The effect of the induction of involvement on psychophysical judgments*

STUART LEVINE

Bard College, Annandale-on-Hudson, New York 12504

The present investigation was based on the concept of invariance, which holds that identical principles govern the judgment of stimuli arrayed on both physically and socially defined scales. Two experiments were conducted in which involvement was manipulated through the use of instructions presented in conjunction with category judgments obtained in a training session. This was followed by an anchor session. Experiment 1 employed a series of weights as stimuli, while Experiment 2 used random pattern dot slides. The experiments were similar, except for the inclusion of two additional features in the weight study. These were: (1) positive feedback, introduced as an independent variable between the judgment sessions and tested for its effect as an enhancer of involvement; and (2) two stimuli in the anchor session not part of the original stimulus series. These weights provided a test for the generality of involvement set. Among various hypotheses tested in both studies was the expectancy that the introduction of involvement associated with the formation of a judgment scale would lessen the impact of an anchor on judgment. This expectancy was based on the observed effects of involvement in social judgment contexts. Results of both experiments supported the judgment maintenance hypothesis.

Stevens (1951) has expressed the belief that psychophysics be viewed "as the science of the response of organisms to stimulating configurations [p. 31]." He further noted that the narrow conception of psychophysics, in which the O was construed as a "null instrument [p. 31]" responding to strictly controlled conditions, was rapidly being abandoned. Corso (1967) maintains a similar view concerning the scope of psychophysics, observing that the principles derived from such research can be extended to other contexts, even to the realm of complex social behavior. Indeed, many investigators have expressed the conviction that there is a unitary nature, or invariance, of the laws governing psychological judgments. Sherif and Cantril (1945), for example, have pointed out that judgments made in laboratory and social situations can be described by the same basic laws. Helson (1966) explicated a similar view in relating adaptation-level theory to motivational issues.

Two approaches in empirical efforts providing support for the invariance of judgment laws are observed. The first of these involves the extension of principles derived in psychophysical contexts to judgmental behavior

observed in social situations. The second approach involves testing for the effects of complex psychological variables, known to influence judgments in social contexts, on psychophysical judgments.

Among the earliest attempts to extend the concepts derived from psychophysics were the studies by Hunt (1941) concerning the judged esthetic value of art objects and by McGarvey (1943) dealing with the social prestige of occupations and the desirability of social behaviors. More recently, application of relational judgment concepts are evidenced by studies in such areas as: personality functioning (Berkowitz, 1960), moral judgment (Parducci, 1968), and clinical assessment (Bieri, Orcutt, & Leaman, 1963; Stone, 1969). Typical of this approach are the works of Sherif, Taub, and Hovland (1958) and Sherif and Hovland (1961). The former investigation was a weight judgment experiment. The results showed both the usual perceptual contrast phenomenon and an assimilation effect in which heavier judgments of the original series weights were produced by an anchor equal in weight to the heaviest member of the original series. These findings were then related to social phenomena. Specifically, in their research on attitude change, Sherif and Hovland (1961) found that the effects of communications relative to one's established scale of judgment were displacements much like those observed in the psychophysical context.

Studies using the paradigm for the extension of judgmental principles,

illustrated above, provide partial support for the invariance concept. However, the demonstration of analogous results in the two judgment contexts does not necessarily indicate that they are manifestations of a single process. The question of whether or not the parallel results actually are manifestations of the same process cannot be directly observed or stated in absolute terms. But the cogency of the basic principle of invariance is further enhanced by the use of an alternative research paradigm described below.

If the concept of invariance of judgmental principles is viable, then one would expect that psychosocial variables should have an impact on psychophysical judgments. This view has led to a number of research efforts. Among the variables that have been tested are: *instructional set* (Landauer, 1964; Bevan & Turner, 1964; Parrish & Smith, 1967; White et al, 1968; Over, 1968); *value* (Tajfel, 1959), and variously defined types of *relevancy* (Rogers, 1941; Brown, 1953; Bevan & Pritchard, 1963; Adamson, 1967).

RATIONALE

The studies cited have generally been conducted in isolation from each other and from the thesis of invariance. None of the research efforts were designed to investigate systematically a variable that was derived from a particular judgment model, which was then tested in both psychophysical and psychosocial contexts. In the experiments reported here, a social concept, but one which can be shown to have relied heavily on the results of psychophysical studies for its formulation, was tested for predictable effects within a psychophysical context.

