

CONFORMITY AND COMPLIANCE. AS A FUNCTION OF
SOCIAL NORM ARBITRARINESS

By

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SOCIAL NORM ARBITRARINESS

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CHAPTER I

INTRODUCTION

The formation and persistence of social norms of individuals were studied in experimental groups. In judgment situations involving numerosity estimates, subjects, without established social relationships, formed social norms of varying degrees of arbitrariness during interpersonal interaction. Prescribed arbitrary ranges and modes of judgments were imposed by experimenter collaborators (plants) to determine the limits of conformity and compliance for the judgment situation.

Arbitrariness of the prescribed norms was established in relation to the norms which emerged in the same judgment situation without experimenter interference. The latter are defined as natural norms, i.e., the norm which formed without the influence of plants imposing prescribed judgments. The range and typicality of the natural norms are used to evaluate the effect of imposed arbitrariness on the individual norms of naive subjects. The natural norm is, therefore, the base line in comparison to which the degree of arbitrariness of individual norms is measured.

One means of studying human social behavior is through the use of psychophysical-like judgment situations. Research in psychophysical judgment situations seeks to determine the perceptual relationships between the physical characteristics of a stimulus and the quantitative

attributes of sensation resulting from that stimulus (English & English, 1958). Various types of physical stimuli and methods have been employed in psychophysical research since the early work of Weber and Fechner (1834-1865), Hemholtz and Müller (1860-1899), and others (Boring, 1950). In recent years auditory stimuli have been employed by several investigators (Faroqi & Parameswaran, 1966; Jones & MacLean, 1966), weights have been employed by Wilson and Russell (1966); and taste, using samples of distilled water, were investigated by Juhasz and Sarbin (1966).

For judgment situations in which the physical aspects of the stimuli are not highly structured, permitting alternatives of judgments, all interacting individuals are influenced; to some degree, by the pertinent behavior of other individuals present. In real-life situations arbitrariness, unreality, or inappropriateness, frequently is not objectively determinable. To the extent that social situations are unstructured the opinions of others have an effect on defining the situation for individuals.

There are, however, limits beyond which social persuasion is not effective. Pollis and Montgomery (1966) demonstrated that social relationships of the participants determined, in part at least, whether the individual internalized the social norm (conformed), or merely complied during the existence of social pressure.

Sherif (1935) used the autokinetic phenomenon, the judged movement of a pinpoint of light in a darkroom, in what proved to be the basis for a great deal of social-psychological research. Sherif's experimental study of social norm formation stimulated the use of psychophysical-like situations in group research. Among comparatively recent research based

on Sherif's pioneer work are included Asch (1951), Rohrer, Baron, Hoffman, and Swander (1954), Harvey and Consalvi (1960), Hood and Sherif (1962), MacNeil (1964; 1967), and Pollis and Montgomery (1966).

In the area of manpower analysis, research on group norm formation has special relevance. Roy (1952) noted that work groups which he observed in industrial settings actually restricted the potential production of their members in order barely to satisfy the demands of quotas established by management. Leavitt (1964) in discussing the importance of the group's role stated; "In time we all come to 'identify' with one or more groups, and to accept, to some extent, the group's goals as our goals, the group's needs as our needs, the group's perspectives on life as our perspectives (p. 284)." It is through interpersonal interaction that group norms emerge which establish the conceptual guidelines for the individual's attitudes and aspirations.

Relevant Research

Murphy (1949) in discussing the influence of the group on an individual's social preception, described research in which Sherif

...used the autokinetic effect--the apparent movement of a point of light in the dark. The effect is governed by factors of previous learning and of present attitude. Placing his experimental subjects in the company of others, he showed that the individual is progressively molded into the group's way of seeing the movement. In other experiments he perceives the rates of tapping, or the degree of excellence of literary passages, as they are defined for him by group participation. Under group conditions of work, the norms and variabilities which had characterized the individual when alone were rapidly forced in a direction determined by others in the group. It is possible after each session to trace the degree to which each individual had given up his own autonomy of judgment in favor of the central tendency of the group as a whole. The curves indicate the convergence, or, as Sherif calls it, the "funnel-shaped relationship" which characterizes indoctrination into group norms (p. 412).

Bovard (1948) demonstrated that individual subjects could be influenced by experimenter plants in a paired situation to internalize experimental social norms. The internalized social norms were found to persist 28 days after experimenter influence had been removed.

To investigate lapse of time upon experimentally established norms, Rohrer et al. (1954) indoctrinated togetherness subjects in an autokinetic-like training situation to experimental social norms by using actual light movements of 2 and 8 inches. After subjects had internalized experimental norms in the training situation, they were tested in pairs in an autokinetic judgment situation and retested one year later individually. Correlation coefficients of .892 and .595 were found between subjects indoctrinated to lights moving 2 and 8 inches respectively when judgments were made in the autokinetic situation one year apart. Thus, when subjects established norms under experimental social conditions in an autokinetic-like situation, these norms were internalized and tended to persist strongly after one year.

Hovland, Harvey and Sherif (1957) studied the extent to which different communications influenced change in attitudes held by subjects who differed in varying degrees from the position advocated by the communication. Subjects who held positions widely removed from the stand presented perceived the communication to be farther removed from their own position than it actually was. Such an instance where the communication was perceived to be outside the individuals' latitude of acceptance was called a "contrast effect." Subjects holding positions close to the stand presented perceived the communication to be closer to their own position than it actually was. Hovland et al., (1957) termed a situation where the communication was perceived to be within

the subject's latitude of acceptance as "assimilation effect."

Sherif (1935) and Hood and Sherif (1962) found that social pressure, i.e., majority opinion, was not necessary to establish internalization of experimental norms by naive subjects. By arranging for individual subjects to "overhear" 18 judgments of a plant in an autokinetic situation, Hood and Sherif (1962) found significant differences ($P < .001$) between two experimental groups which had overheard different planted norms.

Several investigators have studied the perpetuation of arbitrary norms in experimental judgment situations (Jacobs & Campbell, 1961; MacNeil, 1964; Pollis, 1964; Pollis & Montgomery, 1966). MacNeil (1964) found that with successive generations of experimental group subjects there was an inverse relationship between continued group conformity to experimental norms and the arbitrariness of those norms.

Pollis (1964), using an auditory stimulus situation, noted that norms established in the presence of members of actual social groups, e.g., fraternities, tended to persist more strongly than norms established in togetherness settings (presence of strangers). In the autokinetic situation, Pollis and Montgomery (1966) found significant differences in conformity-compliance among subjects who had previously formed norms as individuals, pairs, and social group members. Their findings showed that compliance, rather than conformity, to experimental norms was greater when individual norms formed in individual (alone) situations than when formed in togetherness situations. Individual norms formed in togetherness situations resulted in greater compliance by subjects than those who formed their norms in social group situations. Their research demonstrated that an

experimenter can impose experimental social norms upon subjects and that the extent to which these norms will be internalized is a function of whether or not subjects formed the norms in alone, togetherness, or social group situations.

When an individual is subjected to influence in a judgment situation, both the social context of that situation and the physical nature of the judgment stimulus are jointly important in the modification of his perceptual reality. MacNeil (1964) demonstrated that the extent to which subjects will internalize experimental norms, when social factors are held constant, is a function of the arbitrariness of the norms in reference to its physical aspects. MacNeil (1967) found that unrealistic, moderately arbitrary, judgment norms could be transmitted to a selected member of a social group through indoctrination by a planted majority in the autokinetic and shotgun judgment situations.

In the social-physical nature of a judgment situation there are a number of properties which can affect perception. One of the physical properties affecting perception is the number of objects being viewed at a given time. Kaufman, Lord, Reese, and Volkman (1949) found that when subjects were shown six or fewer dots on a stimulus field for less than one second, the subjects could accurately report the number of dots in the field. When more than six dots were viewed, the accuracy of the subjects' judgments decreased as the number of dots increased. Kaufman *et al.* proposed the term subitize to denote the process operating when six or fewer dots were presented. Because judgments were less accurate when more than six dots were presented, the term estimating was suggested to denote the process operating in that situation.

