one of two different procedures (one which involved directly helping the "sufferer" and one which clearly did not involve helping the other person). The "suffering" was never removed from the presence of subjects in the no-reinforcement control group. Pushing a button was the instrumental response, and the conditioned stimulus was the onset of a signal light. A

traditional dependent variable employed in discrete-trials instrumental conditioning is response speed (1/latency). In the present experiment the dependent variable was speed (1/latency) measured from the onset of the signal light CS to the occurrence of the instrumental button-pushing response.

Deception, Masking Task, and Confederates

A deception was used to mask the learning task so that the conditioning process would not be overridden by the subjects' normal use of their higher mental processes (Spence, 1966). The experiment was represented as a study of performance of a complex motor task under stress, and of evaluation of that performance by a naive, disinterested observer. It was indicated that in aviation psychology such knowledge was "becoming more and more important these days, as such things as flying or directing aircraft get more and more specialized and complex."

A confederate of the experimenter sat beneath a bright floodlamp inside a wooden booth and ostensibly received continuous, "painful but harmless" electric shock while trying to track a target on a screen. Each subject's job was to observe the confederate through an observation window set in one of the four walls of the tracking booth and to evaluate his performance. The apparatus provided necessary paraphernalia for the confederate's tracking task and for the "recording" of the subject's evaluations.

The reinforcement for subjects within one of the two experimental groups, the helping group, was the "offset" of

the shock to the confederate, signalled by a noticeable relaxing of the confederate and by the offset of the floodlamp. This reinforcement occurred at the end of each trial and was referred to as a brief, pre-programmed "between-cycles" rest period for the confederate. What was expected to serve as reinforcement for the second experimental group, the leaving-the-scene group, was the hiding of the "suffering" confederate behind a masonite shutter which was lowered over the observation window set in the confederate's booth during each inter-trial period. This event was presented as a "between-cycles" interval in which subjects were deliberately removed from the evaluation situation for a time so that they could then enter each new "cycle" (when the shutter was raised and the "distressed" confederate reappeared) as if it were an entirely different situation in which spontaneous judgments of the confederate's performance could be made and would hopefully be uncontaminated by information about previous "cycles." This supposed interest in spontaneous evaluations of performance on each new "cycle" was also expressed to the other two groups in order to achieve the necessary experimental symmetry (of course, the masonite shutter was never mentioned to the other groups since they would never encounter it). The term "cycle" was always substituted for "trial" so as not to suggest a learning experiment.

Five undergraduates and two graduate students, all appearing to be of undergraduate age, served as confederates.

The role of confederate was explicitly defined, discussed, and practiced by the seven students. The role included agonized expressions and shaking in reaction to the "receipt" of shock and, for the benefit of subjects in the helping group, a noticeable relaxation and sigh of relief when the shock "went off." In addition to the dramatics presented to convince subjects that the confederate was being shocked, a particularly effective sign of physical stress, actual facial sweating by the confederate produced by the heat of the overhead floodlamp, served to enhance the general plausibility of the deception and masking task.

In order to prevent fear of electric shock in the subjects developing within an individual session or spreading through the Psych-1 subject pool, it was made clear that Psych-1 students were never shocked and that the confederates were undergraduate volunteers from more advanced classes who had to have reached 21 years of age in order to sign a release form for the shock phase of the experiment.

The three female confederates served exclusively with female subjects and the four male confederates exclusively with male subjects. Each confederate served with an equal number of subjects in each of the three conditions.

Subjects and Design

Seventy-five volunteers from the Psych-1 subject pool were randomly assigned to three groups with the provision that they be completely counterbalanced so that: there would be

25 subjects per group, subject and confederate would always be the same sex, and each of the seven confederates would run the same number of subjects in each group. There were 14 females and 11 males each in the Helping, Leaving-the-Scene, and No-Reinforcement Control groups.

Subjects in all groups observed a confederate performing a tracking task while the confederate "received" continuous electric shock. Each of 12 conditioning trials ended with the subject, upon presentation of a signal light CS, pushing a button to "record" his evaluations of the confederate's performance on tape. In the helping condition, a button-push produced a "termination" of the shock for ten seconds and the confederate's heaving a sigh of relief. In the leaving-the-scene condition, a button-push did not terminate the shock but did cause a masonite shutter within the confederate's booth to be lowered over the observation window, thus concealing the confederate from the subject during the 10-second inter-trial period. For subjects in the no-reinforcement control group a button-push simply marked the end of a trial; the confederate remained in full view and continued to "suffer."

Apparatus

The room in which the subject and confederate sat shared a common wall with the experimenter's control room. On one side of this wall the confederate sat on a cushioned seat inside a wooden booth, which measured 3 x 3 x 6 feet in its external dimensions, and performed his bogus tracking task

while reacting to "shock" from a "forearm electrode." At the same time, the subject sat on a chair beside the booth, at the same height as the confederate, and observed the confederate, in profile view, through an 18 inch wide by 12 inch high clear glass window set in one of the walls of the booth. Meanwhile, the experimenter sat in the adjacent control room before a master control panel, setting controls appropriate for each experimental condition, recording instrumental response latency readouts, and communicating with confederate or subject in the next room by means of a microphone connected to headphones worn by both the confederate and subject during the experiment.

Placed in the wall of the confederate's booth facing the subject were an "alarm button," the glass observation window, six signal lights, three "evaluation dials," and a "record button." Upon illumination the signal lights read: (1) "SHOCK ON," (2) "SHOCK OFF," (3) "EVALUATION 1," (4) "EVALUATION 2," (5) "EVALUATION 3," and (6) "REPORT." Lying atop the wooden booth were the subject's headphones.

Placed within one of the internal walls of the confederate's booth were a fake radar-like tracking screen, two knobs (called "tracking-task controls"), an electric wall outlet (into which the confederate's "electrode" was plugged), an "alarm button," and the floodlamp. Behind the tracking screen were a number of randomly placed Christmas tree lights which, when the confederate manipulated his control knobs,

conspicuously flashed on and off to enhance the credibility of the masking task. The floodlamp was about 12 inches above and in front of the confederate.

During the experiment the confederate wore an "electrode" strapped to his left forearm, and headphones.

Temporarily secured above the observation window, on the confederate's side of the wall of the booth which faced the subject, was a masonite shutter large enough (19 inch by 14 inch) to cover the observation window when lowered and positioned between the window and the confederate. The shutter was raised and lowered, exclusively for subjects in the leaving-the-scene condition, by tugging at or releasing a nylon cord which ran through a series of pulleys up through the ceiling of the booth, through the wall separating the experimental and control rooms, down to a hook set in the experimenter's control panel.

An electric digital stop-clock (1/100 second) on the experimenter's control panel measured the subject's response latency--the time between the onset of the "REPORT" signal (the conditioned stimulus) and the subject's pushing his "record button" (the instrumental response).

Procedure

Pre-experimental procedure and instructions. When a subject arrived either on schedule or late he found "another subject" (the confederate) already seated in a waiting room outside the experimental room. When a subject came early, the confederate exited through a convenient back door to the lab

and then entered the waiting room through the same front door used by the subject. The experimenter soon greeted the two and led them into the experimental room. After introducing the subject as a Psych-1 student and the confederate as an over-21-years-old advanced student, the experimenter explained "the purpose of the experiment" and the different jobs the two would perform. The role of the masonite shutter was explained to subjects in the leaving-the-scene group. Next, in the presence of the subject, the confederate completed a bogus medical checklist and signed a release form agreeing to be shocked. The "electrode" was then placed on the confederate's left forearm and the confederate was seated in the tracking booth. As the experimenter left for the control room he mentioned that the "alarm button" on the wall in front of each person was to be pressed only if some serious emergency arose; he also had each person put on headphones so that he would be able to speak to them from the control room.

Cycle of operation. Each of the 12 trials of the experiment followed a cycle of shock, floodlamp, and the signal light "SHOCK ON" either coming on or continuing from the previous trial; illumination of three signals ("EVALUATION 1," "EVALUATION 2," "EVALUATION 3") for the subject to set his three "evaluation dials" to evaluate the confederate's performance according to three different criteria; illumination of the "REPORT" CS signal for the subject to push his "record button" to record his evaluations on tape; the instrumental

button-pushing response; and the response-contingent event appropriate for each condition. In the helping condition, each trial-ending button-pushing response caused the floodlamp to go out, the signal light "SHOCK OFF" to come on and "SHOCK ON" to go off, the experimenter to announce into the subject's headphones "Shock off," and the confederate to noticeably relax during the ten seconds between trials. For the leaving-the-scene group, a trial ended with the experimenter saying "Shock continues" and lowering the masonite shutter to hide the confederate for ten seconds, while the "SHOCK ON" light remained on. In the no-reinforcement control condition, a trial ended with "the shock" continuing, the confederate continuing to "perform under stress," and the floodlamp and "SHOCK ON" light remaining on.

Post-experimental procedure. At the conclusion of the experiment the subject witnessed the confederate assuring the experimenter that he had not been adversely affected by the stress. The subject was then dismissed while the confederate was asked to remain "to complete a questionnaire," so that the confederate could avoid any potentially embarrassing post-experimental contact with the subject.

Results

Figure 1 shows the mean response speeds (100/latency) over six discrete trial blocks of two trials per block. Although response speeds on the first trial block are approximately equal,

the three curves have separated by the second block, indicating differential learning of the instrumental response (i.e., differentially increasing response speeds).

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Insert Figure 1 about here
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The prediction that asymptotic response speeds would have the specified rank order: helping, leaving-the-scene, no-reinforcement control, was tested by a Jonckheere test (Jonckheere, 1954; Kirk, 1968; Siegel, 1956). The Jonckheere is an elegant and ideally suited test for examining both the rank orderings of groups and the differences between them in a single operation. Results of a Jonckheere test performed on the grand means of the last four conditioning trials indicated that group response speeds were in the hypothesized rank order and that speeds over the last four trials for the three groups were significantly different from each other ($z = 2.58$, $p < .005$).

The prediction that instrumental response learning would occur in the helping and leaving-the-scene groups but not in the no-reinforcement control group was borne out. Repeated measures analyses of variance over all 12 conditioning trials indicated that response speed significantly increased for both the helping group ($F = 8.31$, $df = 11/264$, $p < .001$) and the leaving-the-scene group ($F = 1.81$, $df = 11/264$, $p < .05$) but not for the no-reinforcement control group ($F = 1.14$, $df = 11/264$). Figure 1 clearly shows learning in the leaving-the-scene group

to have been neither as marked nor as continuous as in the helping group (i.e., the leaving-the-scene group reached asymptote by the second trial block while the helping group was still improving on the last block), indicating a significant yet much weaker reinforcement effect in the leaving-the-scene condition.

Referring again to Figure 1, statistical analysis revealed that the drop in the curve for the leaving-the-scene group beyond the second trial block is not a significant drop and that it is, therefore, appropriate to describe the leaving-the-scene group's performance as having leveled off after having reached asymptote on the second block of trials. Two repeated measures analyses of variance revealed that there was a significant increase in leaving-the-scene group response speed over the first four trials ($F = 3.00$, $df = 3/72$, $p < .05$) but no significant change in speed for trials four through 12 ($F < 1$).