As already noted, the social-judgment model of attitudes relied on principles derived from psychophysical experiments. Among various outcomes from studies of judgment with sensory stimuli, two stand out as having a direct link to the study of attitudes. The first of these, namely assimilation and contrast, has already been described. The second generalization from sensory judgments was based on findings indicating that anchorages could be internal as well as external. Based in part on the work of Tresselt (1947, 1948), this view maintains that past experience provides an individual with a reference scale which then affects his judgment of relevant stimuli. The principle of assimilation and contrast provided the psychophysical basis for the concept of latitudes of acceptance and rejection related to attitude change. The second principle, that concerned

*This article is based on part of a dissertation submitted to the Department of Psychology, State University of New York at Albany, in partial fulfillment of the requirements for the PhD degree. The author would like to express his appreciation to Drs. J. A. Steger, J. C. Mancuso, and N. B. McCutcheon for their assistance and also to Constance Harding for helping conduct Experiment 1.

with internalized anchors, was used to elaborate the relationship between the concept of involvement and the effects of persuasive communications. An individual characterized as involved is said to be making judgments of alternative positions with respect to an internal anchor. With regard to attitude change the predominant response noted among involved individuals is that they remain uninfluenced by communications falling outside of their very narrow latitude of acceptance. However, the concept of involvement can be viewed mainly as a descriptive device. Sherif and Hovland (1961) recognized that much research on the judgmental effects of involvement needed to be done. Their own work relied on the use of criterion groups to demonstrate differential judgmental responses resulting from varied levels of involvement. Ideally, if an issue could be found on which Ss had no attitude, then involvement could be induced differentially and the validity of the concept would be substantially enhanced by then showing the effects of the manipulation. There is probably no social issue toward which any given block of Ss do not have existing attitudes. However, it seems reasonable that most Ss do not have attitudes toward psychophysical judgment tasks. The possibility that some degree of attitudinal involvement could be induced within a psychophysical context provides the basis for the present research.

Two experiments were designed to investigate the effects of the induction of involvement on psychophysical judgments. The major independent variable of both studies was the introduction of an instructional set prior to a category judgment task of a sensory stimulus series. These instructions were designed to involve the S by characterizing the judgments to be made as an indication of a broad range of desirable traits. A second independent variable (Experiment 1) was positive feedback designed to enhance the involvement set. The primary dependent variable in both studies was the measurable amount of perceptual contrast observed during a subsequent anchor session. Also included in the first experiment was the judgment of two additional stimuli during the anchor session that were not part of the original series. These *nonscale* weights (one heavier and one lighter than the respective end weights of the original series) were included to test for the degree to which the involvement effect was limited to the particular stimuli with which it had been originally associated.

The social-judgment rationale provides the expectancy that the

effect of involvement would lead to an adherence to the judgment scale established during the original judgment session. Thus, it was predicted in both experiments that those treatment conditions receiving the involvement induction would show less perceptual contrast in the anchor session than was observed for the control conditions. Inasmuch as positive feedback was conceptualized to function as an enhancer of involvement, it was expected to lead to a difference in the degree of contrast only when it was associated with the original involvement induction. Other hypotheses were formulated to clarify the expected main effect of the studies. It was predicted that original series learning and recall would not vary across the conditions of the studies. Such an outcome would enhance the belief that differential scale maintenance was due to attitudinal differences that were not mediated by a learning proficiency factor in the initial task. It was also predicted that no significant differences in the judgment of the nonscale stimuli would be observed, thereby demonstrating that differential contrast was limited to the particular set of stimuli associated with the involvement set.

EXPERIMENT 1—WEIGHTS

Design

Four groups of Ss participated in a weight-lifting experiment in which a series of five weights were judged on a 5-point category scale (training session, TS) under differing instructional sets. This was followed by a second session (anchor session, AS) in which Ss judged each of the five original stimuli after first lifting a heavier (anchor) weight before each judgment. The category scale 6-10 was used in the TS, Category 6 reserved for the lightest, and Category 10 for the heaviest weight of the series. During the AS this scale was expanded to include Categories 1-5 and 11-15.¹

The conditions compared were: (1) Group 1, high-involvement (H-I), which received both a special set of instructions prior to the TS and positive verbal feedback from both E and a peer (stooge) between the two judgment sessions; (2) Group 2, moderate-involvement (M-I), which received the same initial instructions as Group 1 but was not exposed to the feedback; (3) Group 3, feedback-alone (F-A), which received only standard psychophysical judgment instructions initially but was then exposed to the feedback; and (4) Group 4, a control condition (C) that was given standard initial instructions and was not exposed to feedback.

