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Effects of Extent of Thought on the Pleasantness Ratings of P-O-X Triads: Evidence for Three Judgmental Tendencies in Evaluating Social Situations

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Two experiments examined the effects of amount of thought on the pleasantness ratings of hypothetical social situations (*p-o-x* triads). The first experiment provided evidence that the time to think about the *p-o-x* triads (an ability-to-process factor) altered the strength of the balance effect but not the attraction effect. The second experiment demonstrated that the personal importance of *x* (i.e., issue involvement—a motivation-to-process factor) yielded the same results as did time to think. These results suggest that attraction, agreement, and balance effects are evoked after differing amounts of thought about hypothetical social situations. Specifically, the (one-sign) attraction effect tends to emerge with less thought than the (two-sign) agreement effect, which tends to emerge with less thought than the (three-sign) balance effect. The application of balance theory to account for these data does not appear as plausible as alternative interpretations.

In Heider's (1946, 1958) balance theory, the focus is on people's phenomenological reactions to social situations. Heider suggested that when people are confronted by multiple pieces (elements) of information, a predilection exists toward processing the items as a cognitively consistent unit rather than as individual cognitive elements. A set of information that possesses balance (i.e., cognitive consistency) is hypothesized to be judged more pleasant, consistent, stable, expected, and harmonious than a set of information that is not balanced.

The most common test of hypotheses derived from balance theory involves subjects responding to various combinations of *p* (oneself), *o* (another person), and *x* (an object or issue) elements. The *p-o-x* elements can be configured as eight distinct triads and generally are the focus of the subjects' attention in one of the following paradigms: (a) subjects' reactions (e.g., ratings of pleasantness, consistency) to the triads are obtained when all of the relations among the elements have been specified; (b) subjects predict how one or more of the relations between elements in the triad might change after the passage of time; (c) subjects try to memorize and later recall the triads they saw; and (d) subjects are asked to specify the nature of the third relation when two have been specified by the experimenter. These studies have clearly supported Heider's hypotheses regarding balance effects, but unanticipated attraction and agreement effects have emerged with unexplained strength and reliability (cf. Mower-White, 1979; Zajonc, 1968). Briefly, an attraction effect means that triads that contain a positive *p-o* relation are judged more pleasant, expected, consistent, and so forth than are triads that contain a negative *p-o* relation. An agreement effect means that triads that contain *p-x* and *o-x* relations that are both positive or both negative are judged more pleasant, consistent, expected, and so forth

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than are triads that contain dissimilarly valenced *p-x* and *o-x* relations.[1]

The Balance Interpretation of Attraction and Agreement Effects

Insko and his colleagues (e.g., Insko & Adewole, 1979; Insko, Songer, & McGarvey, 1974; Tashakkori & Insko, 1979) have accomplished the notable feat of interpreting the attraction and agreement effects in terms of balance theory. Traditionally, the three relations in the *p-o-x* triads have been viewed as balanced if the elements are configured in a manner that yields a positive rather than a negative product when the signs of the three relations are multiplied together. Insko and his colleagues have proposed that the attraction and agreement effects are balance effects that involve subject-generated elements and relations in conjunction with a subset of the elements and relations from the *p-o-x* triads that are specified by the investigator. An attraction effect, for instance, might involve the *p-o* elements and relation, which typically are specified, and the *o-p* and *p-p* relations, which subjects presumably furnish spontaneously. Insko reasoned that people generally have positive regard for themselves, which means that there is a positive relation between *p-p* (see also, Heider, 1946, p. 111). Insko further reasoned (and provided evidence) that subjects assume reciprocal liking and disliking between *p* and *o*. If the relation between *p-o* is positive, subjects presume that *o-p* is positive. If the relation between *p-o* is negative, subjects presume that *o-p* is negative. Note that when *o-p* is positive, agreement exists between the cognitive cycles *o-p* and *p-p* regarding the evaluation of *p*; when *o-p* is negative, disagreement exists regarding the evaluation of *p*. Thus, Insko and his colleagues have derived an ingenious and elaborate explanation for how the attraction effect may actually be an agreement effect.