Nowhere in the analysis of the results was there a trace of a main or interactive effect of sex of confederate or subject.

Discussion

The results of the present experiment supported findings of Weiss et al. (1971, 1973) that helping a "suffering" person is sufficiently rewarding for the helper to produce significant increases in the speed of an immediately preceding instrumental response. As predicted helping-group speeds significantly

increased over trials while no-reinforcement-control speeds did not. Taken alone these results indicated that altruism can be rewarding for the altruist and that the mere act of helping, in the absence of external non-altruistic reinforcement, had produced learning in the helping group. The predicted finding that subjects in the novel leaving-the-scene condition also learned the instrumental response, however, calls for some reconsideration of the concept of "altruistic reinforcement."

Finding leaving the scene of suffering without helping the sufferer sufficient reinforcement to produce increasing response speeds in the leaving-the-scene group supported both the assumption that a person who actually helps relieve the suffering leaves the scene of suffering as a natural consequence of helping, and the contention that leaving the scene would, therefore, constitute part of the reinforcement for the helping group. If a clearly external source of non-altruistic reinforcement (leaving the scene) contributed to the total reinforcement for the helping group, were Weiss et al. (1971, 1973) justified in referring to helping as "altruistic reinforcement" in their experiments?

Part of the answer to the above question may come from a consideration of the obtained difference in reinforcement magnitude between helping and leaving the scene. If leaving the scene constituted a portion of the reinforcement for the helping group, what was the nature of the remaining reinforcement

which caused helping to act as greater reinforcement than merely leaving the scene without helping? Could helping have been more reinforcing than leaving the scene simply because it was the more effective of two entirely non-altruistic reinforcers? Did helping merely enable subjects to more completely leave the scene, since leaving the scene of suffering left with subjects the knowledge that the suffering continued while actually relieving the suffering put it both "out of sight and mind?" While the possibility that helping was entirely non-altruistic reinforcement should not be dismissed without further investigation, both formal data and anecdotal evidence strongly indicated the existence of altruism. Figure 1 cogently shows the reward value of leaving the scene to have been far inferior to that of helping, the magnitude of the difference implying that there was much more to helping than just leaving the scene. Also, it is interesting that many subjects not only expressed concern for the confederate, as in Weiss et al. (1971, 1973), but also communicated their feelings of relief for the confederate (more than for themselves) when told the experiment had ended. Paraphrasing Aronfreed (1968, 1970), the evidence indicates that reward for the helping group had been primarily derived from subjects' vicarious experience of the consequences of helping for the confederate rather than from their direct experience of its consequences for themselves. Helping seems to have been more the reinforcement itself than a means to attain some other reinforcer, and to have been a predominantly

"altruistic reinforcer" containing only a small non-altruistic component.

But can helping be labeled "altruistic" if the prevailing operational definition of altruism does not allow for the existence of any external rewards for the helper, no matter how small? The answer must be "no." In view of the experiment reported here, this logical answer does not seem fully adequate, suggesting that this traditional question about the defining criteria of altruism is itself inadequate, despite the straightforward operational level at which it is posed. The question is certainly too significant to be dodged by calling it "semantic" or "lexicographical," nor need it be surrendered to the domain of philosophers. The present experiment permitted the question to be reformulated in a more subtle manner which yielded a more precise empirical answer, so that one may speak of identifiable altruistic and egoistic components of helping.

It should be noted that there probably are a number of helping situations in which "leaving the scene" is not possible and therefore not reinforcing. For example, there may be instances of what might be termed "positive altruism" in which the attainment of some positive goal (e.g., possibly the "restoration of equity" which Walster, Berscheid, & Walster, 1970, suggested motivates altruism) rather than the termination of a noxious stimulus is the reward.

One rather puzzling result of the present experiment is the rapid achievement of asymptotic performance by the

leaving-the-scene group. In Figure 1 the helping-group curve shows some resemblance to the gradually rising learning curve typical of instrumental conditioning studies, but the leaving-the-scene group curve levels off after only a third of the conditioning trials. This rapid rise to asymptote represents a point of disanalogy between leaving the scene of suffering and traditional reinforcement in instrumental conditioning. Although the speed of the leaving-the-scene group did increase to a point intermediate between the speeds of the helping and no-reinforcement control groups as predicted, the absence of a gradual learning curve for that group renders the apparently valid analogy between helping, leaving the scene, and no reinforcement and high, medium, and zero magnitudes of reinforcement in traditional conditioning studies less than perfect.

Apparently some complex process occurring during the conditioning of the leaving-the-scene group produced its atypical curve. This group's rapid achievement of asymptote might be at least partially explained as follows: Escape from an aversive situation was sufficiently reinforcing to produce a significant rise in response speed over the first four trials. But, by the end of four trials, the knowledge that the confederate was continuing to suffer behind the lowered masonite shutter (possibly accompanied by increasingly vivid representations within subjects of the unseen suffering) had become sufficiently noxious to subjects to offset the effects of reinforcement enough to prevent further increments in response speed.

Beyond the second block of trials leaving the scene was still adequate reward, though, to maintain asymptotic performance. In a real-life emergency it may be easier, and consequently more reinforcing, to "blot out" the ongoing suffering of an abandoned victim by putting many miles rather than a thin piece of masonite between oneself and "the scene."

Finally, an interesting alternative explanation of the present experiment's leaving-the-scene condition and of the leaving-the-scene group's performance in terms of social facilitation theory is worthy of brief mention. Weiss and Miller (1971) cited evidence in the social facilitation literature that the drive aroused in the performer of some task by the presence of an audience is aversive in nature. The authors suggested that, in different circumstances, this aversive drive might be more specifically labeled fear, shame, embarrassment, effectance, or guilt. In addition, the authors proposed that if audience-induced drive is aversive it might be studied in a number of standard experimental paradigms in which the effects of aversive drives are examined. One of these paradigms is instrumental escape conditioning. Weiss and Miller suggested that a subject might learn to make an instrumental response the reinforcement for which is the termination of audience observation. While the role of the subject as an observer of the confederate in the present experiment has been stressed, it may be fruitful to note that the confederate was also an audience for the subject's performance of his task. If the

confederate's reactions to stress aroused fear, shame, guilt, or some other aversive drive in subjects, a possible reinforcement for the leaving-the-scene group's instrumental responses may have been the termination of audience observation by hiding the audience behind a masonite shutter.

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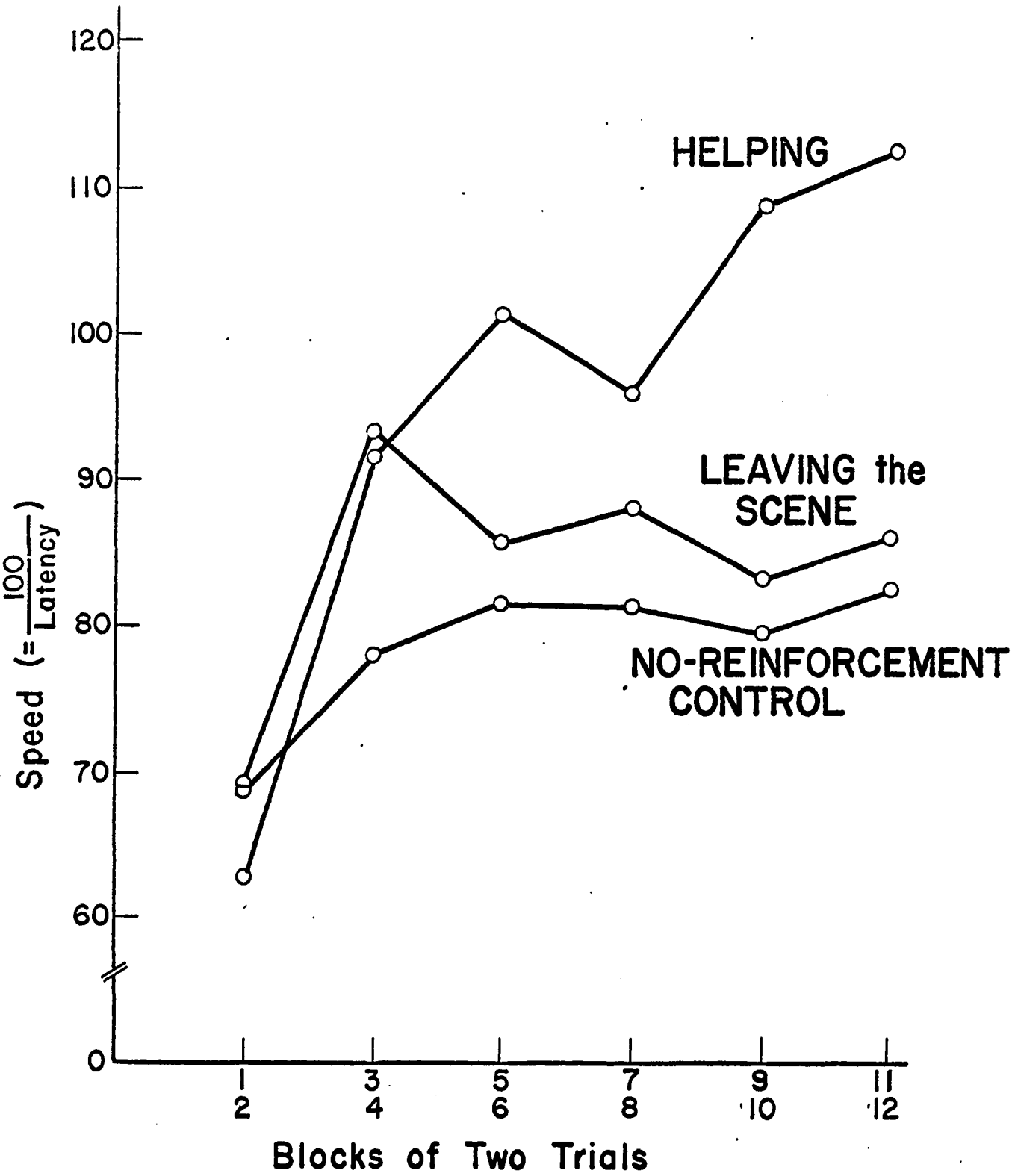
Figure Caption

1. Curves of instrumental response speed under three reinforcement conditions: helping; leaving the scene; and no-reinforcement control.


120
110
100
90
80
70
60
0
Speed (= 100 / Latency)
HELPING
LEAVING the SCENE
NO-REINFORCEMENT CONTROL
1 2
3 4
5 6
7 8
9 10
11 12
Blocks of Two Trials

APPENDIX A

PROSPECTUS

PROSPECTUS

CHAPTER I

INTRODUCTION

The present study involves an attempt to determine the extent to which helping a suffering person within a particular experimental situation is altruistically or nonaltruistically motivated. The following will consist of: (1) a review of historically significant nonexperimental thought on the role of altruism in human behavior; (2) a review of the recent experimental literature on human altruistic behavior; and (3) the present experimental proposal.