Method

Subjects. The Ss were 48 Bard College first-semester psychology students. Twelve Ss were run in each condition. Ss volunteered to participate and were unaware of the nature of the study. By restricting the sample to first-semester students, it was felt that Ss would be relatively unsophisticated with respect to experiments involving deception. Ss were assigned randomly to one of the four conditions which were run simultaneously in the order dictated by the random assignment.

Apparatus. The weight-lifting apparatus was constructed from a rectangular (30 x 36 in.) piece of plywood (¾-in.) secured to a table base. This board obstructed Ss' view of E during the judgment phase of the experiment. Nylon cords passed through two holes in the board, 5 in. from the top and 7½ in. from each side. These were used, respectively, for right- and left-handed Ss. On the Ss' side of the board, round metal handles were attached to the end of the cords. At eye level and centered was a holder containing a 4 x 6 in. index card indicating the categories S was to use in judging each weight. A small red light, located immediately below the card, was controlled by E and was used during the AS to indicate the weights on which S was to make a judgment. The weight being lifted was suspended from a hook attached to the cord on E's side of the apparatus. Stops on each cord insured that each weight was lifted the same distance by all Ss. Each cord passed over two pulleys, one on either side of the hole, which was lined with a brass tube. The pulleys and the tube were sprayed with silicone, providing movement of the cord with a minimum of friction.

Stimuli. Glass jars filled with measured amounts of lead pellets and cotton stuffing served as weights, an arrangement preventing Ss from using differential sound cues to guide their judgments. The original series included five weights: 220, 280, 340, 400, and 460 g. The anchor stimulus was a 900-g weight. The choice of series-weight values followed the work of Koslin et al (1967), whose study indicated that most Ss could discriminate between these weight discrepancies.² The anchor value was based on a study by Sarris (1968), which indicated that a 900-g anchor produced a considerable amount of contrast.

Procedure

Training session. All groups received a standard set of judgment instructions. Prior to this, a statement designed to alter the conditions within which they established their judgment

Fig. 1. Mean judgment for the five weights in training and anchor sessions for the four treatment conditions.

scale was read to Ss in the H-I and M-I conditions. The involvement-inducing statement explained that past research indicated that individuals who are accurate at physical judgment tasks, such as judging the relativity of weights or making fine discriminations, are also accurate in many other types of judgments. Ss were told that accuracy in sensory judgment was found to be positively correlated with interpersonal sensitivity, with judging personality characteristics of others, and with intelligence. The statement was concluded by explaining that the present study was being conducted to test out some new ideas related to these past results. All Ss were then given the TS instructions. Ss judged the weights by pulling down on either the right or left handle and assigning category numbers such that the lightest series weight was 6, the next heavier weight was 7, and so on up to 10, for the heaviest weight. Attention was directed to the index card listing these judgment categories. A single familiarization trial in which the weights were presented in order of their magnitude, E calling them by their appropriate category

designations, was followed by 15 trials in which the order of the weights was randomized within blocks of five.

Feedback. Upon completing the TS, Ss were told that a short delay was necessary before a second task and were asked to wait in the corridor. Before leaving, Ss receiving the feedback treatment (Groups 1 and 3) were told by E that it appeared that they had done very well, that they seemed capable of making highly accurate judgments. In the corridor, each S met another student serving as a stooge for E. Within a short time, S was engaged in conversation, the stooge relating that she had been in the experiment the other day but did not have time to finish it and was back to complete it now. Ss in Groups 1 and 3 were asked about their performance, and their replies were followed by the stooge's statement that she had been told of not having done very well. Ss in Groups 2 and 4 were simply engaged in casual conversation during this time.

Recall. Back in the experimental room, Ss were told that a few more judgment trials on the first task were needed. Ss were reminded of the procedure, and the original series of

weights were presented three times each in a manner identical to the previous TS.