The next necessary task is to account for the agreement effect in terms of Heider's balance theory. Insko and Adewole (1979) asserted that subjects presume *o* is similar to themselves (*p*), which constitutes a positive unit relation between *p-o*. When this subject-generated *p-o* relation is considered along with the specified *p-x* and *o-x* elements and relations, three-sign balance exists if and only if there is agreement between *p* and *o* regarding *x*. Insko and Adewole (1979), however, varied the similarity of *p* and *o* (to manipulate the *p-o* unit relation) and failed to find dissimilarity eliminating the attraction and agreement effects. Other balance interpretations have been tried as well without much success (Tashakkori & Insko, 1979, in press.)[2]

A problem with this research, as Insko (1981) and his colleagues (Tashakkori & Insko, 1979) have noted, is that subjects' phenomenological reactions cannot be specified in advance:

> There is nothing in balance theory that states before the fact which cycle or cycles will be important. Rather, balance theory simply points to the importance of any implicit aspects of *p*'s phenomenology and assumes that the basic tendency to maintain or achieve balance always operates. (Tashakkori & Insko, 1979, p. 2275)

It can always be argued, therefore, that researchers have not identified and tested the combination of experimenter-specified and subject-generated cognitive elements that are yielding, via balance forces, the attraction and agreement effects. One might counterargue this defense of balance theory by noting that the theory is untestable at present, at least with regard to attraction and agreement effects.

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[1] Recently, attention has turned once again to quantifying balance theory (Tashakkori & Insko, 1979; Wellens, 1979). As sophisticated as are the quantitative analyses, they are mute regarding the underlying psychological process. Moreover, although Insko and his colleagues (cf. Insko, 1981) have made considerable advances in balance research, it cannot yet be maintained that parsimonious and testable explanations for the attraction and agreement effects exist (Tashakkori & Insko, 1979) or that the conditions that strengthen or weaken the balance effect are clearly specified (Mower-White, 1979).

[2] Although this step is necessary if one wishes to explain attraction and agreement effects in terms of balance theory, this step, even when coupled with the previous one, is not sufficient to make the explanation testable or compelling on the grounds of plausibility.

Attraction, Agreement, and Balance Effects: From Simple to Complex Judgmental Processes?

Fundamental to the application of balance theory to account for attraction, agreement, and balance effects is that each can be thought of as a complex, three-sign effect.

During preliminary studies using *p-o-x* rating tasks, we began to think of these effects differently. Our preliminary work involved having subjects rate the pleasantness of the eight *p-o-x* triads and afterwards undergo an interview regarding their ratings. Occasionally, we would obtain sets of ratings that appeared to be noncontingent on the nature of the triads being rated. For instance, a subject might rate all of the triads as 1s, or he/she might rate the first through eighth triad one through eight, respectively. When we spoke with these subjects, they typically reported that they thought the task trivial and unimportant, so they did not bother to think about the triads they were rating.

Other subjects produced simple profiles of ratings—such as ratings from the upper half of the scale when the *p-o* relation was positive and ratings from the lower half of the scale when the *p-o* relation was negative; that is ratings were contingent on at least some (single) aspect of the *p-o-x* triads that were being judged. Interviews with these subjects suggested that they were minimally involved in the rating task. Generally, of course, subjects produced a wide range of ratings across the eight triads. Interviews with these subjects indicated that although they produced a host of explanations for their ratings, most of their accounts required that they had spent *some* time and effort thinking about each distinct triad that they rated (cf. Gerbing & Hunter, 1979).