> From Plato to the time of Comte virtually all theories of the social nature of man were tied to, and incidental to, theories of the state. For this reason we may rightly say that up to a century ago social psychology was largely a branch of political philosophy (Allport, 1968, p. 5).

Throughout history man has found it necessary and, for the most part, desirable to live in cooperative groups. The prevalence of altruistic behavior amongst the cooperation and "mutual aid" characteristic of ordered societies remains a moot question.

In analyzing the formation of societies philosophers have typically contrasted "civilized" man living under

governments and laws with their conceptions of unrestrained "primitive" man. Beginning with Plato a number of "rationalist" philosophers have contended that men "agree" to group together for the general welfare of all, while Aristotle preceded a line of "irrationalists" who postulated social instincts driving man (see historical reviews by Allport, 1950, 1968; Coser, 1971; Runkle, 1968; Sabine, 1961; Stuart, 1933). Plato prefaced the "social contract" theories of Hobbes, Locke, and Rousseau with the view that man needed society for maximum happiness, that group membership provided benefits unavailable to solitary man. As would Smith, Comte, Darwin, Spencer, Kropotkin, and McDougall, Aristotle contended that societies are formed because of man's innate affiliative or gregarious motives; man was born to be a "social animal."

As had Machiavelli a century before him, Hobbes (in 1651) denounced man as a totally pleasure-seeking, self-centered entity (e.g., see Runkle, 1968; Sabine, 1961). To Hobbes, man free in nature seeks only personal power, and all men are, therefore, each other's enemies. The essence of human nature is expressed by "mutual harm." Positive forms of social behavior are allowed to occur only after government and order are forced upon man by an absolute sovereignty, the "Leviathan." But Hobbes believed man's basic egoism made sustained cooperation impossible; when serving others no longer serves oneself, man will seek other

means for personal gain. There is no true altruism, only "enlightened self-interest."

Locke (in the late 17th century) and Rousseau (in the 18th century) agreed with Hobbes that societies are formed by "social contract" between people, but assumed entirely different social motivations for such action (see Runkle, 1968; Sabine, 1961). Locke believed that by "natural law" man had the right to life, liberty, and property. Government's purpose was to create optimum conditions under which all men could pursue freedom and happiness while exercising a God-given moral obligation not to impede others' ability to do the same; government did not need to keep men from destroying each other since men were not naturally aggressive. Rousseau argued that the drive for self-preservation, which Hobbes believed was dominant in man, was tempered by the virtuous nature of primitive man as well as by his natural compassion for the suffering of others. For both Locke and Rousseau government should retain power only as long as it earned the "public trust" by protecting man's "natural rights" (Locke) and following the "general will" (Rousseau).

The "Utilitarian Ethics" of Bentham (at the end of the 18th century) agreed with Hobbes' contentions that man was entirely devoted to attainment of pleasure and that altruistic acts were actually egoistically motivated (see Allport, 1968; Runkle, 1968). For Bentham the sole determination of right and wrong was made on the basis of whatever permitted "the

greatest happiness of the greatest number." Bentham did not, however, share Hobbes' view of man as a power-hungry, destructive brute. Man was considered a logical, rational being who weighs alternative actions by a kind of "hedonistic calculus" in order to maximize his pleasure and minimize his pain. Bentham also opposed the establishment of government by a formal social contract. A laissez-faire government and economic system involving as little intervention as possible into people's private pursuits of pleasure was preferred.

Innate sympathy[1]

Adam Smith (1759, 1776) and Herbert Spencer (1855), as well as Bentham's own student, J.S. Mill, in 1863 (e.g., see Runkle, 1968), favored hedonistic theories of human behavior and supported laissez-faire government policies but felt compelled to "soften their line" and speak of man's innate capacity for sympathy and of man as a social animal. Altruism was not merely "enlightened self-interest."

Smith (1759) believed that there is something in man's nature which fosters an "unselfish interest" in others. Instinctive sympathetic reactions to the emotions of others accounted for pro-social behavior. Smith was the first of many to propose two basic kinds of sympathy: the quick,

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[1]Both "sympathy" and "empathy" have been frequently proposed, and often used interchangeably, as mediating processes to explain altruistic behavior; for a clarification of their meanings and historical review of the concepts see Wispé, 1967.

reflexive mimicry of someone else's emotional expression and the conscious, reflective compassion which follows "changing places in fancy with the sufferer" (1759, 1948, p. 74). Justice, the pillar of society, was supposedly based on the social awareness provided by conscious, reflective sympathy with both the aggressor and the aggrieved.

Spencer's (1855) view of sympathy as an explanation of man's affiliative tendencies was similar to that of Smith. As a result of close social contact in past struggles for survival, Spencer believed that sympathy for others' emotions had been passed on through evolution among humans and many animal species. Both "egoistic and altruistic sentiments" are important to a viable society. Spencer felt, however, that egoistic activities were clearly more essential to "survival of the fittest." Sympathy and resultant gregarious tendencies existed merely because of some "evolutionary mutation" and, if not controlled and confided to family life, would lead to coddling and the welfare state.

Ward (1883) shared most of Spencer's ideas. To Ward altruism was simply an indirect form of egoism sympathetically aroused. When a person sympathizes with someone in pain, he subsequently feels real pain himself. Altruistic acts occur in order that the sympathizer can escape his own pain as a consequence of relieving the pain of the sufferer. But this "egoistic basis of altruism" represented "the great moral paradox" for Ward (see comments by Wispé, 1967). Why should

sympathy exist at all in basically egoistic man?

McDougall (1908, 1923) provided a solution to Ward's "moral paradox" by reconceiving the concept of sympathy. Sympathy, by itself, was considered an emotionally neutral process which has no special relationship to altruism. According to McDougall, we are born with a whole series of instincts which, when excited, elicit a series of corresponding emotions. What was called "primitive passive sympathy" referred to "a special perceptual adaptation of each of the principal instincts for the reception of the emotional expression of that same instinct in others" (Wispé, 1967, p. 444). Thus, pleasure or pain in someone can lead to the "sympathetic induction" of the same emotion in an observer. But observing pain in others "simply inclines us, then, to avoid the neighborhood of the distressed" (McDougall (1908), 1950, p. 78) and to reduce our own pain by the quickest means available, including simply averting our gaze from the distressing sight. Altruism occurs only when sympathy occasions the induction of what were called "the tender emotions" which overcome our natural aversion to pain and "draws us near to the suffering . . . to alleviate their distress" (McDougall, (1908) 1950, p. 78).

In the 1920s theories of large-scale instinctive control of human behavior began to lose favor. Theories of instinctive sympathy have been discarded in the ever-growing literature on the experimental analysis of gregarious behavior, and

conditioned response principles have generally been adopted to explain reflexive sympathy and the sympathetic induction of emotions (F.H. Allport, 1924; G.W. Allport, 1968; Humphrey, 1922).

Science's "flight from tenderness"

Whatever his motivations, most writers would agree that man displays both aggressive and affiliative tendencies. Yet, until recently, the former have received much more attention. In 1935 Suttie (cited in Allport, 1950, 1968) spoke of a scientific "flight from tenderness." Suttie believed that in repudiating theology modern science had overreacted, fearing that if it investigated affiliative tendencies it would appear sentimental and subjective. Allport (1950) believed that, in a world in which love and affiliation are basic, these emotions are taken for granted and hostility receives more attention because of its sharp contrast with this background of peaceful cooperation. Schulweis (1964) contended that there is a "bias against man" inherited from denunciations of man by Machiavelli and Hobbes and more recently by Freud. Freud's "pessimistic account of man's essential nature," viewing love and altruism as ego-defensive behaviors and sublimations of sexual motives, had colored psychology's view of man. A popular moral philosophy states "scratch an altruistic act and you will find lurking there a coarse and base motive" (Schulweis, 1964, p. 364).

Despite his considerable impact on sociology and social psychology Comte (see Caird, 1893; Coser, 1971), who supposedly coined the term "altruism," could not convince social scientists of the ultimate triumph of altruism over egoism. Comte had wanted science to lead this humanitarian victory through formation of a "positivist" religion within a scientific deterministic framework and with the battle cry "Live for Others."

A major source of the "bias against man" in the late nineteenth and early twentieth centuries was the popular adherence to a one-sided interpretation of Darwin's (1859) theory of evolution stressing only the egoistic side of man. Spencer (1855) considered altruistic behavior an "evolutionary mutation" and in 1901 (see Allee, 1943) interpreted Darwin to indicate that egoism was "an ultimate principle of biological conduct."

This misreading of Darwin was taken to the extreme in 1888 by Thomas Huxley's "Struggle for Existence Manifesto" (reprinted in Kropotkin, 1955). Huxley proclaimed that "natural man" is at war with all in a struggle for existence while "ethical man" is merely a product of society's laws which force morality on man. While the ten commandments have held man's "deep-seated organic impulses" in check, Huxley believed a much older and more spontaneously obeyed commandment to be "increase and multiply." Historically, as population has increased and food supply decreased man has broken loose from societal controls and entered a Hobbesian struggle for existence.

Huxley's essay produced the first of a series of replies from a number of authors who generally accepted evolution theory but considered survival of the cooperative at least as significant as "survival of the fittest." In a series of articles from 1890 to 1896 Kropotkin (1955) argued that "mutual aid" had been the neglected aspect of Darwinism and was "as much a law of nature as mutual struggle [p. 307]." Kropotkin had traveled widely and read extensively expecting to find abundant evidence of the struggle for existence among humans and animals. While he found much to indicate struggle for survival, the struggle seemed to be as frequently against adverse natural circumstances as against competitors for food and territory. Kropotkin found the history of man filled with instances of cooperative efforts from primitive tribal development to the formation of labor guilds in medieval society. His study of animal life revealed numerous instances of cooperation for mutual defense and mutual support: "the ants and termites have renounced the 'Hobbesian war,' and they are better for it" (Kropotkin, 1955, p. 14). The prevalence of "mutual aid" was attributed to the development through evolution of a broad "instinct of solidarity" guiding behavior according to the principle that each individual's happiness is closely dependent on the happiness of all.

Kropotkin (1955) considered his ideas mere elaborations of conclusions already drawn by Darwin, and an examination of Darwin (1871) supports this claim. Darwin (1871) gave many

Kropotkin-like examples of "mutual aid" as well as of frequent individual sacrifice for the "general good of the community" and "preservation of the species." He proposed that social instincts had developed through natural selection and lead to the growth of sympathy and "fellow-feeling" among members of particular species. Darwin (1871) had found that "those communities which included the greatest number of the most sympathetic members, would flourish best and rear the greatest number of offspring [p. 79]."

A number of intellectual disciples of Kropotkin have called attention to the survival value of altruistic and cooperative behavior. Allee (1943), Campbell (1965), Holmes (1945), and Montagu (1950) have all contended that gregarious tendencies are motivated by innate organic drives which have historically maintained the community life of various species. Holmes (1945) called reproduction "the basic altruistic activity from which all others are the lineal descendants [p. 111]," and gave as an extreme example the female thread worm who sacrifices her life for the preservation of her species. In order for thread worm offspring to be born, they are first hatched from eggs inside the mother's body and then proceed to eat their way from her insides to the outside world. Durkheim (1951) spoke of instances of human "altruistic suicide" which occur in a number of societies and are presumably important to the preservation of societal customs and social structure. Campbell (1965) argued that, since altruistic acts

seem as essential to survival as egoistic acts, it may not be correct to consider them any more morally motivated.