In the shotgun judgment situation phase of his study MacNeil (1967) made use of the estimating process. In that study, a shotgun was fired by subjects to prepare shotgun shot patterns purportedly used for making numerosity estimates. Unknown to the subjects, experimenter-prepared mock targets were used as the patterns projected on a screen for judging. Each projected pattern had the same number of holes (100). After the patterns, i.e., the judgment stimuli, were projected for .8 sec. subjects made judgments aloud of the number of holes which they estimated were in the targets. Because the judgment situation was unstructured, i.e., holes in the mock targets were randomly varied in pattern and the stimulus complexes were projected for less time than the time necessary to count the number of holes, judgments made by subjects were readily susceptible to experimentally introduced influence.

Through the use of plants it was possible to indoctrinate selected natural group members, of known status, from groups of known solidarity, in the shotgun situation. Later, by bringing the indoctrinated group member with his group into the shotgun situation, MacNeil was able to measure the joint effect of the indoctrinated member's status and the group solidarity on group norms. The primary concern in MacNeil's experiment was with the status power of an indoctrinated group member in the formation of group norms in groups of varying solidarity. Therefore a moderately arbitrary prescribed norm was used. The point at which experimental norms in the shotgun situation became so arbitrary that subjects failed to conform or comply to those norms was not determined.

Location of the point at which prescribed experimental norms

become so arbitrary in visual numerosity situations that only moderate compliance and no conformity occurs is the goal of this study. This research is, therefore, intended to determine the relationship of arbitrariness of experimental norms to conformity and compliance in the course of interpersonal interaction in visual numerosity judgment situations.

CHAPTER II

PROBLEM AND HYPOTHESES

The problem is to develop a research design and an experimental judgment situation which will enable the study of persistence and change of prescribed, individual, norms of varying degrees of arbitrariness. A numerosity judgment situation enabling, within limits, the indoctrination of subjects with prescribed arbitrary norms is deemed appropriate. Further, it is desirable to utilize an experimental situation which lends itself to the study of the effects of social relationships and individual ego-involvement. The latter is essential if the results of this study are to be of use in future research involving the functioning of real-life groups.

To study the effect of arbitrariness on the conformity and compliance of individuals in social situations, it is necessary to utilize an experimental judgment situation in which variables, such as the established social relations among subjects, the physical aspects of the stimuli, and related factors may be controlled, held constant, or held to a minimum. To control for social relations among subjects, so that both natural and varying degrees of arbitrary norms may be established free of the confounding effects of status, group solidarity, and related forces, subjects without established relationships or readily detectable status characteristics must be used.

So that the judged attribute of the shot pattern stimuli,

numerosity, is not confounded by other non-constant features, such as pattern distribution irregularities, a prepared series of patterns which have been pretested and show a lack of rank ordering preference in regards to numerosity are essential. Such a set of pretested shot pattern stimuli, on photographic film, are available at the Experimental Social Psychological Studies Center, Oklahoma State University. The shotgun judgment situation (MacNeil, 1967) provides a controlled experimental situation in regard to physical factors and lends itself to experimenter manipulation, or control, of social factors.

To create conditions under which group social norms of varying degrees of arbitrariness may be imposed in an experiment requires the determination of the natural norm, relatively non-arbitrary, formed without experimentally introduced influence. This natural norm provides the base line, the control condition, against which norms formed under more arbitrary conditions may be compared. The varying prescribed degrees of arbitrariness, the independent variables in this study, are definable in terms of discrepancies from the natural norm. These discrepancies consist of both the modal and latitudinal aspects of the arbitrary, individual or group, norms as determined by the judgment distributions of the participating individuals.

To assess the persistence or change of individual norms in experimental norm formation and change, individuals' judgments must be followed through a sufficiently extensive series of interpersonal interaction estimations to assure that stabilization of the individual's norm in the immediate situation has taken place. Subsequently, the individual's ranges and modes of judgments of the same stimuli must be followed under the same conditions with the exception of the planted

others. The absence of the plants, whose presence and judgments make the experimental condition of an imposed arbitrary social context, enables study of the persistence or change of the individual's norm. It is the persistence or change of the individual's norm which indicates, in accordance with Festinger's (1953) criterion, whether or not the prescribed norm has been internalized and therefore persists, or merely complied with under social pressure.

It is desirable, in this study, for the experimenter to present the selected task as part of an experiment which has an apparent purpose not related to the study of social processes. A series of studies purportedly directed at determining how well people can make estimates of the number of objects (circles and squares, Pace, 1967); the distance between points (vertical-horizontal, hexagonal judgment situation, Gregory, publication pending) the distance of light movement (ongoing autokinetic studies) and the number of auditory stimuli (pinball machine judgments situation, Rebouche, publication pending) provide such a rationale.

Hypotheses

Based on the previously cited studies of experimental norm formation, especially those pertaining to the joint effects of external social and physical factors on the formation and change of internal, judgmental, reference scales, and in view of their implications for the effect of arbitrariness, it is predicted that in the shotgun judgment situation:

- (1) Naive subjects making estimates of the number of holes in purported shot hole patterns:

- (a) under both alone and togetherness conditions, form individual norms consisting of a range model focus of judgments, i.e., a natural norm, and
 - (b) this natural norm, when formed under alone conditions shows more variability as to range than when formed by naive subjects interacting together.
- (2) When a majority of the persons participating in the situation (plants) give a prescribed, low arbitrary, range and mode of judgments a naive subject:
- (a) accepts as realistic the prescribed arbitrary norm and gives his judgments within that norm;
 - (b) internalizes the prescribed arbitrary norm and continues to give judgments predominantly within that norm at a subsequent time when he is alone (without the presence of plants) in the same situation.
- (3) When a planted majority gives a prescribed, moderately arbitrary, range and mode of judgments a naive subject:
- (a) accepts the moderately arbitrary norm as his own, as indicated by the subject's judgments falling mainly within the prescribed norm, while the plants are present and interacting with the subject; however,
 - (b) the naive subjects do not internalize the prescribed moderately arbitrary norm, as

indicated by their subsequent individual judgments shifting away from the prescribed norm in the direction of the natural norm.

- (4) When a planted majority gives a prescribed, highly arbitrary, norm a naive subject:
- (a) only partially complies with the prescribed norm in the course of interpersonal interaction, and
 - (b) gives judgments even more predominantly below the prescribed highly arbitrary norm range during subsequent alone judgments in response to the same physical stimuli.

CHAPTER III

METHOD

Subjects were undergraduate males from introductory psychology and sociology courses at Oklahoma State University. They were obtained from a subject pool made up of students who had volunteered to participate in psychology experiments for which they would receive extra credit in their courses. These volunteer students were called and asked if they would participate in an experiment for which they would be paid as well as receive extra credit.

Subjects who knew each other were not scheduled to participate together. This was accomplished by not including together subjects who lived in close proximity to each other, i.e., on the same dormitory floor, or subjects from the same laboratory sections of psychology courses. In addition, when calling to schedule students for a particular togetherness period, the experimenter read the names of other subjects already scheduled for that period and asked prospective subjects if they knew any of those already scheduled. Whenever a prospective subject acknowledged that he knew one or more subjects already scheduled, he was not assigned to that test period.

Plants

Five experimenter collaborators (plants) from a social psychology

course assisted in this study. Plants were familiar with psychophysical research techniques and social group research (Sherif & Sherif, 1956). Plants were trained to give the prescribed arbitrary ranges including the frequency each judgment was to be given per session. A practice session with plants only was conducted prior to their experimental interaction with naive subjects.