Anchor session. The anchor phase of the experiment was explained to S by reading the following: "In this part of the experiment you will judge some more weights. This time, however, you will not be asked to judge all of the weights that you lift. When you are to judge a particular weight, the red light on the panel will go on. In making your judgments of the weights, match them to the weights you have already judged. For example, if a weight that you lift now feels the same as Weight 8 in the previous task, then you should assign it to Category 8, and so on for all the weights that you lift. In addition, if you lift any weights that feel either lighter or heavier than those you judged before, and you are asked to judge them, you can now use the Categories 1 to 5 or 11 to 15." These additional categories were included on the index card on the panel. Ss received 15 trials with each of the original weights presented randomly within blocks of five. The anchor preceded each of the series members; however, Ss were never required to judge it.

Nonscale stimuli. In addition to the original weight-anchor pairings, all Ss judged two additional stimuli (160 and 520 g) randomly dispersed within each of the last five AS trials. No instructions preceded their appearance. They simply followed the presentation of the anchor, and a judgment was called for by the light signal.

The Ss were thoroughly debriefed after completing the study, and the deception employed was explained in light of the hypotheses tested.

Treatment of the Data

Ratio scores. A comparison of contrast differences between treatments required a measure which would reflect the shift in judgment between the training and anchor session. The particular measure chosen was a ratio score (A:T) in which AS judgments were divided by TS judgments. A ratio score of less than

Table 1
Comparison of Pairs of Treatment Condition
Mean Ratio Scores (df = 1,44)

Treat- ment Compara- isons	Ratio Score Means	t	p
1,2	.903-.886	.06	n.s.
1,3	.903-.763	6.86	< .05
1,4	.903-.725	10.89	< .01
2,3	.886-.763	5.21	< .05
2,4	.886-.725	8.93	< .01
3,4	.763-.725	.48	n.s.

1.00 occurs when an AS judgment is lower than a corresponding TS judgment, indicating the presence of perceptual contrast in the AS. Ratio scores were calculated for each S, both on mean judgments for each stimulus within the two judgment sessions and on mean judgments averaged over the five stimuli within the two judgment sessions. Noted here is that a ratio score index of contrast was also used to analyze the data of Experiment 2.

Results

Contrast differences. Results of the study pertinent to the expected differential perceptual contrast across the four treatment conditions are shown in Fig. 1. Differences between the TS and AS mean category judgments were taken as indicating the presence of perceptual contrast, i.e., that the introduction of an anchor weight above (heavier) the original series leads to a downward distortion of the category scale established during the TS.

A two-way analysis of variance for repeated measures on one factor (Winer, 1962) provided the statistical comparison of the differential effects (ratio scores) of the anchor across treatments and stimuli. The analysis revealed a significant treatment effect, $F(3,44) = 27.02$, $p < .01$, confirming the overall prediction of a differential impact of the independent variable. Also expected was that the H-I condition would show significantly less contrast than the M-I condition, which in turn was expected to show less contrast than either the F-A or C conditions, and that the latter two groups would not be significantly different from each other. Results of F tests for a priori comparisons between pairs of treatment condition mean ratio scores, averaged over stimuli, are given in Table 1.

Comparisons of ratio score means indicate that, with one exception, specific scale distortion predictions were confirmed. The H-I condition (Group 1) showed the least amount of contrast, while the C condition (Group 4) was observed to provide the largest shift in mean category judgment. The difference between the M-I (Group 2) and the F-A (Group 3) conditions was significant and in the predicted direction. In two instances, contrast differences between specific conditions were nonsignificant. The similarity in the degree of contrast between Groups 3 and 4 was predicted, inasmuch as feedback was conceptualized to function only as an enhancer of the original involvement set. The contrast difference between Groups 1 and 2 was also observed to be minimal. In this latter case, the results ran counter to those hypothesized.

No specific prediction of a differential anchor effect among the series stimuli was made. The analysis of the data did reveal a significant stimulus effect, $F(4,176) = 51.55$, $p < .01$, a result typical in psychophysical experiments that employ interpolated anchors.³ More pertinent to the present study was the significant Treatment by Stimulus interaction observed in the data, $F(12,176) = 4.10$, $p < .01$. The source of this interaction resides in the tendency of both the H-I and M-I Ss to stabilize their judgments on the lowest weight of the series, while F-A and C Ss showed a continued increasing amount of contrast on the low end stimulus. These results reflect the greater tendency of Ss in Groups 3 and 4 to use the additional categories (1-5) provided during the AS and, as will be discussed, apparently reflects a differential tendency of involved and noninvolved Ss to use the lowest weight of the series as an end anchor in their judgments.