Recent experimental literature

Researchers of human altruistic behavior have generally "skirted the problem associated with the specification of altruism by employing operational definitions" (Krebs, 1970, p. 259). The most commonly accepted operational definition of altruism has been that of helping behavior performed in the absence of externally administered rewards or the anticipation of such rewards. Despite considerable disagreement concerning the nature of underlying motivations for altruistic behavior, behavior congruent with the above operational definition of altruism has been consistently found in a variety of experimental situations (see reviews by Bryan & London, 1970; Krebs, 1970; Macaulay & Berkowitz, 1970; Midlarsky, 1968). The present review will not attempt to consider the almost unmanageably large experimental literature on altruism in its entirety, but will concentrate on a presentation of studies representative of research inspired by major recent theoretical accounts of altruism.

Most studies of human altruistic behavior have involved a staged experimental situation in which a subject is presented with the opportunity to help someone (an experimental confederate) in need of help because of some contrived situational dependence (e.g., help is needed to win a prize or to turn off electric shock ostensibly received by the confederate), or the

opportunity to help in order to correct some wrong previously committed by the subject (e.g., supposedly having administered electric shock to a confederate, prevented a confederate from winning a prize, or ruined an experiment for the experimenter).

Most theories have suggested that a subject who is confronted with such opportunities to help and then proceeds to help is motivated to act in order to conform to an internalized norm of behavior or to reduce some feeling of discomfort or tension (e.g., guilt, inequity-induced tension, empathy) resulting from the perception of the dependent person's predicament.

Social responsibility norm. In a highly productive series of experiments Berkowitz and his associates (Berkowitz & Daniels, 1963; Berkowitz & Daniels, 1964; Berkowitz & Connor, 1966; Berkowitz, Klanderman, & Harris, 1964; Daniels & Berkowitz, 1963; Goranson & Berkowitz, 1966) reliably demonstrated that a subject will help a dependent person in the absence of external reward, even when the subject believed that neither the help recipient nor the experimenter was aware of his actions.

In the prototype of these experiments Berkowitz & Daniels, (1963) recruited subjects in same-sex pairs. The subjects were told that: (1) the purpose of the experiment was to develop a test of supervisory ability; (2) one of the two subjects would be the "supervisor" whose task would be to write instructions for the other subject, the "worker," who would be asked to construct some paper boxes; and (3) the two would be in separate

rooms and the supervisor would communicate with the worker through notes. Both subjects were then separately informed that each had been chosen as the worker and that the other subject would be the supervisor. The "supervisor instructions" subsequently received by the workers were actually written by the experimenter. Each worker then had a 15-minute practice period and a 30-minute work period in which to construct as many paper boxes as he wished. The practice period yielded a baseline measure of performance. The principal dependent variable was a difference score indicating improvement in performance (increase in number of boxes constructed) from practice period to work period (experimental manipulations being introduced after the practice period).

There were six groups of subjects. Subjects were told that the supervisor's chances of getting a good rating were very much dependent on how many boxes they constructed ("High-dependency") or that the supervisor's rating would be solely determined by the quality of the instructions he wrote ("Low-dependency"). The supervisor supposedly either received two reports on the subject's productivity during the work period ("High-awareness") or received no reports ("Low-awareness"). When all subjects had been run in the experiment, the supervisor with the highest rating would either win a $5 prize ("High-reward") or would simply be informed of his achievement ("Low-reward").

In two similar experiments Berkowitz & Daniels (1963) found a significant dependency effect, with the high-dependency group working significantly harder (constructing more boxes) for the supervisor than the low-dependency group. Neither main effects for supervisor reward nor for supervisor awareness were found. There was an awareness X dependency interaction, with high supervisor awareness producing more work than low awareness in the low-dependency condition but not in the high-dependency condition. The results were interpreted as indicating that, although supervisor awareness (and potential supervisor approval of subject's performance) made a difference when subjects were given little other motivation to work hard (i.e., low-dependency subjects weren't working to help a supervisor dependent on them for a good rating), when the supervisor was highly dependent on the subject's performance neither the reward the supervisor might win nor the degree of the supervisor's awareness of subject productivity mattered.

Berkowitz and Daniels (1963) proposed that as a result of socialization people learn a norm of social responsibility which states that one should help someone who is dependent on him, even though there may be no reward for doing so. Subjects in the high-dependency condition had conformed to the norm of social responsibility by working hard to help the dependent supervisor. This supposition was supported by a post-experimental questionnaire on which high-dependency subjects reported

having experienced greater feelings of obligation to help the supervisor than did low-dependency subjects. Further evidence of the strength of the dependency variable in eliciting helping behavior came from Berkowitz, Klanderman, and Harris (1964) who found no effect on subject performance of experimenter awareness of how many boxes were constructed, and from Berkowitz and Connor (1966) who found that the greater the dependence of the supervisor's rating on the subject's productivity, expressed in terms of different percentages of dependency, the harder the subject worked.

On the basis of a pre-experimental "personality questionnaire," Daniels and Berkowitz (1963) told subjects they would either probably like ("High-liking") or dislike ("Low-liking") the supervisor. High-liking subjects constructed significantly more boxes than did low-liking subjects for a high-dependent supervisor but not for a low-dependent supervisor. The authors concluded that the social responsibility norm to help a dependent person becomes more salient when that person is liked, and less salient when he is not liked.

In addition to a situation in which a dependent person is not liked, other instances in which it was found that the positive relationship between dependency and helping was dampened by some factor which presumably lessens the salience of the social responsibility norm include: (1) when the dependence of the needy person is voluntary rather than the result of circumstances beyond his control (Schopler &

Matthews, 1965); (2) when the helper feels pressured to help (Brehm & Cole, 1966; Goodstadt, 1971); (3) when helping may cost the helper a loss of status (Berkowitz, 1970; Schopler & Bateson, 1965) or a large amount of money (Schaps, 1972; Wagner & Wheeler, 1969); (4) when subjects had previously witnessed an experimental confederate act as a "negative" or "selfish model" who denied help to someone in need as opposed to having seen a "charitable" or "generous model" help someone (e.g., Test & Bryan, 1969; Wagner & Wheeler, 1969); (5) when subjects had done poorly on a prior, irrelevant task (Berkowitz & Connor, 1966); (6) when the subject himself had been denied help on a prior task (Berkowitz & Daniels, 1964; Goranson & Berkowitz, 1966); and (7) when the subject had received compulsory as opposed to voluntary prior help (Goranson & Berkowitz, 1966).

Norm of reciprocity. Studies by Berkowitz and Daniels (1964) and Goranson and Berkowitz (1966) found that a subject's receipt of prior help increased the amount of help he subsequently gave, presumably by increasing the salience of the social responsibility norm for that particular situation. Goranson and Berkowitz (1966), however, also found subjects to be more helpful to the same person who had provided the prior help than to a different person. They concluded that while conformity to the social responsibility norm had caused subjects to help someone who had not given them prior help, conformity to a possibly stronger norm of reciprocity (Gouldner, 1960) produced greater helping of someone to whom

the subjects felt indebted. Gouldner (1960) had proposed that a stabilizing factor in most societies is the obligation most people feel to help those who have previously helped them, i.e., to conform to a norm of reciprocity. Goranson and Berkowitz (1966) suggested as an alternative to conformity to the social responsibility norm, the possibility that subjects help dependent strangers as well as those who had given them prior help because of a "generalized norm of reciprocity" stating that we should help people similar to those who have helped us.

Test and Bryan (1969) found subjects who had received prior help to be more helpful than those who had not, yet not to be any more helpful than non-helped subjects who had witnessed a third party (a "model") help the dependent person. The authors concluded that the subjects who had received prior help were not conforming to a generalized reciprocity norm when they helped the dependent person. It was suggested that receiving prior help had established a situational norm of helping in the same way that merely witnessing the act of helping had; the helpers in both situations had acted as models of proper behavior. Hence, the study offered evidence that the norm of social responsibility may be made more salient by either receiving prior help or witnessing prior help to someone else.

Greenglass (1969) found evidence for a "negative (generalized) norm of reciprocity" for subjects who had been previously harmed (i.e., the more similar the dependent person

needing help to the person who had harmed the subject, the less help the subject gave him), but support for the social responsibility norm position for subjects who had received prior help (i.e., prior help elicited more help from subjects than no prior help regardless of the similarity of the dependent person to the prior helper).

Darley and Latané (1970) argued that norms are "rather unimportant determinants of behavior in specific helping situations, and that they should rarely be invoked unless all other alternative explanations fail /p. 857." They felt that norms are so general and so numerous that there probably exists a norm to fit every occasion. The remainder of this review will concern authors who apparently agreed with Darley and Latané and have postulated more specific mechanisms or processes to account for altruistic behavior.

Guilt. A number of experiments (e.g., Carlsmith & Gross, 1969; Darlington & Macker, 1966; Freedman, Wallington, & Bless, 1967; Regan, Williams, & Sparling, 1972; Wallace & Sadalla, 1966) have found indications that altruistic behavior is at least sometimes motivated by guilt felt by subjects who believe they've committed some transgression.

Darlington and Macker (1966) found that significantly more experimental subjects who were told they had failed to earn experimental credit for their partner by doing poorly on three paper-and-pencil tasks volunteered to give blood to a local hospital than did controls whose partner hadn't been eligible for experimental credit.

Wallace and Sadalla (1966) found that significantly more "caught transgressors" (whose apparent responsibility for ruining the experiment by breaking the apparatus became known to the experimenter) volunteered to receive electric shock in a future experiment than did either "non-caught transgressors" (whose transgression didn't become known to the experimenter) or non-transgressing control subjects. The authors labeled the volunteering for the shock experiment "atonement through self-punishment" and concluded that "non-caught transgressors" did not differ from controls because "social recognition" of transgression was a necessary pre-condition for self-punitive behavior. The authors suggested that self-punishment is an attempt by a transgressor to reduce or prevent externally administered punishment, which public knowledge of a transgression makes more likely (similar to the account of self-punishment by Aronfreed, 1968).

Three experiments by Freedman, Wallington, and Bless (1967) revealed that subjects induced to lie about receiving a pre-experimental "tip off" from a confederate concerning the nature of the upcoming experiment and also subjects who knocked over a pile of index cards belonging to a graduate student were more willing to volunteer for a future experiment than were non-transgressors. In the third of these experiments significantly more subjects who knocked over the graduate student's cards volunteered for an experiment run by that graduate student than did controls, but only when told that they would not be

meeting the graduate student. The authors speculated that the subjects in this last experiment had preferred to avoid contact with the person they had "harmed" presumably, as Wallace and Sadalla (1966) suggested, to avoid possible retaliation.