Design

The experiment was divided into three phases: Phase I, development of natural norms (control); Phase II, indoctrination (experimental); and Phase III, retention (experimental). See Table I).

TABLE I

SOCIAL CONTEXT OF JUDGMENT SITUATIONS: NUMBER OF NAIVE SUBJECTS

PHASE	CONDITION	
	ALONE	TOGETHERNESS
I (Natural Norm)	10	40
II (Indoctrination)	--	15 (w/3 plants per S)
III (Retention)	15 (Same Ss as in II)	--

There were three shoot-and-judge sessions in each experimental period. A session consisted of each subject (and plant when appropriate) firing at and judging five targets. For each individual in the alone conditions this amounted to 5 shots and 5 judgments per session. In the togetherness condition there were 20 shots and 80 judgments per session, i.e., 5 shots and 20 judgments were made by each subject or plant.

Phase I: Development of Natural Norms

In this phase alone and togetherness condition subjects shot actual targets and made judgments of mock shot patterns. The purpose of this phase of the experiment was to determine the natural norm range and mode of judgments made in alone and togetherness situations. Each of the ten subjects in the alone condition fired 5 times and judged 5 targets in each of three sessions resulting in a total of 150 judgments for the alone condition of Phase I.

The second part of Phase I. took place under togetherness conditions with ten sets of 4 subjects each. The purpose of this phase was to determine the natural norm under togetherness conditions. There were 80 judgments made for each of three sessions giving a total of 240 judgments for each set of four subjects and a total of 2,400 judgments made by all subjects under togetherness conditions in this phase.

Phase II: Indoctrination

This phase, under togetherness conditions, involved 15 experimental sets consisting of 3 plants and 1 naive subject each. None of the subjects had previously participated in Phase I. There were 5 experimental sets in each of 3 conditions of experimenter prescribed arbitrariness: low arbitrary; moderate arbitrary; and high arbitrary. The purpose of this phase was to expose naive subjects to experimental social pressure consisting of three plants with each naive subject giving judgments within one of the arbitrary ranges.

In order that naive subjects (N) in indoctrination periods would

hear arbitrary judgments before making their first judgment, the experimenter instructed plants (P) to take specified chairs from among the four provided. This resulted in a plant-subject arrangement of P, P, N, P. This order was followed in all but 1 of the 15 indoctrination periods. In that one, the seating order was P, N, P, P. Thus, in all but one of the indoctrination sessions the naive subject was seated in the third chair.

Observation of naive subjects in natural norm formation, under togetherness conditions, showed that, when asked by the experimenter, "Who's first? (to shoot)", the naive subject nearest the experimenter (on the left of subjects' line-up) would usually volunteer to shoot first. After the first subject had shot, the next subject in line generally stepped up to take the gun and so on. Plants in Phase II were instructed to follow this sequence. When asked by the experimenter, "Who's first?" the first plant (leftmost) got up and volunteered. After he had shot five times the second plant got up and shot. Generally the naive subject volunteered next. Before the first judgments were made the experimenter said, "Why don't you give me your judgments in the same order in which you fired? Let's see, [looking at clipboard and reading names of subjects on judgment record sheet] that'll be -----[reading names of plants and the naive subject in order on which they had fired, i.e., their seating order]."

The seating arrangement of P, P, N, P in indoctrination sessions permitted the third plant, who sat to the right of the subject and therefore gave his judgments following the subject, to reinforce judgments within the arbitrary range made by the naive subject. This was done by giving judgments within ± 5 of the naive subject's

judgments when possible. All plants, however, were instructed to give their judgments in the same frequency but not the same order as shown in Table II.

TABLE II
ARBITRARY RANGES AND RESPECTIVE JUDGMENT FREQUENCIES
PER PLANT PER SESSION

Low	Mod.	High	f
135	215	375	1
140	220	380	2
145	225	385	4
150	230	390	6
155	235	395	4
160	240	400	2
165	245	405	<u>1</u>
			20

Phase III: Retention

This phase involved individual retesting of indoctrinated naive subjects 24 hours after each was exposed to one of the three arbitrary ranges in Phase II. The purpose of this phase was to determine the extent to which subjects had internalized arbitrary social norms. Procedures were the same as those followed under the alone condition in Phase I.

Apparatus

The experimental setting was a large classroom on campus (Appendix A). Each of two doors leading into the room had signs which read, "Experiment in Progress - Do Not Enter." Between the doors, attached to the wall, was a sign reading, "ROGER ALLEN NUMBER ESTIMATE STUDY - PLEASE WAIT HERE UNTIL YOU ARE CALLED."

The experimental room was 30' wide by 37' long. At one end was a booth 4' x 4' x 7' constructed of 1/2 inch plywood (Appendix B). The inside of the booth was lined with accoustical tile. The apparent purpose of the booth was to reduce the noise from the gun firing; actually it served as a safety measure.

At the far end of the room from the firing booth were five target ports cut into the wall through which subjects fired at targets moving in the target runway (Appendix C). Targets passed behind these ports on a ladder-like aluminum target frame. Two target frames were used which permitted fresh targets to be placed on one while the other was in operation. Frames moved from the subject's right to left, behind the ports, by means of a cable running through pulleys overhead. Target frames were hung on the cable which was driven by a small motor. Speed of the frame was controlled by the experimenter by means of a rheostat attached to the outside of the booth. Targets were attached to frames by spring loaded clips connected to the frames.

The targets at which subjects shot were black outlines of a rabbit printed on 8 1/2" x 14" white paper (Figure 1). Mock targets which were projected onto a screen to be viewed by subjects were photographic negatives mounted in standard 10 1/2" x 11 3/4" cardboard frames used with overhead projectors. All mock targets had the same number of holes (100) in a random, uniform density, pattern. Mock targets were used as judgment stimuli to present a constant number of holes in varying patterns and to avoid the possible effects of irregular patterns due to poor shooting by some subjects.

There were five different stimulus patterns used in this study. Each pattern could be presented 4 times, in a different orientation, by

8½" x 14"