Original series learning and recall. The use of a ratio score measure of contrast provides a statistical control over the possible influence of original series learning on the differential effects observed in the AS. Each S was, in effect, serving as his own control, since his judgments in the AS were converted into a function of his original scale judgments. A Pearson product moment r of .001 was obtained between the TS mean judgments and the ratio scores for the 48 Ss in this study, indicating that the judgments made in the AS were statistically independent of the original series judgments. Beyond this, the TS judgments data were examined for the possibility that the involvement instructions used in Groups 1 and 2 compared with the standard instructions employed in Groups 3 and 4 led to significantly different original judgment scales. The absence of a difference in such scales is evidenced by the correspondence among the TS mean judgments for each weight for the four conditions (Fig. 1). An analysis of variance of the data on the four groups was nonsignificant, $F(3,44) = 1.65$, $p > .10$. These results are taken as indicating that the differing initial instructions did not provide for original series learning differences.

Inasmuch as Ss were exposed to either feedback or null treatment during the interval between TS and AS, the possibility existed that AS scale distortion was the result of recall differences of the original scale following the interval. An analysis of variance of absolute difference scores, taken between the TS mean category judgment and the mean judgment on the three recall trials, investigated this

possibility. The results of the analysis indicated that the four conditions were not significantly different from each other, $F(3,44) = .864$.

Nonscale stimuli. The data analysis of the additional weights was conducted on the mean category judgments obtained during the last five trials of the AS for combined treatments (Groups 1 and 2/involved vs Groups 3 and 4/noninvolved).⁴ AS mean category judgments for the original weights and the two additional stimuli, labeled X (light) and Z (heavy), are shown in Fig. 2.

Results of t tests for the X and Z weights revealed that the mean judgment for the heavy weight between combined groups was not significantly different ($t = 1.80$, $df = 22$, $p > .05$), while the difference between means for the light weight was significant ($t = 3.39$, $df = 22$, $p < .01$). Only partial support thus exists for the hypothesis of restricted involvement effects. Judgments of the heavy weight clearly converge, and while the same tendency is apparent for the light weight, they remain significantly discrepant. An alternative analysis of the nonscale stimulus data was conducted to clarify the ambiguity of these results. Pearson product moment correlations were computed between the ratio scores and AS mean category judgment on the two end-scale weights (6 and 10) for all Ss. Correlations of .905 and .893 were obtained for these stimuli, indicating that the overall index of scale distortion accounted for 82% and 80%, respectively, of the judgments of Weights 6 and 10. Correlations between ratio scores and the X and Z weight judgments were both found to be .526, or only 28% of the variance of these judgments were attributable to the overall treatment effect. These results argue in favor of restricted involvement effects.

Fig. 2. Mean anchor session judgment for the original series and nonscale weights for the combined treatment conditions.

Fig. 3. Mean judgment for the five dot slides in training and anchor sessions for the two treatment conditions.

EXPERIMENT 2—NUMEROSITY

This experiment, designed to replicate the major results of the weight judgment study within a second perceptual continuum, employed the category judgment of numerosity presented in the form of random pattern dot slides. Ss judged a series of five slides containing a varying number of dots under either involvement (Group 1) or standard (Group 2) conditions. An AS followed in which each original dot slide was judged following the exposure of a slide containing substantially more dots (anchor).

Method

Subjects. The Ss were 24 introductory psychology students, recruited from the students enrolled in classes at the State University of New York at Albany. Twelve Ss were run in each condition. As in the previous study, Ss were unaware of the nature of the investigation. They were assigned randomly to the conditions which were run in the order dictated by the random assignment.

Apparatus. Slides were projected onto a light wall using a standard Kodak Carousel slide projector (Model 700) fitted with a cable-activated shutter lens with a timed exposure mechanism. The projector was stationed 8 ft from the viewing surface. S sat at a desk armchair in front of and slightly to the left of the projector, approximately 6 ft from the viewing surface. E sat directly behind S, controlling the presentation of the slides and recording the verbal judgments.