Carlsmith and Gross (1969) had subjects either "deliver electric shock" to a confederate or to simply sound a buzzer whenever the confederate made an "incorrect response" in a "concept-formation" learning task. The "injured" confederate subsequently asked the subject to help him phone people about signing a petition to save some trees from being torn down for a freeway. Seventy-five percent of the subjects who had "administered shock" but only 25 percent of the controls volunteered. In a second experiment, a "third subject" (another confederate) witnessed the subject's transgression and later elicited significantly more volunteers to help him phone people to sign the petition than did the "shocked" confederate. Thus, again evidence was found indicating that "guilty" subjects are more likely than non-guilty subjects to comply with requests for help but that they prefer to avoid future interaction with someone they have harmed. It would also seem that making restitution is often an unpopular means of expiating guilt.

Regan, Williams, and Sparling (1972) pointed out that previous guilt studies in which a harm-doer complied with a direct request for help have confounded compliance and altruism.

A direct request for compliance can pressure a subject, and the authors believed that guilt leads to genuine altruism as well as mere compliance. The authors, therefore, reported a field experiment which permitted subjects the opportunity for voluntary altruism--for "voluntary expiation of guilt." Regan, Williams, and Sparling (1972) confirmed their test of this "strong guilt hypothesis" by finding that significantly more subjects informed a confederate that she had lost some candy from a broken grocery bag when they believed they had previously broken someone's camera than when they did not.

Reactive guilt and anticipatory guilt. Rawlings (1968) proposed that "studies of guilt-produced altruistic behavior should include an additional control group that witnesses the harm to the victim but is not personally responsible for this harm [p. 377]," in order to determine if personal responsibility is a necessary antecedent of guilt arousal. Rawlings (1968) ran a two-phase experiment involving only female subjects. In the first phase, subjects were paired with a partner (a confederate) in an "auditory-discrimination task." On each of a number of trials the subject was presented with a tonal pattern and was asked to estimate how many discrete tones were contained within the pattern. The subject made an "incorrect estimate" on ten of 16 trials. In the "guilt" condition, the subject's partner was "shocked" every time the subject was wrong; subjects were made to feel personally responsible for harm-doing. In an "observation group," the partner was supposedly shocked

on a random schedule unrelated to subjects' estimates; subjects witnessed but were not responsible for harm-doing. In a "non-shock control group," neither the subject nor her partner was shocked, and in a "shock control group" both were shocked when the subject was "incorrect."

In the experiment's second phase, all subjects were treated alike. They were paired with a different partner (who remained unseen and was actually nonexistent) and served as "instructors" required to teach the partner a concept by giving clue words on a series of trials. On each trial on which the partner "failed to learn the concept" both subject and partner would be shocked. The duration of the shock given the partner was supposedly inversely related to the duration of the subject's shock. At the start of each trial the subject indirectly determined the duration of the partner's shock by setting a dial which determined the duration of her own shock. The dependent measure of altruism was how much shock subjects gave themselves (and indirectly how little they gave the partner) on each trial; the partner did not "learn" the concept until the seventeenth trial. Rawlings found no difference in amount of altruistic behavior between subjects who had been in the "guilt" and "observation" groups, with both groups acting significantly more altruistically (sparing the partner more shock) than the two control groups.

Rawlings (1970) explained the results of this experiment by postulating the existence of two kinds of guilt.

Altruism in the "guilt" condition of the above experiment was motivated by "Reactive Guilt," which is aroused by the knowledge that one has previously committed some transgression; this is the kind of guilt typically studied. Altruistic subjects in the "observation" condition, on the other hand, were motivated by "Anticipatory Guilt," which is aroused by the expectation that failure to act altruistically in a potential helping situation will constitute a violation of the norm of social responsibility (e.g., Berkowitz & Daniels, 1963). Witnessing harm-doing in the first phase of the experiment supposedly increased the salience of the social responsibility norm for "observation-group" subjects, and made them aware that failure to help their partner (by reducing the duration of the partner's shock) in the second phase would violate that norm.

Regan (1971) found evidence that something other than guilt may motivate the altruistic behavior of subjects who have previously witnessed but were not responsible for harm-doing. Witnesses to the "ruin" of a rat experiment being run by the experimenter subsequently gave just as freely to a "charitable fund" as did "responsible" subjects who had, themselves, "ruined" the experiment. However, when half the "responsible-condition" subjects were given the opportunity to "cathart and/or rationalize their guilt," during an interview prior to the request for charity, they later behaved less charitably than subjects who were not interviewed. On the

other hand, there was no decrease in altruism on the part of interviewed "witness-condition" subjects. Regan (1971) reasoned that, while guilt about personal actions was reduced in "responsible" subjects, nonresponsible "witness" subjects were concerned with the injustice of the situation rather than their personal actions. "Witness" subjects were compelled to act charitably in order to reconfirm their belief in a "just world" (see later section of this review on "perceived injustice" as a motive for altruism).

Inequity. Walster, Berscheid, and Walster (1970) presented a formal theoretical alternative to the guilt explanations of the actions of a harm-doer. These authors applied Homan's (1961) concept of "distributive justice" and Adams' (1965) theory of "equity" to helping situations. "Distributive justice" and "equity" described people's desire for a "just return" on their investments. Adams (1965) proposed that a person in a social exchange relationship tends to compare his "inputs" (i.e., traits and behaviors for which he believes he should be rewarded) with those of someone similar to him in order to determine if his "outcomes" (i.e., rewards and satisfactions) are "equitable" or "inequitable" in comparison with those of the other person. The perception of "inequity" creates tension in the perceiver which motivates his restoration of "equity" to the relationship by increasing or decreasing (depending on who is the benefactor of the inequity) either his inputs and/or outcomes or those of the comparison person.

Walster, Berscheid, and Walster (1970, p. 181) defined harm-doing as "the commitment of an act which produces an inequitable relationship," . . . such that the harm-doer's outcome/input ratio becomes greater than that of the "victim." Inequity produces distress in the harm-doer which motivates his restoration of equity to the relationship by an increase in the victim's outcomes (e.g., compensating the victim for the harm done) or a decrease in his own inputs (e.g., self-punishment). The harm-doer can also restore equity by distorting reality and convincing himself that the relationship was indeed equitable. He can justify his harm-doing by derogating the victim (i.e., lowering the victim's inputs so that he appears deserving of his lowered outcomes), denying responsibility for the harm, or minimizing the victim's suffering.

A specific hypothesis of equity theory concerning the justification technique of restoring equity is that the harm-doer will tend to prefer highly credible justifications and avoid justifications likely to be challenged by objective reality. Walster, Berscheid, and Barclay (1967) found that subjects were least likely to resort to cognitive distortions which would be challenged by objective reality.

Another specific hypothesis stated that the more adequate the available compensation, the more likely the harm-doer is to compensate the victim. "Adequacy of compensation" is "the extent to which the compensation would exactly balance the

costs the victim has suffered" (Walster, et al., 1970, p. 187). In an experiment by Berscheid and Walster (1967) members of women's church groups played two "games" with a partner (an experimental confederate) for a reward of green stamps. Each subject and her partner had to correctly answer a minimum number of questions in order to win rewards. The subject was led to believe that she had performed poorly enough to "harm" her partner by depriving her of the reward. In a "second game," the subject either had the same partner as in the "first game" (experimental condition) or a different partner (control condition). This time the subject was told that she and her partner had won rewards. The subject was then given the option of awarding some available "bonus green stamps" to her partner or to donate it to a crippled child. The bonus gave the experimental subjects the chance to compensate the partner they had previously harmed, and the unseen crippled child was merely an outlet for subjects who did not want to compensate their partner yet still wanted to appear generous. Berscheid and Walster found that experimental subjects were significantly more likely to compensate their partner when the available bonus was exactly equal to the number of green stamps they had previously cost their partner than when the bonus was either greater or less than that amount. These differences were not found among control subjects.

Berscheid, Walster, and Barclay (1969) also found previous harm-doers more likely to compensate their victims

with an "adequate" rather than an "excessive" or "insufficient" compensation, but only when given five minutes to consider their decision. No difference between the amounts of the three types of compensation given was found among subjects forced to make an immediate decision. Apparently, time is needed for "excessive" and "insufficient" condition subjects to restore equity by justifying their not compensating their partners.

Examples of restoration of equity through compensatory altruism (e.g., Darlington & Macker, 1966), self-punishment (Freedman, et al., 1967), and derogation of the victim (e.g., Lerner & Simmons, 1966) have been presented in sections of this review appropriate to the theoretical interpretations of their results given by the respective authors themselves.

Experiments by Brock and Buss (1962, 1964) were presented by Walster et al. (1970) as examples of restoration of equity by minimization of harm done (Brock & Buss, 1962) and by denial of responsibility for harming (Brock & Buss, 1964). The harm-doing in these studies was the "administration of electric shock" to an experimental confederate. The authors of these reports described their results as demonstrations of the reduction of "post-aggression dissonance" which followed "forced compliance" to perform attitude-discrepant behavior (i.e., the subjects had indicated their opposition to administering electric shock). That dissonance and equity interpretations can be interchanged is not surprising since

Adams (1965) modeled much of his original equity theory on Festinger's (1957) theory of cognitive dissonance.

Leventhal, Allen, and Kemelgor (1969) used equity theory to explain the behavior of subjects who, themselves, had been the victims of injustice, as well as that of subjects responsible for injustice. Subjects and their partners (confederates) worked a series of arithmetic problems and received a monetary reward for their joint efforts. During the test phase of the experiment, the subjects' partner was allowed to divide the money for the team, and the subjects were then given the option of slightly modifying this division. The major dependent variable was the manner in which subjects modified their partner's division of the money. In seven different conditions, a subject's share of a total of $1.40 ranged from $1.20 to only 2 cents. Results revealed that, in their modifications of their partners' division of the money, underrewarded subjects increased their share of the total and overrewarded subjects decreased their share significantly more than other subjects. In addition, a postexperimental questionnaire indicated that the level of tension experienced by the subjects (as a result of the way the money was divided) increased as the magnitude of inequity increased, i.e., as the subjects' initial share of the money moved further away from an equal division of the winnings.

Perceived injustice. The research of Lerner and Simmons (e.g., Lerner, 1970; Lerner, 1971; Lerner & Simmons, 1966;

Simmons & Lerner, 1968) sought to explain why people can be "both cruelly indifferent and compassionately concerned about the suffering of others" (Lerner, 1970, p. 207). An alternative to the equity theory explanation of why subjects might derogate rather than compensate someone dependent on them for help was sought. The basic assumption of this research was that people have a need to believe that they live in a just world, a world in which people get what they deserve. Any perception of undeserved suffering, i.e., of someone suffering through no fault of his own, constitutes a "perceived injustice" and threatens one's belief in a just world. Rather than discard his belief about the nature of the world, the observer is motivated to "reestablish justice." He can either compensate the victim for his suffering or cognitively distort the situation to persuade himself that the victim deserved his fate. Derogating the victim, i.e., ascribing to him undesirable personality traits, will reestablish justice for the observer.