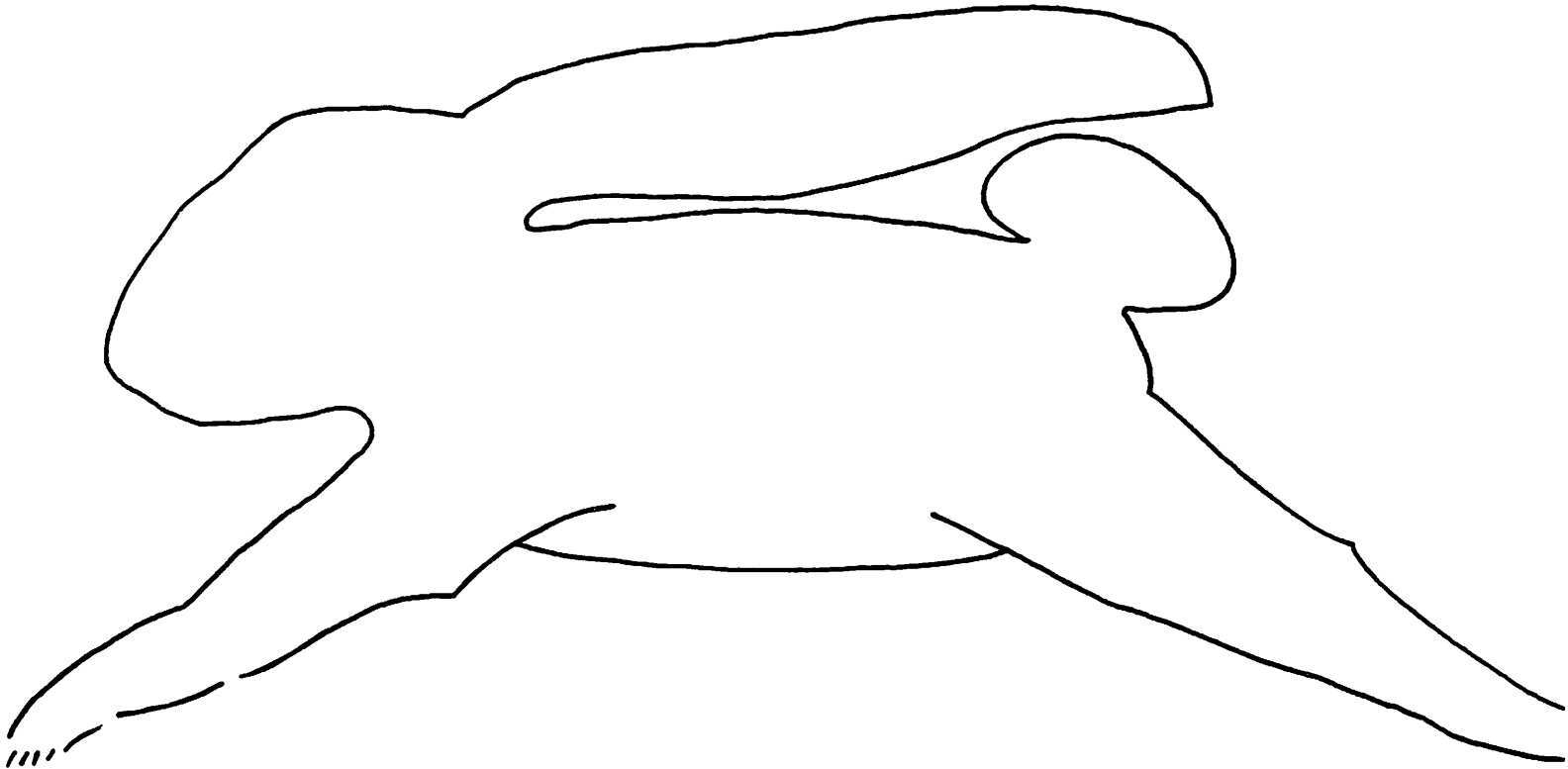


Figure 1. Rabbit Outline Target Used in Shotgun Judgment Task Situation.

rotating the pattern 180° and then turning it over. Thus a total of 20 different orientations (patterns) were possible, all of which were used in each session under the togetherness conditions. Each pattern was presented in order, in the same orientation, and then all were moved to the next orientation. Thus the same target was projected only once in every five presentations and then in a different orientation. No subject during any phase of the study questioned the validity of the mock targets.

An experimenter assistant aided the experimenter in this research. His duties involved placing fresh targets on the target frames, positioning the frame on the overhead cable, handing the experimenter prepared, "real," targets to show subjects, and projecting mock targets.

The shotgun used was a Remington 22 cal. pump. Shells were 22 cal. long-rifle, #12 birdshot. MacNeil (1967) had used a 410 cal. shotgun in his research but because the shotgun range in the present study was indoors, a 22 cal. shotgun was used to reduce noise. While subjects could see targets "flinch" when hit, the shot used in the shells were so small that subjects were unable to see the holes in the targets as they appeared in the target ports. Indeed, because holes made by the shot in the targets were so small, it was possible to shoot at the same targets four times without detecting any holes.

The projection screen used in this experiment was a common twin-size bedsheet stretched tightly over a 4' x 7' wooden frame. Stimulus patterns were projected onto the back of the screen and could be viewed by subjects seated on the other side of the screen, near the firing booth. A timer-controlled overhead projector, located in the

projection booth to one side of the target ports, presented the targets for 0.8 sec.

Procedure

The experimenter greeted the subjects outside the experimental room, checked their names against a list on a clipboard, and told the subjects to come into the room. As they entered, the experimenter told subjects, "Just take one of those seats by the booth." The experimental room had been arranged so that there were four chairs for subjects in a row at the back of the room, to one side of the firing booth. The experimenter, when recording judgments, took a chair from against the wall and replaced it when judgments were completed. Plants in Phase II took their prearranged seats.

After the subjects were seated the experimenter told them:

This is a judgment situation in which we are trying to determine how well people can estimate the number of objects in a brief time interval. Your task will be to shoot targets with this shotgun [experimenter lifts shotgun from booth shelf, where it lay while subjects entered the room and walked by the booth, for demonstration] and then estimate the number of holes which you think have been shot in the target.

At this point in the indoctrination sessions, the experimenter said, "Let's see now, three of you guys have shot before, haven't you? That was you, you, and you?" pointing to the first two plants and the naive subject. The first two plants raised their hands, or nodded, to indicate that they had shot before. The naive subject usually shook his head in the negative, and then the third plant would indicate that he, too, had shot before. The experimenter then said, "Let's see, I think you guys [indicating plants] did pretty well before, didn't you?"

Plants nodded their heads or shrugged their shoulders. "Well then, these instructions are mainly to orient you [indicating naive subject] with our operation." The comment, "Let's see, I think you guys did pretty well before, didn't you?" was made to indicate the naive subject that he was in the company of experienced shooters and judges. As a result, social pressure was brought to bear upon the naive subject not only because all other subjects (i.e., plants) made judgments within the same range, but also because those arbitrary judgments were made by experienced persons.

The rest of the instructions which were given to both control and experimental subjects were:

We're using a shotgun in order to achieve the degree of randomization which we need in the targets and because it's a simple method of rapidly preparing the targets. I'll explain how this works.

After the operation of the gun was explained to the subjects the experimenter said, "I'll shoot five targets and show you how it works." After the fifth target was shot, the experimenter said to the subjects, "Wait here and I'll bring you back a target to look at so that you can get an idea what a target looks like after you've shot them." The experimenter then went down range, walked to the middle port and said, "----- (assistant's name), hand me one of those targets which I just shot, just anyone will do." The assistant then handed the experimenter a prepared target (one which had been shot at four times in order to have an adequate number of holes to seem realistic) to be shown as one which had just been shot. The experimenter walked back to the subjects and told them:

See, here's what the targets look like when you've shot them [permits subjects only a glance at the prepared target

and then folds the target and puts it in his pocket]. You can't miss because there's no choke in this gun. Just aim toward the targets and fire when the rabbit comes into view.

The experimenter then paused and answered any questions which subjects had which did not relate to the judgments per se. Subjects were then told:

If for any reason you miss a target or the gun jams or whatever, don't worry. We'll just back the target up and you can shoot it again. The main thing which we're concerned about is that you get one good shot at each of the targets. OK? Now who's first?

The first shooter was asked to step into the booth to shoot in order to "cut down on the noise" (experimenter's demonstration was conducted outside the booth). Experimenter then loaded the gun with five shells and handed the gun to the shooter in the booth.

After each subject had shot five times, once at each of the targets, the experimenter took the gun and positioned the projection screen for viewing the stimulus patterns. While readying the screen and turning off lights, the experimenter explained:

My assistant back there will take your targets off and project them in random order onto this screen. At any time you won't know which target you're viewing [substituted "whose" for "which" in togetherness conditions]. Give me your estimates in multiples of five, that is, round them off to the nearest five holes. Now we'll project a test pattern on the screen to focus the projector and then we'll project the test pattern for the length of time which you'll be seeing the targets so that you can get an idea how long the targets will be projected. OK----- (assistant's name), focus the projector.

At this point a focusing pattern with an oval approximately the size of the stimulus pattern was projected onto the screen. Occasionally minor positioning adjustments were made at this point although the projector had been prefocused.

Now project the test pattern for the length of time which

we'll be seeing the targets [same focusing pattern was presented for 0.8 sec.]. That's how long the targets will be shown. We'll be using an oval-shaped template on your targets much like the oval in the test pattern to show only the body shots. You won't see any head or leg shots but just the body shots. Remember, give me your estimates to the nearest five holes. OK? Why don't you just give me your estimates in the same order in which you fired; that'll be----- (names of plants and/or subject in order).