Stimuli. The original series consisted of five 35-mm slides of random patterns of black dots (½ in.) on a

white background. The slides contained, respectively, 17, 23, 29, 35, and 41 dots. The anchor slide contained a random pattern of 150 dots. These stimulus values were previously used by Sarris⁵, who reports that they are a series that is easily discriminated and an anchor producing considerable contrast.

Procedure

Training session. Group 1 received involvement-induction instructions identical to those described in Experiment 1. Ss in both groups then received the standard psychophysical judgment instructions altered only to fit the shift in stimulus material. The original series slides were duplicated and arranged randomly within blocks of five in a Carousel slide tray. Each series stimulus was rotated 90 deg in successive presentations in order to minimize pattern recognition in the judgments. A single familiarization trial was followed by a TS of 10 trials. Each slide was exposed for .5 sec. The interval between slides was not timed, S being allowed to respond before the next slide was exposed.⁶

Anchor session. The AS instructions also paralleled those employed in the weight study. A second Carousel slide tray containing duplicates of the original series, randomized in blocks of five and rotated in the manner described, was used. Duplicates of the anchor slide immediately preceded each original series stimulus, and the AS proceeded in the following manner: The anchor was exposed for .5 sec, followed at machine speed by a .5-sec exposure of an original series stimulus. S's judgment was recorded and the next pair was exposed. There were 10 AS trials.

Results

The results of the experiment concerning expected differences in perceptual contrast between conditions are shown in Fig. 3. As in the weight experiment, a difference between TS and AS mean judgment was taken as an indication of perceptual contrast, i.e., that the introduction of a slide with a greater number of dots than those in the original series led to a downward distortion of the category scale.

The mean judgment of the five dot slides was shifted downward during the anchor session in both conditions. But, the magnitude of this shift was very different for the two groups in this study. A two-way analysis of variance for a design with repeated measures provided the statistical comparison of the treatment effect (ratio scores). This analysis revealed a significant treatment effect, $F(1,22) = 89.87$, $p < .01$, confirming the major hypothesis of the study and replicating the results of the weight judgment study, as did the significant stimulus effect, $F(4,88) = 14.75$, $p < .01$. Also observed was a significant Treatment by Stimulus interaction, $F(4,88) = 5.20$, $p < .01$, once again primarily the result of the different pattern of judgment, between groups, on the slide with the least number of dots.

DISCUSSION

The primary hypothesis of both experiments was that the introduction of involvement associated with the formation of a judgment scale would eventuate in an adherence to that scale. This was expected despite the introduction of an anchor stimulus which, under usual judgment conditions, leads to perceptual contrast. The results of both studies were statistically reliable, revealing that the induction of an involvement set to a large extent lessens the influence of an external anchor. The positive-feedback variable, expected to enhance the involvement set, failed to produce the predicted judgment results. Other findings indicate that the impact of involvement was not mediated by initial learning proficiency, and the data on the nonscale weights provide suggestive evidence that the effect of involvement is specific to the particular stimuli with which it was originally associated.

The data of both studies contained a significant Treatment by Stimulus interaction which apparently reflects a differential tendency for Ss to end-anchor their judgments on the lowest stimulus series member. The use of the ends of a scale as reference points is a familiar judgmental phenomenon. Sherif and Hovland

(1961) point out that in the absence of prior experience with a stimulus series, end values serve as reference points in establishing a judgment scale, and that subsequent judgments reflect the differential use of these end anchors. It is also noted that in addition to own position, an individual's attitude scale is anchored by statements which reflect the ends of the particular stimulus domain, and that involvement increases an individual's adherence to both his own position and to the ends of his scale of judgment. In the present experiments, one may conclude that the tendency to emphasize the use of the end points in establishing the judgment scale, and the effects of such end anchoring, are related to the introduction of involvement. That is, a reduction in anchor session perceptual contrast was, at least in part, a result of the involved Ss' increased use of stimuli at the ends of the series as reference points in developing an initial judgment scale. Noninvolved individuals apparently form judgment scales in which end points are less fixed and are, as a result, more open to the influence of external anchors.