These admittedly casual observations led us to postulate that attraction, agreement, and balance effects were *not* the consequence of equally complex analyses of the triads (as might be expected if each is a three-sign balance effect) but rather that they differed in the extent of thought required to obtain each, with attraction effects requiring the least and balance effects requiring the most thought about the *p-o-x* elements and relations. Recall that (a) the attraction effect *requires* only that a subject think about one of the three relations (i.e., the *p-o* relation); (b) the agreement effect involves two of the three relations (i.e., *p-x* and *o-x* relations); and (c) the balance effect necessarily involves thought about all three of the relations constituting the triad. Hence, it is possible that attraction, agreement, and balance effects result from distinct judgmental tendencies that are evidenced after differing amounts of thought about the elements of information constituting the triads.

Experiment 1

To test this formulation, subjects were given either 10 or 30 sec to view and rate each of the eight possible *p-o-x* triads. Rogers (1977), in a depth-of-processing study, reported that people tend to think more extensively about a stimulus the longer its presentation (see also, Tesser, 1978). We reasoned that should subjects have no time whatsoever to view and rate the triads, then their ratings would have to be determined randomly. That is, their responses would appear "careless" (i.e., thoughtless), since subjects would be unable, given the time constraints, to think about the triads. As a result, no attraction, agreement, or balance effect could possibly be produced. If subjects had only a brief period of time to think about the triads, then the extent of their thinking about the *p-o-x* elements and relations would be severely limited. Thus, if the attraction effect requires less extensive thought about the triad than the balance effect, then the attraction effect should emerge after a briefer judgmental interval than it takes for the balance effect to emerge. The specific predictions tested in Experiment 1 were that the attraction effect would emerge whether subjects had 10 or 30 total sec to judge each of the triads; that the agreement effect might be slightly stronger for subjects who had 30 rather than 10 sec to judge each triad; and that the balance effect would emerge when subjects had 30, but not when subjects had 10, sec to rate each triad.[3]

[3] Note that the same situations and dependent measures (i.e., pleasantness ratings) are used to assess the

Method

Subjects and procedure. A total of 100 subjects from introductory psychology classes at the University of Iowa participated in groups of 28 to 37 while seated apart from one another in a lecture room.

Subjects were told that the study concerned the pleasantness of a variety of social situations and that those they would be viewing involved "you (whom we shall label as I), another person (whom we shall label as they or them), and an issue or object (which we shall label as it)." In half the sessions, subjects were told that they would have 5 sec to view each of the triads and an additional 5 sec to rate each. The remaining subjects were told that they would be given 15 sec to view and 15 sec to rate each triad. To aid subjects in understanding these instructions and to get an idea of how much time they would have to rate each of the *p-o-x* triads, we presented eight math problems, one per slide, each for 5 or 15 sec, with 5 or 15 sec separating each math problem. Following the practice trials, the eight *p-o-x* triads were presented, one at a time, each separated from the preceding one by a blank slide. Subjects used a 10-point scale (very unpleasant–very pleasant) to rate each triad, which they did while the blank slide was displayed.

Two 10-sec and two 30-sec sessions were interspersed randomly. The order of the eight triads and the order of the three statements constituting each triad were determined randomly for each 10-sec session, with the constraint that the *p-o* relation be represented in a different position in each order. The orders employed for the 30-sec sessions were yoked to the 10-sec sessions. Analyses of the resulting data, including order as a factor, indicated that order did not have a significant impact on the pleasantness ratings. Hence, the order factor will not be discussed further.

Results and Discussion

The pleasantness ratings were analyzed in a 2 (time to think) × 2 (*p-o* relation) × 2 (*p-x* relation) × 2 (*o-x* relation) mixed model analysis of variance in which the first factor served as the between-subjects effect. Analyses indicated, as expected, that more time to think per se had no effect on overall pleasantness ratings of the triads ($F < 1$).