The experimenter then said to the assistant, "Show the first target." Presentation of each succeeding target was preceded only by "Ready" from the experimenter. Judgments were recorded by the experimenter on a clipboard. Stimulus patterns were presented in the same order for each judgment session.

After each session, when all judgments had been made, the experimenter, carrying the gun, swung the screen back against the wall while the assistant shut the projection booth door. After turning on the lights, the experimenter walked back to the booth and reloaded the gun. Upon completion of the third session, subjects were told, "Fine, now if you'll come out in the hall I'll pay you." All subjects were then paid \$1.00 each, asked to sign a receipt, and thanked by the experimenter for their participation. Following indoctrination sessions it was arranged for plants to be paid first and then leave. The naive subject was left alone with the experimenter after all plants had left. As the naive subject prepared to leave, the experimenter said, "Oh (naive subject's name), can you help me out a minute here?" A list of time intervals of 30 minutes was shown to the subject as the experimenter said:

I need some more people to shoot for me individually and I was wondering if you can help me out for about 15 minutes tomorrow. I had some other guys scheduled but they cancelled out. I can't use those other guys [indicating plants] because they've already shot twice. It'll only

take about 15 minutes and I'll pay you \$3.00 for helping me out. This is for my thesis and I've got to get it done by the end of this semester.

At the time of the experiment it was late in the semester and the subject's readily understood the experimenter's problem. All 15 indoctrinated subjects agreed to come back the next day.

In retention sessions, Phase III, subjects were told, "We'll just go ahead and shoot five and judge five for three times." After subjects had shot and as the screen was made ready for viewing, the experimenter said, "Again the targets will be shown in random order, just like yesterday." Judgments were recorded as before.

CHAPTER IV

RESULTS

The determination of conformity and compliance as defined in this research, requires measures of divergence of emerging norms from prescribed norms in terms of latitudes and typicalities (central tendencies) of responses during and subsequent to social pressure. The principle measure used in evaluating the hypotheses is the proportion of individual judgments within the experimentally prescribed arbitrary ranges. The raw data are the judgments made by the 65 naive subjects participating in the experimental judgment situation employed in this study (Appendix D and Appendix E).

The bases against which comparisons of conformity and compliance are made are the arbitrary, prescribed, experimental norms. The magnitudes of the arbitrary norms were determined on the basis of the natural norms which emerged without experimentally introduced influence and the one previous study employing the shotgun judgment situation (MacNeil, 1967). The measure of latitude used to define the natural norm in this study is the range of judgments from 2.5% to 97.5% (R_n').

Data in Table III presents the natural norms for the shotgun situation.

Because of the similarity of the means of the natural norm in this study the natural norm mean (76.8) found by MacNeil (1967) under

togetherness conditions and because of the similarities in the ranges of judgments made by subjects in MacNeil's study and in this study, it was decided to use MacNeil's arbitrary range of 135-165 for the low arbitrary range in this study. By increasing the magnitude of the low arbitrary range by 80 there was found a second, or moderately arbitrary range (215-245), distinct from the natural norm yet not so arbitrary as to prevent adoption by subjects. Partial findings from judgments made during two pretest indoctrination periods using a third arbitrary range of 295-325 (not elsewhere reported in this study) which represented an increment of 80 from the moderately arbitrary range showed that 76% of indoctrinated subjects' judgments were made within that range. Therefore a fourth arbitrary range (375-405), which represented an increment of 160 from the moderately arbitrary range, was used as the high arbitrary range in this study.

TABLE III

NATURAL NORM. MEANS AND RANGES FOR THE SHOTGUN SITUATION

Condition	\bar{X}	Rn'	SD	F**
Alone	76.44	20-125	24.13	1.56
Togetherness*	86.06	45-150	19.29	

* Under togetherness conditions, four naive subjects made judgments, in turn, aloud, in response to each stimulus presentation.

** Significant at $P < .01$

Test of significance of variance (Guilford, 1965).

Hypothesis 1 (a) That natural norms formed under alone and togetherness conditions are supported by data presented in Table III.

Hypothesis 1 (b) It is apparent from inspection of Table III that

there is more variability in the natural norm for alone subjects than for togetherness subjects.

Hypothesis 2 (a) That subjects accept as realistic a prescribed low arbitrary norm is supported by Table IV and Figure 2.

Hypothesis 2 (b) It was predicted that subjects in the presence of plants giving judgments in a low arbitrary range would internalize the prescribed arbitrary norm and would continue to give judgments predominantly within that norm in the absence of plants. It is evident from the findings presented in Table IV and Figure 2 that this prediction is supported.

Hypothesis 3 (a) That subjects accept a moderately arbitrary norm in the course of interaction with plants is supported by Table IV and Figure 2.

Hypothesis 3 (b) The hypothesis that subjects do not internalize the prescribed moderately arbitrary norm during alone situations is not supported (Table IV).

Hypothesis 4 (a) Only partial compliance to a highly arbitrary prescribed norm during the course of interpersonal interaction was predicted. Table IV and Figure 2 support that prediction.

Hypothesis 4 (b) That naive subjects exposed to a highly arbitrary norm during interpersonal interaction subsequently give judgments even more predominantly below the prescribed norm when alone than in togetherness conditions is supported by Table IV and Figure 2.

The major concern of this study has been to demonstrate that conformity and compliance in visual judgment situations are direct and inverse functions respectively of the degree of arbitrariness of the

TABLE IV

COMPARISON OF JUDGMENT MEANS AND PERCENTAGES OF JUDGMENTS WITHIN
ARBITRARY RANGES DURING INDOCTRINATION AND RETENTION PERIODS

Arbitrary Range	Indoctrination		Retention		\underline{t}/Z^*	P<
	\bar{X}	%w/in	\bar{X}	%w/in		
Low Arbit. (135-165)	142.53	80.67	140.13	86.67	1.22 .1038	NS NS
Mod. Arbit. (215-245)	227.22	81.67	224.27	81.33	1.45 .4761	NS NS
High Arbit. (375-405)	312.38	32.67	272.13	2.67	2.12 3.93	.025 .0001

* Tests of significance of mean difference and of non correlated proportions (Edwards, 1960).