The stated goal of the present research was to demonstrate that the variable of involvement leads to similar patterns of judgment in both psychosocial and psychophysical contexts and that a unitary principle could account for the judgments observed in both contexts. Examined in a social judgment context, involvement has been shown to result in highly specific judgmental behaviors. For example, attitude change research reveals that involved individuals characteristically judge (i.e., displace) moderately remote communications more discrepant from their own positions than do less involved individuals and that involvement most often leads to a maintenance of original position in the face of attitude change communications. In social-judgment theory language, an individual's frame of reference for judgment is said to be composed of his particular latitudes of acceptance, rejection, and noncommitment, and for those known to be involved, the rejection region is proportionately larger than the latitude of acceptance, so that a greater number and range of communications are judged to fall within the latitude of rejection. Thus, given a degree of involvement, a relationship is expected to obtain between communication discrepancy and attitude change, such that the latter will increase with discrepancy of communication only within a given range and beyond which decreasing attitude change is expected. Concisely

stated, the judgment principle extracted from examining involvement effects in psychosocial contexts is that: involvement is associated with a frame of reference for judgment such that statements representing discrepant positions from one's own are judgmentally displaced even further removed and that changes in an original frame of reference (i.e., shifts in own position) are related to the discrepancy of communication in a curvilinear manner.

Psychophysical studies have also considered the relationship between the judgment of a stimulus series and the relative discrepancy of an anchor stimulus (e.g., Sarris, 1967, 1968; Adamson, 1967), finding that anchors beyond a given magnitude of discrepancy from a series begin to lose their effectiveness in producing judgment shifts. Using Helson's (1964) terminology, anchors increasingly removed from the "universe of discourse" (p. 233) of a judgment scale have lessened influence on judgment. The judgmental principle taken from this concern with anchor discrepancy is that: there exists a curvilinear relationship between the discrepancy of an anchor from an original series and the degree of perceptual contrast observed.

It is apparent that pervading both psychosocial and psychophysical judgment contexts is the expectancy of a curvilinear relationship between the degree of discrepancy of a stimulus outside of a judgment scale and observed judgment scale shifts. In psychosocial research, one source of lessening influence of remote communications is observed to be the presence of involvement in an established frame of reference. Suggested here is that a unitary judgmental process can account for results observed in the two contexts, as follows: In conjunction with the establishment of a particular judgment scale, an individual partitions his frame of reference so that he responds to a range of stimuli according to some criterion of relevancy. In both psychosocial and psychophysical contexts the variable of involvement is seen to result in discrepant events being judged as irrelevant to one's own position, thereby having a reduced effect on behavior.

In the present psychophysical research it is proposed that involvement serves to reduce the subjective size of the *universe of discourse* for physical objects in much the same manner that involvement limits the *latitude of acceptance* for social stimuli.

REFERENCES

ADAMSON, R. Anchor effect limits. *Psychonomic Science*, 1967, 9, 179-180.