The simple characteristic of whether there was a positive or negative relation between a pair of elements, however, affected subjects' ratings: The strongest was the judgmental tendency for a positive *p-o* relation to enhance the pleasantness ratings (M for attraction = 5.97) relative to a negative *p-o* relation (M for nonattraction = 4.04), $F(1, 88) = 163.34$, $p < .0001$. This, of course, is the predicted attraction effect. In addition, positive relative to negative *p-x* relations in triads were associated with more pleasant ratings of the triads (Ms = 5.37 and 4.69, respectively), $F(1, 88) = 30.69$, $p < .001$; and positive relative to negative *o-x* relations were associated with more pleasant ratings (Ms = 5.13 and 4.89, respectively), $F(1, 88) = 5.19$, $p < .05$. No two-way interaction involving the time-to-think factor was found (ps > .20).

The next stage of analysis also yielded data consistent with the experimental hypotheses. Subjects judged triads in which the signs between *p-x* and *o-x* were similar as more pleasant (M for agreement = 5.44) than triads in which the signs were dissimilar (M for disagreement = 4.58), two-way interaction, $F(1, 88) = 57.05$, $p < .001$. No other two-way interaction and no three-way interaction involving the time-to-think factor was significant (ps > .20).

Finally, the analyses yielded highly significant F ratios for the three-way interaction that is the balance effect (M for balance = 5.28, M for imbalance = 4.74), $F(1, 88) = 22.85$, $p < .001$, and the predicted *four-way* interaction involving the *p-x*, *o-x*, and *p-o* relations and the time-to-think manipulation, $F(1, 88) = 5.69$, $p < .02$ (see Figure 1).

Contrasts were calculated next to decompose the four-way interaction and to determine if, as hypothesized, the balance effect emerged only when subjects had 30 sec to judge the pleasantness of the *p-o-x* triads. The tests proved supportive: Triads were

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emergence of each of these effects. (The effects differ only in how the pleasantness ratings of the various situations are combined.) This fact, coupled with the expectation that both attraction and balance effects will be obtained in at least some cells of the present design, argue against measurement sensitivity accounting for this predicted pattern of data.

Balance theory does not offer clear-cut predictions regarding the effects of extent of processing. If it is assumed that attraction, agreement, and balance effects are the consequence of equally complex and likely analyses of some combination of experimenter-specified and subject-generated elements and relations, then the strength of these effects should be affected similarly by the extent of thinking allocated to judging the triads. However, since balance theory may not be testable when you allow for the possibility of subject-generated elements and relations, any pattern of results that emerges

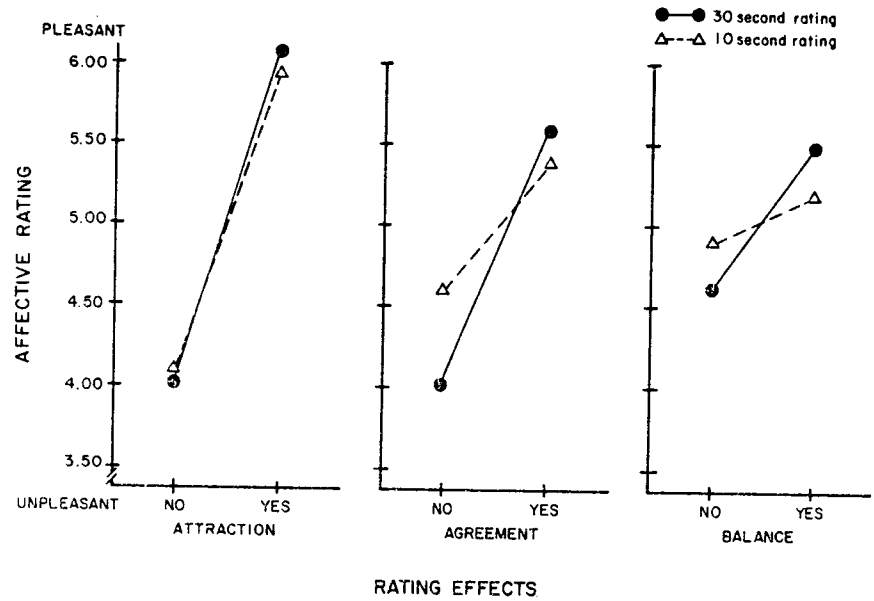

Figure 1. Mean pleasantness ratings for the attraction, agreement, and balance effects as a function of rating interval.