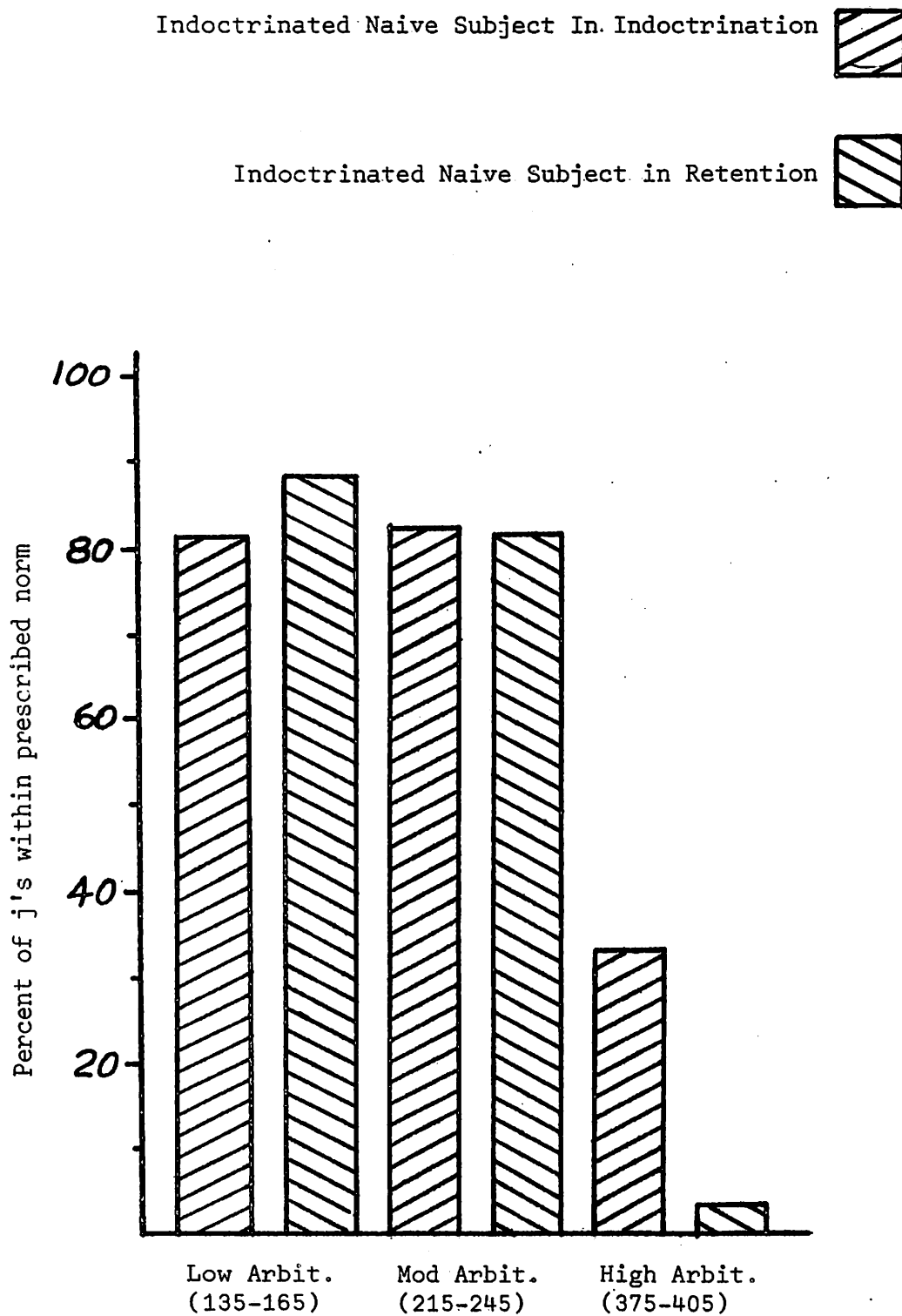


Figure 2. Percent of Judgments Within Prescribed Arbitrary Norms During Indoctrination and Retention Periods.

prescribed experimental norms. In order to determine whether or not judgments given by subjects during indoctrination periods reflected compliance or conformity, retest periods were run to determine the extent subjects had internalized (conformed to) judgments heard and given during the indoctrination periods. Table IV presents comparison of mean judgments made by indoctrinated subjects in the indoctrination and retention periods. It is readily apparent that the mean judgments made in those periods for both low and moderately arbitrary indoctrinated subjects fall within the respective arbitrary ranges. No significant shifts in judgment means are made from the indoctrination periods to the retention periods.

However, the judgment means of subjects exposed to the high arbitrary range failed, in both the indoctrination and retention periods, to be within the prescribed arbitrary range. It should be noted by inspection of Table IV that while there is an almost total absence of conformity to the high arbitrary range in the retention period (2.67%), the mean of the judgments given in that period (272.13), is still above the upper limit of the moderately arbitrary range. The differences between the judgment means (made by all indoctrinated subjects) in retention periods and the natural norm means for alone subjects (76.44) and for togetherness subjects (86.06) are found in Table V and Table VI respectively, and are shown to be significant at the .0005 level. Thus, while the prescribed experimental norm may not be internalized (as in the case of subjects exposed to high arbitrary ranges) there is, nevertheless, a marked effect on judgments made after indoctrination in the absence of experimental social pressure.

The results of the tests of non correlated proportions, standard

TABLE V

COMPARISON OF NATURAL NORMS FORMED UNDER ALONE CONDITIONS AND INDIVIDUAL
 NORMS FORMED IN RETENTION PERIODS

Natural Norms Alone \bar{X}^*	Indoctrinated Range	Retention Norm \bar{X}	t^{**}	P<
76.44	Low Arbit. (135-165)	140.13	20.40	.0005
76.44	Mod. Arbit. (215-245)	224.27	45.38	.0005
76.44	High Arbit. (375-405)	272.13	28.15	.0005

* Based on range of judgments 2.5% to 97.5%.

** Test of significance of mean difference (Edwards, 1960).

TABLE VI

COMPARISON OF NATURAL NORMS FORMED UNDER TOGETHERNESS CONDITIONS
AND INDIVIDUAL NORMS FORMED IN INDOCTRINATION PERIODS

Natural Norm Togetherness \bar{X}^*		Indoctrinated Range	Retention Norm \bar{X}	t^{**}	$p <$
86.06	vs	Low Arbit. (135-165)	142.53	48.26	.0005
86.06	vs	Mod. Arbit. (215-245)	227.22	120.65	.0005
86.06	vs	High Arbit. (375-405)	312.38	104.49	.0005

* Adjusted (2.5%-97.5%).

** Tests of significance of mean difference (Edwards, 1960)

deviations of means, and test of significance of mean differences (Edwards, 1960) support the thesis of this study. The results as a whole indicate that there is a direct relationship between conformity and compliance and the degree of experimental social norm arbitrariness.

CHAPTER V

SUMMARY AND CONCLUSIONS

The formation and persistence of social norms of individuals in experimental groups were studied. In an unstructured judgment situation, subjects internalized, in varying degrees, the modes and ranges of experimental social norms imposed by plants. Within the limits of this study, it was determined that conformity and compliance are partially functions of the degree of arbitrariness of experimental social norms.

For subjects indoctrinated to low and moderately arbitrary experimental norms, no significant differences were found between the amount of conformity and compliance. Subjects indoctrinated with highly arbitrary experimental norms showed significant differences in the amount of their conformity and compliance to the prescribed norms from indoctrination to retention periods. All indoctrinated subjects means made in both indoctrination and retention periods were significantly different from the natural norm means ($P < .0005$).

To determine the effect of social norm arbitrariness on conformity and compliance, an unstructured judgment situation (MacNeil, 1967) was used. The shotgun judgment situation was used to investigate experimental norm formation. Plants indoctrinated naive subjects with social norms of varying degrees of arbitrariness in the course of interpersonal interaction in the judgment situation. Through the use

of differing degrees of arbitrary norms in indoctrination periods, the relative effect of social norm arbitrariness on conformity and compliance was measured.

Effects of arbitrariness were determined by evaluating indoctrinated subjects' judgments made under indoctrination and retention periods. Judgments were made by subjects of the numerosity of mock targets, purported to be those shot by subjects. Judgments made by indoctrinated subjects were evaluated against judgments made by subjects in the same judgment situation in alone and togetherness conditions in the absence of experimental manipulation.

Discussion of Experimental Results

The ease in which low and moderately arbitrary social norms were imposed upon naive subjects demonstrates the relative lack of structure in the judgment situation. The magnitude of judgments made by subjects exposed to high arbitrary social norms, while below the imposed range, demonstrates the strength of social pressure, as introduced by a planted majority, on individual subject judgments made after social pressure has been removed.

The failure to find evidence to support Hypothesis 3 (b) that conformity will not occur in the moderately arbitrary condition suggests that the moderately arbitrary prescribed range was not sufficiently arbitrary to measure this effect. Ideally, a fourth block of 5 indoctrinated subjects would have been run on an arbitrary range of 395-425 lying between the moderately arbitrary and highly arbitrary ranges used in this study. Unfortunately, time did not permit this.

Individual subjects were unaware that the influence of

arbitrariness of prescribed norms on their judgments was being studied. Ostensibly, the study was conducted to determine the accuracy of individual subjects' judgments of the numerosity of objects in a brief period of time. At no time did subjects indicate that the judgment task was too difficult nor did they question the purported purpose of the experiment.