- BERKOWITZ, L. The judgmental process in personality functioning. *Psychological Review*, 1960, 67, 130-142.
- BEVAN, W., & PRITCHARD, J. The anchor effect and the problem of relevance in the judgment of shape. *Journal of General Psychology*, 1963, 69, 147-161.
- BEVAN, W., & TURNER, E. Assimilation and contrast in the estimation of number. *Journal of Experimental Psychology*, 1964, 67, 458-462.
- BIERI, J., ATKINS, A., BRIAR, S., LEAMAN, R., MILLER, H., & TRIPODI, T. *Clinical and social judgment*. New York: Wiley, 1966.
- BIERI, J., ORCUTT, B., & LEAMAN, R. Anchoring effects in sequential clinical judgments. *Journal of Abnormal & Social Psychology*, 1963, 67, 616-623.
- BROWN, D. Stimulus similarity and true anchoring of subjective scales. *American Journal of Psychology*, 1953, 66, 199-214.
- CORSO, J. Sensory processes: Systematic developments and related data. In H. Helson and W. Bevan (Eds.), *Contemporary approaches to psychology*. Princeton, NJ: Van Nostrand, 1967. Pp. 273-310.
- GUILFORD, J. *Psychometric methods*. (2nd ed.) New York: McGraw-Hill, 1954.
- HELSON, H. *Adaptation-level theory: An experimental and systematic approach to behavior*. New York: Harper & Row, 1964.
- HELSON, H. Some problems in motivation from the point of view of the theory of adaptation level. In *Nebraska symposium on motivation*, 1966. Lincoln, Neb: University of Nebraska Press, 1966. Pp. 137-182.
- HUNT, W. Anchoring effects in judgment. *American Journal of Psychology*, 1941, 54, 395-402.
- KOSLIN, B., PARGAMENT, R., & LEVINE, S. Effect of learning on judgment in the presence of discrepant anchors. *Psychonomic Science*, 1967, 9, 565-566.
- LANDAUER, A. The effect of instructions on the judgment of brightness. *Quarterly Journal of Experimental Psychology*, 1964, 16, 23-29.
- MCGARVEY, H. R. Anchoring effects in the absolute judgment of verbal materials. *Archives of Psychology*, 1943, (281), 5-80.
- OVER, R. The effect of instructions on visual and haptic judgment of the Müller-Lyer illusion. *Australian Journal of Psychology*, 1968, 20, 161-164.
- PARDUCCI, A. The relativism of absolute judgments. *Scientific American*, 1968, 219, 84-90.
- PARRISH, M., & SMITH, K. Simultaneous brightness contrast as a function of perceptual set. *Psychonomic Science*, 1967, 7, 155-156.
- ROGERS, S. The anchoring of absolute judgments. *Archives of Psychology*, 1941, 37 (Whole No. 261).
- SARRIS, V. Adaptation level theory: Two critical experiments on Helson's weighted average model. *American Journal of Psychology*, 1967, 88, 331-344.
- SARRIS, V. Adaptation-level theory: Absolute or relative anchor effectiveness? *Psychonomic Science*, 1968, 13, 307-308.
- SHERIF, M., & CANTRIL, H. The psychology of "attitudes": Part I. *Psychological Review*, 1945, 52, 295-319.
- SHERIF, M., & HOVLAND, C. *Social judgment*. New Haven: Yale University, 1961.
- SHERIF, M., TAUB, D., & HOVLAND, C. Assimilation and contrast effects of anchoring stimuli on judgment. *Journal of Experimental Psychology*, 1958, 55, 150-155.
- STEVENS, S. S. Mathematics, measurement and psychophysics. In S. S. Stevens (Ed.), *Handbook of experimental psychology*. New York: Wiley, 1951.

- STONE, L. Bases for psychiatric prognostic favorability judgments: Psychophysical power functions? *Behavioral Science*, 1969, 14, 133-137.
- TAJFEL, H. The anchoring effects of value in a scale of judgment. *British Journal of Psychology*, 1959, 59, 294-304.
- TRESSELT, M. The influence of the amount of practice upon the formation of a scale of judgment. *Journal of Experimental Psychology*, 1947, 37, 251-260.
- TRESSELT, M. The effect of the experiences of contrasted groups upon the formation of a new judgment scale. *Journal of Social Psychology*, 1948, 27, 209-216.
- WHITE, B. Availability of categories and contrast effects in judgment. *American Journal of Psychology*, 1964, 77, 231-239.
- WHITE, J., ALTER, M., SNOW, M., & THORNE, E. Use of instructions and hypnosis to minimize anchor effects. *Journal of Experimental Psychology*, 1968, 77, 415-421.
- WINER, B. *Statistical principles in experimental design*. New York: McGraw-Hill, 1962.
- WOODWORTH, R. S. *Experimental psychology*. New York: Holt, 1938.
- fraction ($SD/s = .0325$) for weights of the magnitude employed (Woodworth, 1938).
3. Anchors have been shown consistently to affect differentially the judgment of stimuli within a series as a function of the discrepancy between the anchor and stimulus (Guilford, 1954).
4. The decision to combine groups was based on the contrast results, which indicated that positive feedback did not provide an impetus to maintain the original judgment scale.
5. V. Sarris, personal communication, March 1969.
6. Almost no hesitation was observed in Ss' responses in both the TS and AS, and the speed of presentation was generally governed by the time the projector takes to advance to the next slide.

NOTES

1. The use of an expanded category scale was suggested by White (1964) as a method of avoiding forced integration of an anchor into the series and also to correct for end effects. Bieri et al (1966) have also discussed the problem of end effects.
2. The original series weights, while not equally discriminable, were constant for all conditions, thus eliminating the unequal jnds as a factor in the results of the study. The stimuli were separated by at least 4 jnds as interpolated from the results of several studies reporting a relatively constant

(Received for publication April 12, 1971.)