In a study of Lerner and Simmons (1966) subjects observed "a study of the effect of strong negative reinforcement on pair-associate learning." Subjects watched a "closed circuit T.V." (actually videotaped) showing of a female confederate "receiving" electric shock for each "incorrect" response made. Subjects were then divided into six groups. In two conditions in which subjects were given the chance to compensate the confederate for her "suffering," they were told that the

experiment was half over and that they should vote on whether the confederate would receive more shock, or receive money (positive reinforcement) for "correct" responses, or receive neither shock nor money in the second half of the experiment. Subjects were then either told ("Known reward") that the confederate would get money or were not told ("Uncertain reward decision") what decision had been made. In four conditions in which compensating the victim was not possible, subjects were told that: (1) the experiment was at its mid-point ("Mid-point") and that the confederate would be shocked in the second half; (2) the experiment had ended ("End-point"); (3) they had actually seen a tape of an experiment already finished ("Past event"); and (4) the experiment had ended and also that the confederate had, against her wishes, decided to undergo shock in the experiment so that the subject could receive her experimental credit ("Martyr"). All subjects then rated the personality of the confederate on a questionnaire.

Both "known-reward" and "uncertain-reward-decision" subjects were expected to compensate the confederate by voting for positive reinforcement for the second half of the experiment, and almost all these subjects did so. Since compensating the confederate should reestablish justice, both groups were expected to rate the confederate positively in comparison with the other, noncompensating groups. "Known-reward" subjects did as expected but "uncertain-reward-decision" subjects generally rated the confederate negatively. Apparently subjects

had to be informed that their vote for compensating the confederate had led to actual compensation in order for justice to be fully reestablished; otherwise, subjects will "reject the victim."

"Past-event," "end-point," and "mid-point" subjects were all expected to perceive injustice and to reestablish justice by devaluing the confederate. These subjects behaved as expected with "mid-point" subjects rating the confederate the most negatively, since the knowledge of further "shocking" of the confederate (as opposed to thinking the experiment was over) presumably caused "mid-point" subjects to perceive the most injustice in their situation. The behavior of the "martyr" subjects was the least predictable. It was expected that subjects might rate the confederate positively for being a martyr who had "received" shock so that subjects could earn experimental credit. The somewhat surprising result was that "martyr-condition" subjects rated the confederate as negatively as did "mid-point" subjects. "Martyr" subjects apparently differed from the others in not viewing the confederate as an "innocent victim." They rated the confederate negatively because the confederate had foolishly chosen to be shocked and, therefore, justly met the fate she deserved. Contrary to common sense, the "martyr-condition" confederate's altruistic behavior ("suffering" for the subject's sake) did not win her a positive rating; instead, it threatened the subject's belief in a just world.

In a follow-up to the above experiment, Lerner (1971) further investigated the reaction of subjects to an altruistically motivated "martyr." Subjects again rated negatively a confederate who had reluctantly agreed to be "shocked" so that subjects could earn credit. However, subjects did not devalue a confederate who was only acting like someone being shocked or who was monetarily compensated by the experimenter for "suffering." There is no injustice in not being shocked or in being paid for being shocked. Lerner (1971) also investigated the possibility that subjects devalued a non-compensated "martyr" not to establish justice in an unjust situation but because they felt guilty that the confederate had "suffered" for their sake. One of the experiments Lerner reported, therefore, involved subjects from a sociology class not eligible for experimental credit. They were included in a group of observers who watched the confederate "receive" shock on "closed circuit T.V." Subjects were told that some of the observers were psychology students who would earn credit as a result of the confederate's "suffering." Sociology-subjects still rated the confederate negatively, even though they had no reason to feel guilty about the confederate's actions.

Simmons and Lerner (1968) studied the effects of a prior work experience on the probability that subjects will act to correct an unjust situation. The experiment involved subjects in a two-phase work experience. In the first phase of a

Berkowitz-type supervisor-worker situation (e.g., Berkowitz & Daniels, 1963) subjects were supervisors who wrote instructions to workers on how to construct paper envelopes. Workers (not seen by subjects) then supposedly worked to win a money prize for their supervisors. The more envelopes the worker made, the larger the supervisor's prize. Subjects were either rewarded by a good worker performance ("Prior reward") or betrayed by a poor worker ("Fail-betrayed"). In the second work session, subjects became workers with the chance to help a supervisor who had also been either rewarded or betrayed.

Simmons and Lerner (1968) reasoned that subjects who themselves had experienced an injustice (i.e., "fail-betrayed" subjects) should be more highly motivated to compensate a partner for a prior injustice suffered by the partner than will subjects who have not personally experienced a prior injustice (i.e., "prior reward" subjects). The authors predicted and results confirmed the predictions that "fail-betrayed" subjects would make significantly more envelopes for a previously betrayed partner than for a previously rewarded partner, while this difference was not as likely to occur (and did not) for "prior-reward" subjects. These results would seem contradictory to those of Berkowitz and Daniels (1964) and others that prior help increased and prior denial of help decreased a subject's tendency to help someone else. It should be noted, however, that Berkowitz and Daniels'

subjects were not given any information about prior unjust treatment of the person needing their help.

Empathy,[2] or vicarious drive. Aronfreed (1968, 1970) pointed out that the common assertion that altruistic behavior occurs in the absence of external reward does not necessarily imply that the behavior can be maintained without any reinforcing consequences. Specifically, Aronfreed (1968, 1970) proposed that the reinforcement for altruistic behavior takes the form of empathic experience by the help giver of either increases in positive affect or decreases in negative affect in the help recipient. "Empathic or vicarious control is the criterion of the truly altruistic act" (Aronfreed, 1970, p. 105). While helping behavior may originally be controlled by its immediate external outcomes, helping behavior comes under a child's own internalized control during socialization. This internalized control is the result of the conditioned association between reinforcing changes of affectivity in the child and the cues of affect change in another person, called the socializing agent. Simply stated, this conditioning of another's affective experiences to those of the child constitutes the development of the child's capacity for empathy. After the capacity for empathy develops, the child can then learn altruistic acts the sufficient reinforcement for which

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[2]Both "sympathy" and "empathy" have been frequently proposed, and often used interchangeably, as mediating processes to explain altruistic behavior; for a clarification of their meanings and historical review of the concepts see Wispé, 1967.

is the child's empathic affective experience of immediate consequences of such acts for the recipient of his help. Later in the socialization process, the child's ability for cognitive representation of the future consequences of present behavior will develop. His altruistic behavior can then be maintained solely by the anticipation of its consequences for a help recipient, even when the recipient is not physically present.

According to Aronfreed (1970), the establishment of the instrumental value of overt altruistic acts occurs within two different learning paradigms: (1) The "behavior-contingent learning paradigm" involves the empathically-mediated reinforcement of the child's helping behavior. (2) In the "observational learning paradigm" the child observes the helping behavior of a model, or socializing agent. Assuming the child's capacity for empathic affective experience and for cognitive representations of the consequences of behavior has already developed, the child associates certain changes in his own affect with his cognitive representation of the affective consequences for the help-giving model or socializing agent. These conditioned affective responses then generalize to the child's own helping behavior.

Two experiments by Aronfreed and Paskal (reported by Aronfreed, 1968, 1970) demonstrated both behavior-contingent and observational learning of altruistic behavior. In the behavior-contingent learning experiment, girls from six to

eight years old were shown how to work a "choice box" by a female confederate. The first phase of this two-phase experiment involved the attachment of the child's empathically experienced positive affect to expressive cues of positive affect in the confederate. The confederate demonstrated that operating one of two levers on the choice box delivered some candy 60 percent of the time, and that 60 percent of the time the other lever was pressed a red light on the box came on. In the experimental condition, the basic socialization paradigm, the onset of the red light caused the confederate to emit expressive affective cues (i.e., a smile and the excited exclamation "There's the light!") and then to give the child physical affection (i.e., a firm hug). In one control condition the confederate emitted expressive cues but not physical affection, and in the other control condition the child received physical affection but there were no expressive cues.

In the experiment's second phase, the instrumental value for the child of "correct" lever pressing in producing the agent's expressive cues was established. The child now operated the levers herself. The confederate emitted the same expressive cues as in the first experimental phase whenever the child sacrificed her chance for candy and chose the lever which illuminated the red light; the confederate gave no physical affection in this second phase.

The dependent variable was the number of trials on which each child behaved altruistically, i.e., sacrificed candy in

order to press the lever which made the confederate happy (as evidenced by the confederate's expressive cues). Results revealed that only experimental subjects, who had experienced the pairing of expressive cues and physical affection during the training phase, chose the lever which produced expressive cues more frequently than they chose the candy-producing lever in the testing phase. The authors concluded that only in the experimental condition had the reinforcing affective value for the child of the confederate's expressive cues been established. Only in this condition did the confederate's expressive cues come to elicit positive affect in the child through their association with physical affection, which presumably already had positive affective value for the child.

It should be noted that Aronfreed's behavior-contingent learning paradigm for the "socialization of altruistic behavior" conforms closely to the traditional conditioning paradigm for the acquisition and subsequent testing of a secondary reinforcer (e.g., Miller, 1951). The traditional paradigm consists of two phases: (1) the training phase involves the pairing of a neutral stimulus (e.g., expressive cues) with a primary reinforcer (e.g., positive affect from physical affection); (2) the testing phase involves a determination of the secondary reinforcing effects of the previously neutral stimulus (e.g., positive affect elicited by the expressive cues), by presenting that stimulus contingent on the occurrence of a to-be-learned instrumental response (e.g., lever pressing). The behavior-contingent paradigm

also closely resembles Berger's (1962) vicarious-drive account of altruistic behavior. In Berger's terms, positive or negative emotion in a "performer" leads to "vicarious instigation" of a corresponding emotion in an "observer." "Vicarious reinforcement" of an observer's helping behavior would, therefore, follow acts which either aroused positive emotion or reduced negative emotion in the performer, in the form of corresponding changes in the observer's emotions.

Midlarsky and Bryan (1967) ran an experiment similar to the above experiment of Aronfreed and Paskal. Using essentially the same lever-pressing procedure, they found essentially the same results. Midlarsky and Bryan's experiment also included an additional test of altruism. At the end of the lever-pressing portion of their experiment, the authors equated the children in the experimental and control groups for the number of candies which they possessed. The children were then given the opportunity to make an anonymous donation of candy to a fictitious needy child. As in the lever-pressing session, the authors again found the children to whom both expressive cues and physical affection had been presented to be the most altruistic. Midlarsky and Bryan concluded that, for experimental subjects, a "norm of self-sacrifice" internalized during the lever-pressing session had carried over to the "charity" session. Aronfreed (1968) concluded that the altruistic behavior of subjects in the Midlarsky and Bryan experiment was "under the internalized control of their cognitive

representations of the consequences of their actions for others [p. 149]." Subjects could only cognitively anticipate the "needy child's" reactions to the receipt of candy, since the "needy child" was not present.