The increase of the percentage of judgments within the prescribed arbitrary range made by low arbitrary indoctrinated subjects of 80.67% to 86.67% from the indoctrination to retention periods demonstrates the power of experimental plants on internalization of arbitrary norms by naive subjects.

The results of this study suggest that, to a degree, unrealistic attitudes, in relation to unstructured social judgment situations, can be readily imposed on naive subjects through the use of experimental social pressure in the form of majority opinion. These findings have particular relevance to the studies of attitudes and attitude formation. As Sherif (1967) has said regarding attitudes, "Operationally, an attitude may be defined as the individual's set of categories for evaluating a stimulus domain; which he has established as he learns about that domain in interaction with other persons" (p. 344). The present research then demonstrates that significant shifts of attitudes or social norms within the present situation are easily obtained through social interaction with others in only one period. The implications for such research to the area of manpower analysis are obvious. Attitudes toward work, productivity, and/or training may be similarly influenced as were the experimental norms in this study. Through the use of indoctrination sessions with naive

individuals, positive work attitudes and indeed, entire perceptual frameworks might be transmitted by experimental plants. Such a possibility remains open to investigation.

Suggested Research

A limiting factor in the present research was the impracticality because of time of studying conformity and compliance with more than three arbitrary ranges. An obvious difficulty was the use of experimental groups rather than actual social groups where group solidarity and individual member status were known. An interesting finding in the present study warranting further study was the fact that a greater degree of conformity than compliance was found for individual subjects indoctrinated to the low arbitrary range.

A fruitful area of research related to the present situation involves the use of selected members of known status from natural groups indoctrinated with experimental norms of varying arbitrariness. Especially, the effects of interaction of members from two distinct social groups indoctrinated to different arbitrary norms remains as a worthwhile problem of study.

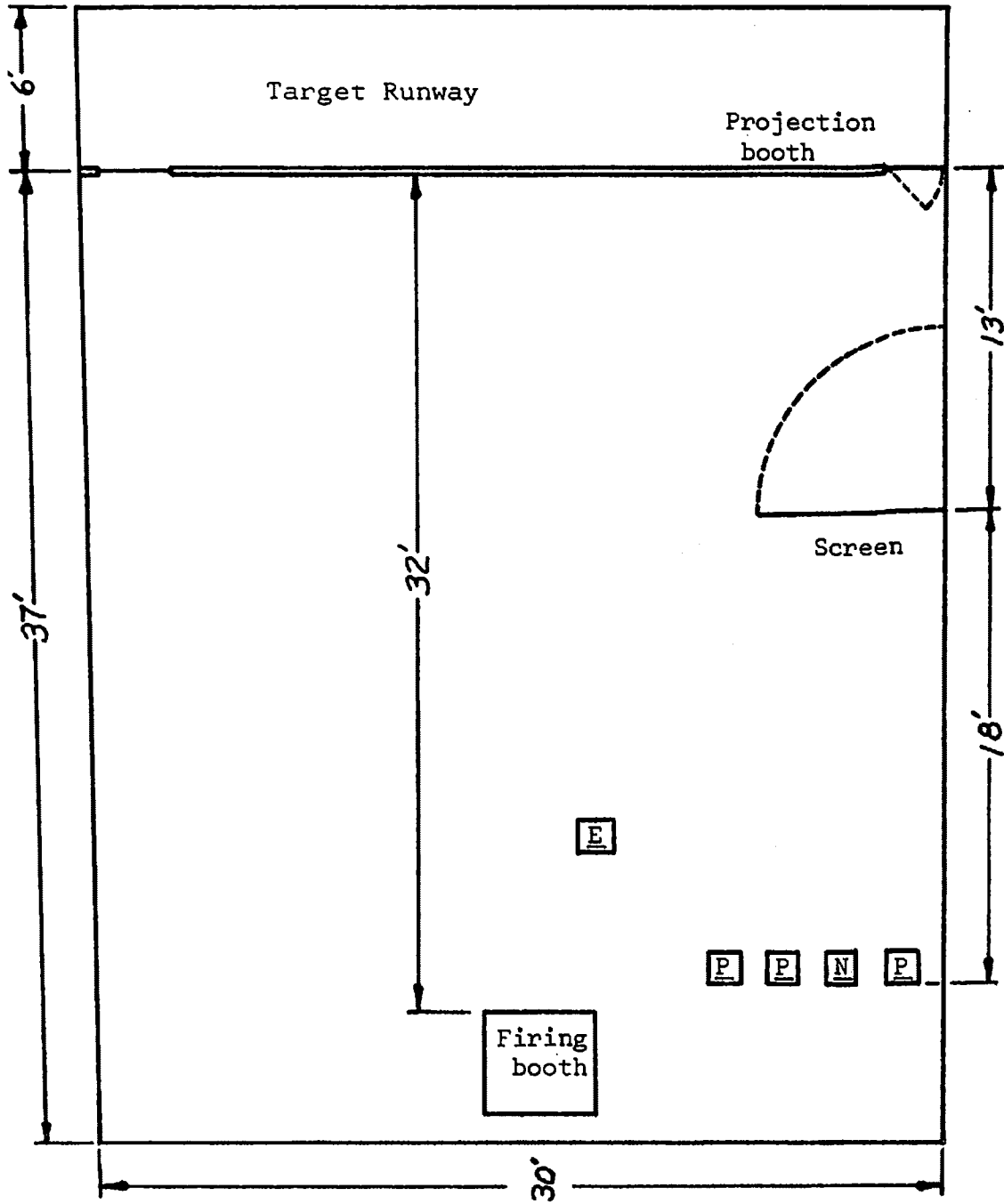
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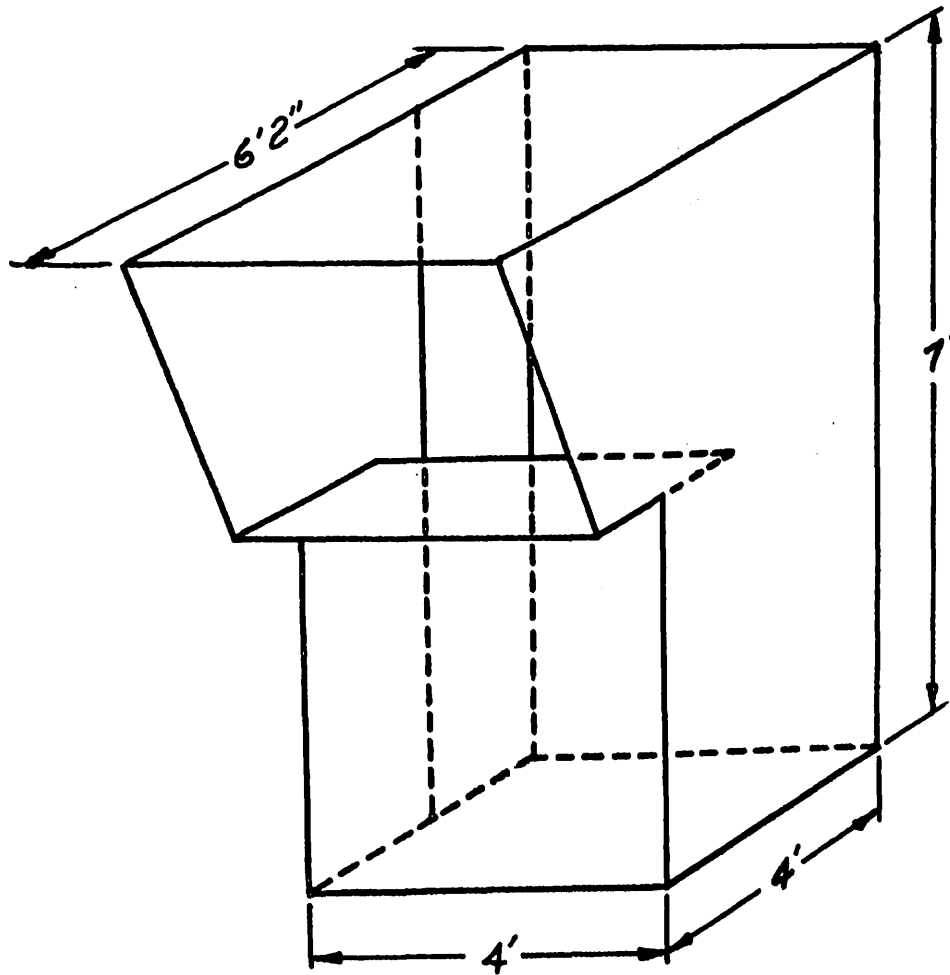
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APPENDIX A

FLOOR PLAN OF JUDGMENT ROOM

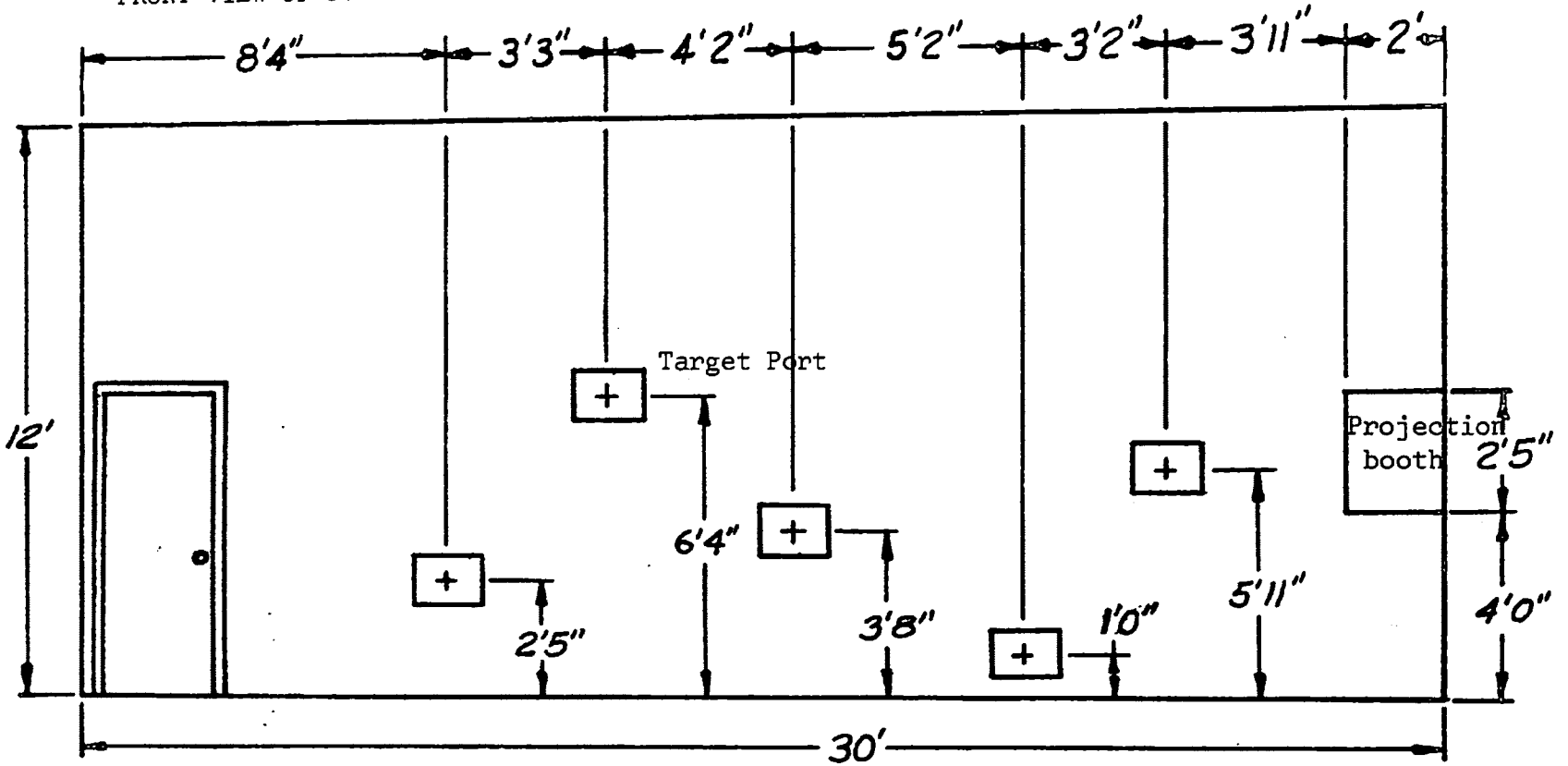


APPENDIX B
DIMENSIONS OF FIRING BOOTH



APPENDIX C

FRONT VIEW OF JUDGMENT ROOM SHOWING LOCATION OF TARGET PORTS AND PROJECTION BOOTH



APPENDIX D

FREQUENCIES OF JUDGMENTS MADE BY SUBJECTS DURING NATURAL
NORM FORMATION UNDER ALONE AND TOGETHERNESS CONDITIONS*

\bar{X}	Frequency	
	alone	togetherness
20	5	1
25	3	0
30	2	6
35	3	17
40	2	36
45	2	60
50	9	53
55	13	44
60	12	65
65	2	61
70	16	148
75	6	269
80	13	325
85	6	267
90	15	270
95	6	195
100	14	230
105	2	49
110	5	66
115	1	14
120	6	44
125	4	22
130	3	34
135	0	7
140	0	40
145	0	5
150	0	43
155	0	2
160	0	15
165	0	0
170	0	2
175	0	2
180	0	2
200	0	3
275	0	1
300	0	1
400	<u>0</u>	<u>1</u>
	150	2,400

*Unadjusted range

APPENDIX E

FREQUENCIES OF JUDGMENTS MADE BY NAIVE SUBJECTS DURING
INDOCTRINATION AND RETENTION PHASES

Low Arbitrary Range 135-165

\bar{X}	Frequency	
	Indoctrination	Retention
80	2	0
85	0	0
90	4	0
95	1	0
100	8	0
105	2	0
110	10	0
115	5	0
120	7	1
125	4	1
130	15	8
135	13	13
140	36	24
145	38	19
150	69	8
155	52	1
160	31	0
165	3	0
	<hr/>	<hr/>
	300	75

Mod. Arbitrary Range 215-124

<u>\bar{X}</u>	Frequency	
	Indoctrination	Retention
100	1	0
175	0	1
180	1	0
185	0	0
190	0	0
195	1	0
200	15	5
205	0	0
210	14	5
215	26	6
220	50	18
225	47	10
230	52	8
235	33	13
240	34	4
245	3	2
250	14	3
255	0	0
260	3	0
265	0	0
270	2	0
275	1	0
280	1	0
285	0	0
290	0	0
295	0	0
300	2	0
	<hr/>	<hr/>
	300	75

High Arbitrary Range 375-405

<u>\bar{X}</u>	Frequency	
	Indoctrination	Retention
120	3	0
125	2	0
130	11	0
135	22	3
140	19	3
145	3	6
150	0	3
240	0	1
245	0	2
250	0	4
255	0	4
260	0	5
265	0	4
270	0	3
275	0	3
280	0	1
285	1	1
290	0	0
295	1	1
300	8	2
305	1	0
310	10	2
315	8	1
320	11	2
325	18	0
330	5	3
335	6	1
340	5	5
345	2	0
350	18	2
355	6	1
360	14	3
365	10	4
370	16	3
375	27	1
380	28	1
385	31	0
390	10	0
395	1	0
400	1	0
425	2	0
	<hr/>	<hr/>
	300	75

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