Aronfreed and Paskal's (Aronfreed, 1968, 1970) demonstration of the observational learning of altruistic behavior involved seven- and eight-year-old girls, an adult female confederate, and a second female confederate approximately the same age as the subjects. For the experimental (basic socialization) condition, the three phases of this experiment respectively involved: (1) conditioning of distress in the subject to the observed "distress" of the adult confederate; (2) observation by the subject of the altruistic behavior of the adult confederate which relieved the subject's distress; and (3) giving the subject the opportunity to demonstrate his observational learning of the altruistic act by relieving the "distress" of a child confederate, the reinforcement for such action presumably being the reduction of empathically-induced distress in the subject. In the first phase, both the subject and the adult confederate wore earphones during the course of a "toy-classification task." At the end of six of the 12 task trials the subject witnessed the confederate react in distress to the apparent receipt of an aversive loud noise in her earphones. The subject then heard a loud noise in her own earphones. In the second phase of the experiment, the subject observed the adult confederate press a lever which

turned off the earphone-noise whenever it occurred. In the third phase (the test phase) the subject did not wear earphones but a child confederate did. On half of the trials in this final phase the subject saw the child confederate react in distress to apparent earphone-noise. The dependent measure of altruism was the number of trials on which the subject pressed the lever which reduced the child confederate's "distress." In four control conditions: (1) the adult confederate's "distress" was not paired with the subject's distress during the initial phase of the experiment; (2) the subject's earphone-noise was very mild; (3) the adult confederate wore earphones but did not emit distress cues; and (4) the adult confederate did not even wear earphones. Results revealed that only the experimental group showed significant altruistic behavior.

Proposal

The present experiment will consider an experimental situation previously investigated by Weiss, Buchanan, Altstatt, and Lombardo (1971) and Weiss, Boyer, Lombardo, and Stich (1973). Those authors found evidence that the roots of altruistic behavior are so deep that people will not only help others while receiving no externally administered reward for doing so, but find the mere act of helping rewarding. Subjects in these studies learned an instrumental response the only apparent reinforcement for which was to deliver an experimental confederate from "electric-shock-induced suffering." In

addition, these experiments revealed some profound similarities between the reinforcing function of the opportunity to help another person and the action of more traditional reinforcers: not only can learning be based on what was called "altruistic reinforcement," but a number of standard reinforcement variables showed the same pattern of effects with an altruistic reinforcer as they do with conventional non-altruistic reinforcers. Analogs of delay of reinforcement, partial reinforcement, magnitude of reinforcement, and intermittent shock effects were found.

In order to confidently label as "altruistic" the reinforcement which produced instrumental response learning (as evidenced by a significant increase in instrumental response speed over conditioning trials) by subjects in Weiss et al. (1971, 1973), the absence of any possible external non-altruistic reward must be conclusively shown. A possible source of external non-altruistic reinforcement is suggested by the literature on altruism in animals (e.g., Lavery & Foley, 1963; Rice, 1964) and on vicarious emotional arousal in humans (e.g., Bandura & Rosenthal, 1966; Berger, 1962; DiLollo & Berger, 1965). These studies provided evidence that, at least in some instances, the sights and sounds of a suffering animal or person constitute direct aversive stimulation to another animal of the same species or to another person, and that this stimulation leads to emotional arousal and increased activity in the "observer." If the "suffering" of the experimental

confederate constitutes direct aversive stimulation and produces emotional arousal or drive induction for observing subjects in the Weiss et al. (1971, 1973) experimental situation, then the removal of the "suffering" from the subjects' presence by any means should produce some reduction of emotion or drive and be at least somewhat reinforcing for subjects. If the aversive "suffering" of the confederate can be removed from the subjects' presence by some non-altruistic means, by some method which does not involve helping to relieve the confederate's "suffering," subjects might learn an instrumental response for this entirely non-altruistic reinforcement. If subjects will learn an instrumental response which does not involve helping the confederate, it is conceivable, then, that the reinforcement for subjects who learn a response which helps the confederate is also non-altruistic, or at least partially non-altruistic in nature.

The present experiment will contain three groups of subjects: (1) a Helping group for which a subject's instrumental response will "turn off" shock to the experimental confederate and cause the confederate to relax for ten seconds at the end of each of the 12 conditioning trials; (2) a No-Reinforcement Control group for which an instrumental response will do nothing but mark the end of each trial, the confederate continuing to "receive" shock and to "suffer"; and (3) a Leaving-the-Scene group for which a subject's response does not "turn off" the confederate's shock, but does cause a

masonite shutter to be lowered between the subject and the confederate at the end of each trial removing the confederate and his "suffering" from "the scene" for ten seconds.

In the present experiment the instrumental response will be pushing a button, and the dependent variable will be instrumental response speed (1/latency). The helping and no-reinforcement control groups are similar to conditions used in Weiss et al. (1971, 1973) and their performance is, therefore, relatively predictable, but it is not certain how subjects in the novel leaving-the-scene group will behave. Nevertheless, two specific hypotheses are ventured: (1) Response speeds for both helping and leaving-the-scene groups will significantly increase over trials (with the response-contingent events in both groups proving to be reinforcing), while those for no-reinforcement controls will not increase; (2) Asymptotic response speeds will have a specified rank order, i.e., asymptotic speed for the helping group will be faster than that of the leaving-the-scene group, and the control group will have the slowest speed (i.e., the tentative assumption is that helping will be more reinforcing than leaving the scene).

CHAPTER II

METHOD AND PROCEDURE

Subjects

A sample of 75 undergraduate volunteer subjects will be selected from the Psych-1 subject pool at the University of Oklahoma. The subjects will be randomly assigned to three groups with the provision that they be completely counterbalanced so that: there will be 25 subjects per group, subject and experimental confederate will always be the same sex, and that each of the seven confederates to be used will run the same number of subjects in each group.

Deception, masking task, and confederates

A deception will be used to mask the learning task so that the conditioning process will not be overridden by the subjects' normal use of their higher mental processes (Spence, 1966). The experiment will be represented as a study of performance of a complex motor task under stress, and of evaluation of that performance by a naive, disinterested observer. It will be explained that in aviation psychology such knowledge is "becoming more and more important these days, as such things as flying or directing aircraft get more and more specialized and complex."

A confederate of the experimenter will sit beneath a bright floodlamp inside a wooden booth and ostensibly receive continuous, "painful but harmless" electric shock while trying to track a target on a screen. Each subject's job will be to observe the confederate through an observation window set in one of the four walls of the tracking booth and to evaluate his performance. The apparatus will provide necessary paraphernalia for the confederate's tracking task and for the "recording" of the subject's evaluations.

The reinforcement for subjects within one of the two experimental groups, the helping group, will be the offset of shock to the confederate, signalled by a noticeable relaxing of the confederate and by the offset of the floodlamp. This reinforcement will occur at the end of each of the 12 conditioning trials which will be referred to as a brief, preprogrammed "between-cycles" rest period for the confederate. What is expected to serve as reinforcement for the second experimental group, the leaving-the-scene group, will be the hiding of the "suffering" confederate behind a masonite shutter which will be lowered over the observation window set in the confederate's booth during each inter-trial period. This event will be presented as a "between-cycles" interval in which subjects are deliberately removed from the evaluation situation for a time so that they can then enter each new "cycle" (when the shutter is raised and the "distressed" confederate reappears) as if it is an entirely different

situation in which spontaneous judgments of the confederate's performance can be made and will hopefully be uncontaminated by information about previous "cycles." This supposed interest in spontaneous evaluations of performance on each new "cycle" will also be expressed to the other two groups in order to achieve the necessary experimental symmetry (of course, the masonite shutter will never be mentioned to the other groups since they will never encounter it). The term "cycle" will always be substituted for "trial" so as not to suggest a learning experiment.

Five undergraduates and two graduate students, all appearing to be approximately the same age, will serve as confederates. The role of confederate will be explicitly defined, discussed, and practiced by the seven confederates. The role will include agonized expressions and shaking in reaction to the "receipt" of shock and, for the benefit of subjects in the helping group, a noticeable relaxation and a sigh of relief when the shock "goes off." In addition to the dramatics presented to convince subjects that the confederate is being shocked, a particularly effective sign of physical stress, actual facial sweating by the confederate produced by the heat of the overhead floodlamp, should serve to enhance the general plausibility of the deception and masking task.

In order to prevent fear of electric shock in the subjects developing within an individual session or spreading through the Psych-1 subject pool, it will be made clear that

Psych-1 students are never shocked and that the confederates are undergraduate volunteers from more advanced classes who have reached 21 years of age, the minimum age required to sign a release form for the shock phase of the experiment.

Apparatus

The room in which the subject and confederate will sit shares a common wall with the experimenter's control room. On one side of this wall the confederate will sit on a cushioned seat inside a wooden booth, which measures 3 X 3 X 6 feet in its external dimensions, and perform his bogus tracking task while reacting to the "shock" and bright floodlamp. At the same time, the subject will sit on a chair beside the booth, at the same height as the confederate, and observe the confederate in profile view, through an 18 inch wide by 12 inch high clear glass window set in one of the walls of the booth. Meanwhile, the experimenter will sit in the adjacent control room before a master control panel, setting controls appropriate for each experimental condition, recording instrumental response latency readouts, and communicating with confederate or subject in the next room by means of a microphone connected to headphones worn by both the confederate and subject during the experiment.

Placed in the wall of the confederate's booth facing the subject will be an "alarm button," the glass observation window, six signal lights, three "evaluation dials," and a "record button." Upon illumination the signal lights will

read: (1) "SHOCK ON;" (2) "SHOCK OFF;" (3) "EVALUATION 1;" (4) "EVALUATION 2;" (5) "EVALUATION 3;" and (6) "REPORT." Lying atop the wooden booth will be the subject's headphones.

Placed within one of the internal walls of the confederate's booth will be a fake radar-like tracking screen, two knobs (called "tracking-task controls"), an electric wall outlet (into which the confederate's "forearm electrode" is plugged), an "alarm button," and the floodlamp. Behind the tracking screen will be a number of randomly-placed Christmas tree lights which, when the confederate manipulates his control knobs, will conspicuously flash on and off to enhance the credibility of the masking task. The floodlamp will be positioned about 12 inches above and in front of the confederate.

During the experiment the confederate will wear an "electrode" strapped to his left forearm, and headphones.

Temporarily secured above the observation window, on the confederate's side of the wall of the booth which will face the subject, will be a masonite shutter large enough (19 inches by 14 inches) to cover the observation window when lowered and positioned between the window and the confederate. The shutter will be raised and lowered, exclusively for subjects in the leaving-the-scene condition, by tugging at or releasing a nylon cord which will run through a series of pullies up through the ceiling of the booth, through the wall separating the experimental and control rooms, down to a hook set in the experimenter's control panel.

An electric digital stop-clock (1/100 second) on the experimenter's control panel will measure the subject's response latency--the time between the onset of a "REPORT" signal (the conditioned stimulus signalling the subject to make his instrumental response) and the instrumental response.

Procedure

Pre-experimental procedure and instructions. When a subject arrives either on schedule or late he will find "another subject" (the confederate) already seated in a waiting room outside the experimental room. When a subject comes early, the confederate will exit through a convenient back door to the lab and then enter the waiting room through the same front used by the subject. The experimenter will soon greet the two and lead them into the experimental room. After introducing the subject as a Psych-1 student and the confederate as an over-21-years-old advanced student, the experimenter will explain "the purpose of the experiment" and the different jobs the two will perform. The role of the masonite shutter will be explained to subjects in the leaving-the-scene group. Next, the confederate will complete a bogus medical checklist and sign a release form agreeing to be shocked. The "electrode" will then be placed on the confederate's left forearm and the confederate will be seated in the tracking booth. As the experimenter leaves for the control room he will mention that the "alarm button" on the wall in front of each person is to be pressed only if some serious emergency arises; he will also

have each person put on headphones so that he will be able to speak to them from the control room.

Cycle of operation. Each of the 12 trials of the experiment will follow a cycle of shock, floodlamp, and the signal light "SHOCK ON" either coming on or continuing from the previous trial; illumination of three signals ("EVALUATION 1," "EVALUATION 2," "EVALUATION 3") for the subject to set his three "evaluation dials" to evaluate the confederate's performance according to three different criteria; illumination of the "REPORT" CS signal for the subject to push his "record button" to record his evaluations on tape; the instrumental button-pushing response; and the response-contingent event appropriate for each condition. In the helping condition, each trial-ending button-pushing response will cause the floodlamp to go out, the signal light "SHOCK OFF" to come on and "SHOCK ON" to go off, the experimenter to announce into the subject's headphones "Shock off," and the confederate to relax for the ten seconds between trials. For the leaving-the-scene group, a trial will end with the experimenter saying, "Shock continues" and lowering the masonite shutter to hide the confederate for ten seconds, while the "SHOCK ON" light remains on. In the no-reinforcement control condition, a trial will end with "the shock" continuing, the confederate continuing to "perform under stress," and the floodlamp and "SHOCK ON" light remaining on.

Post-experimental procedure. At the conclusion of the experiment the subject will witness the confederate assuring the experimenter that he has not been adversely affected by the stress. The subject will then be dismissed while the confederate will be asked to remain to "complete a questionnaire," so that the confederate could avoid any potentially embarrassing post-experimental contact with the subject.

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APPENDIX B

INSTRUCTIONS, BOGUS MEDICAL CHECKLIST, AND BOGUS RELEASE FORM

GENERAL INSTRUCTIONS FOR ALL CONDITIONS

The two of you are participating in what amounts to two separate experiments--one on performance testing, and the other on evaluation of performance.

I'll refer to you as "Subject A;" you're from one of the advanced psychology classes, and when you volunteered to be in this research, you knew that the experiment would involve performance under stress, right? You'll be working at a tracking task in the booth, and the stress will consist of a harmless electric shock.

I'll refer to you as "Subject B;" let me emphasize that you're not going to be involved with any shocks or stress of any sort. What you'll be doing is watching A through this window, and making evaluations of his/her performance.

This tracking task is, of course, similar to what pilots, navigators, airport traffic controllers and the like have to do, and obviously they often have to work under stress most of the time. The evaluation experiment is designed to learn how well such performance can be judged by observers who have no experience with the task itself. This is something that is becoming more and more important these days, as such things as flying or directing aircraft get more and more specialized and complex.

Now, as I said, the shock and the general stress situation are quite harmless, but I do have to go through a medical checklist with you, and have you sign a release.

GO THROUGH CHECKLIST-RELEASE ON NEXT PAGE

LIABILITY WAIVER

INSTITUTE OF GROUP RELATIONS

UNIVERSITY OF OKLAHOMA

HAVE YOU EVER HAD:

Abnormal heart condition _____
Heart attack _____
High blood pressure _____
Chronic Respiratory condition _____
Diabetes _____
Epilepsy _____
Convulsive seizures _____
Fainting spells _____
Severe electric shock _____
Been severely burned _____
Been in deep shock following injury _____
Psychiatric treatment _____

HAVE YOU EVER:

Worked under stressful conditions _____
Worked as an electrician _____

To the best of your knowledge, do you suffer from any physical, emotional or mental problem which would make your participation in this study hazardous or injurious to you?

I am 21 years old and willingly agree to participate in this non-harmful, ELECTRICAL SHOCK experiment.

_____

Subject's Signature

MORE GENERAL INSTRUCTIONS FOR ALL CONDITIONS

The experiment will consist of a series of cycles. These lights will show you what's happening and what to do. The lights up at the top will show you when the task and the stress come on.

After a short time, you'll see the "EVALUATION 1" signal to make the first evaluation. The first evaluation is, as you see, how well is the subject coping with the stress (or task), and to make it you set the top knob.

When the "EVALUATION 2" signal comes on, you set the middle knob to show whether you think the stress is too high or low (task too hard or easy) for him to either perform effectively, or to really test his ability.

When the "EVALUATION 3" signal comes on, set the bottom knob to show whether you think you would do better or worse than the subject if you were performing the task.

The last signal is "REPORT." We record these evaluations on data tape, and to do it, you push this button (DEMONSTRATE).

That will complete the cycle; there may be a brief rest period, or he may just go on with the task. In a short while, you'll again get the series of evaluation signals, then the "REPORT" signal, and so on.

We'll go on running until we've collected 15 minutes of actual data, so we can't say how many cycles, or how much overall time is involved. When we have the 15 minutes, we'll just shut down, even if it's in the middle of a cycle.

SPECIAL INSTRUCTIONS FOR LEAVING-THE-SCENE CONDITION

The experiment consists of a number of cycles in which you will make evaluations of Sa's "performance under stress." During each cycle, we are primarily interested in people's ability to make quick, spontaneous judgments concerning the quality of another's performance. We would, therefore, like you to consider each cycle as a separate, independent evaluation situation, in which you will judge Sa's performance at the moment, during the particular cycle, rather than evaluating him on the basis of any improvement or deterioration in his performance as compared with that shown in previous cycles of the experiment. In order to emphasize the fact that we want spontaneous evaluations of performance at a given time during a given cycle, rather than relative judgments of performance from one cycle to the next, a masonite shutter will be lowered at the end of each cycle, and will cover the window through which you will be observing Sa, until the start of the next cycle. At the start of each new cycle, the masonite door will be lifted and you will resume your observation and evaluation of Sa's performance. During the between-cycles period, Sa will continue to work at his stressful task behind the masonite shutter. This brief period

serves simply to remind you that you have been removed from one evaluation situation in which one set of spontaneous evaluations was required and that you are about to enter a new evaluation situation in which a new set of spontaneous judgments will be required.

SPECIAL INSTRUCTIONS FOR BOTH THE HELPING CONDITION AND THE NO-REINFORCEMENT CONTROL CONDITION

The experiment consists of a number of cycles in which you will make evaluations of Sa's "performance under stress." During each cycle, we are primarily interested in people's ability to make quick, spontaneous judgments concerning the quality of another's performance. We would, therefore, like you to consider each cycle as a separate, independent evaluation situation, in which you will judge Sa's performance at the moment, during that particular cycle, rather than evaluating him on the basis of any improvement or deterioration in his performance as compared with that shown in previous cycles of the experiment. As each cycle ends, you will leave one evaluation situation in which one set of spontaneous evaluations was required and will then, at the start of each new cycle, enter a new evaluation situation in which a new set of spontaneous judgments will be required.

FOR ALL CONDITIONS

(After preliminary instructions to S & confederate & after seating confederate in booth, give one practice trial).

SET-UP FOR PRACTICE TRIAL

(1) PT DRUM TO INDEX "50"
(2) E0 ON
(3) E7 ON
(4) E9 ON
(5) For leaving-the-scene condition--OPERATE MASONITE SHUTTER
(6) ALL OTHER SWITCHES OFF

NOTE TO EXPERIMENTER

(During PRACTICE TRIAL -- Explain to Sb that the lights flashing on & off in the booth indicate how well Sa is performing his task. The more they flash, the worse he is doing).

FINAL INSTRUCTIONS

(Say to both Sa & Sb -- Now during the running of the experiment, if anything should go wrong, you can press your alarm button up on the wall--but only use it if there's really something critical.

Also, if I have to talk to either of you during the experiment, I'll use the intercom, since the ventilating fan makes so much noise. So, would you both please put on your headphones.

NOW CLOSE DOOR TO BOOTH & BEGIN EXPERIMENT.

DURING TRIAL 1, NOTE EACH STEP OF THE PROCEDURE TO Sb OVER THE INTERCOM.

APPENDIX C

MEAN RESPONSE SPEEDS FOR CONDITIONING TRIALS

MEAN RESPONSE SPEEDS FOR CONDITIONING TRIALS

Trial	Helping	Leaving-the-Scene	No-Reinforcement Control
1	.580	.634	.638
2	.670	.738	.740
3	.838	.989	.750
4	.988	.880	.809
5	1.070	.862	.775
6	.953	.851	.853
7	.896	.890	.815
8	1.013	.872	.817
9	1.007	.818	.774
10	1.163	.841	.814
11	1.101	.857	.773
12	1.200	.872	.865

N = 25/Group

APPENDIX D

STATISTICAL TESTS

Repeated Measures Analysis of Variance
of Helping Group Response Speeds
Across All Conditioning Trials

Source	SS	df	MS	F
Between Subjects	31.598	24		
Within Subjects	37.318	275		
Trials	9.602	11	.873	8.314*
Residual	27.716	264	.105	
Total	68.916	299		

*$p < .001$

N = 25

Repeated Measures Analysis of Variance of
Leaving-the-Scene Group Response Speeds
Across All Conditioning Trials

Source	SS	df	MS	F
Between Subjects	17.962	24		
Within Subjects	28.970	275		
Trials	2.039	11	.185	1.814*
Residual	26.931	264	.102	
Total	46.932	299		

*$p < .05$

N = 25

Repeated Measures Analysis of Variance of No-Reinforcement Control Group Response Speeds Across All Conditioning Trials

Source	SS	df	MS	F
Between Subjects	23.439	24		
Within Subjects	22.451	275		
Trials	1.016	11	.092	1.136
Residual	21.435	264	.081	
Total	45.890	299		

N = 25

Repeated Measures Analysis of Variance of Leaving-the-Scene Group Response Speeds Across Conditioning Trials 1-4

Source	SS	df	MS	F
Between Subjects	7.679	24		
Within Subjects	16.337	75		
Trials	1.814	3	.605	2.995*
Residual	14.523	72	.202	
Total	24.016	99		

*$p < .05$

N = 25

Repeated Measures Analysis of Variance of
Leaving-the-Scene Group Response Speeds
Across Conditioning Trials 4-12

Source	SS	df	MS	F
Between Subjects	13.603	24		
Within Subjects	12.097	200		
Trials	.092	8	.012	< 1
Residual	12.005	192	.063	
Total	25.700	224		

N = 25

Sex X Groups Analysis of Variance
on Block of Trials 9-12

Source	SS	df	MS	F
A (Sex)	.236	1	.236	1.542
B (Group)	1.435	2	.718	4.693*
A X B	.003	2	.002	< 1
Within Cell	10.541	69	.153	
Total	12.215	74		

*$p < .05$

N = 14 females & 11 males/Group