than imbalanced when subjects had 30 sec to judge each, $F(1, 88) = 5.10$, $p < .05$, but the balance configuration had no affect on subjects' ratings when they had only 10 sec to judge each triad ($F < 1$). An analogous contrast for the attraction effect was conducted. This test showed that the *p-o* relation (i.e., the attraction effect) influenced subjects' ratings in both the 10-sec, $F(1, 88) = 12.46$, $p < .001$, and the 30-sec conditions, $F(1, 88) = 18.24$, $p < .01$. A similar contrast when calculated for the agreement effect revealed that the *p-x*, *o-x* agreement affected subjects' ratings strongly when subjects had 30 sec, $F(1, 88) = 16.16$, $p < .01$, but only marginally when subjects had 10 sec, $F(1, 88) = 3.83$, $p < .10$, to evaluate each triad. This pattern of data is displayed graphically in Figure 1 and is completely consistent with the notion that the attraction effect emerges with less thought than does the agreement effect, which emerges with less thought than the balance effect.

In sum, the data from Experiment 1 are in accord with the formulation that an attraction effect is the product of a simple analysis of the triads, whereas the balance effect requires more extensive thought about the elements and relations. Balance interpretations, with their assumption that attraction, agreement, and balance effects each represent the motive to maintain or achieve a harmonic state among sets of experimenter-specified and subject-generated cognitions, must be more contorted to account for these results. Indeed, it would seem that the utilization of subject-generated, in contrast to experimenter-specified, elements and relations (as is more the case for attraction and agreement than balance effects) should require *more* rather than less time to think. Hence, balance theory does not appear fully able to account for these data.

Experiment 2

Underlying our predictions regarding the effects of time to complete the *p-o-x* triad ratings was the assumption that subjects given 30 rather than 10 sec to judge each triad would also devote more thought to the triads. Work by Rogers (1977) and Tesser (1978) supports this assumption, but a second experiment was conducted, nevertheless, to replicate our findings in Experiment 1, to extend the manipulation of extent of thought about the *p-o-x* triads to a factor of social situations that has been more commonly studied (e.g., Rodrigues, 1965; Zajonc & Burnstein, 1965), and to demonstrate that

the same pattern of data is obtained when subjects' motivation rather than ability to think extensively about the *p-o-x* elements and relations is manipulated. We have found previously that increasing issue involvement enhances the amount of task-relevant thinking that subjects expend (Cacioppo & Petty, 1980; Petty & Cacioppo, 1979, 1981; see also Taylor, 1975). We reasoned that high issue involvement should elicit more task-relevant thinking—that is, more thinking about the *p-o-x* elements and relations—than low issue involvement. Therefore, the predictions for Experiment 2 parallel those derived from Experiment 1. When issue involvement is high, subjects are expected to exhibit attraction, agreement, *and* balance effects. When issue involvement is low, however, the subjects' lack of personal involvement is expected to attenuate their task-relevant thinking and, hence, attenuate the strength of the balance effect.[4] Of course there is not an a priori reason, given the existing three-sign balance interpretations of attraction and agreement effects, to expect the pattern of data predicted above.

Method

Subjects and procedure. A total of 52 subjects from introductory psychology classes at the University of Iowa completed the *p-o-x* rating task as part of a session held in a large lecture hall at the beginning of the semester. One subject failed to rate all eight triads, so this subject's data were not included in the analyses.

Subjects were given a booklet explaining that the study concerned the pleasantness of a variety of social situations and that "the ones we are dealing with here involve you (whom we label *p*), another person (whom we label *o*), and an issue (which we label *x*)." In addition, subjects in the high issue involvement condition read:

> In the following situations, think of *x* as an issue that is very important to you, one whose consequences personally affect you. How pleasant is each social situation?

Subjects in the low issue involvement condition read:

> In the following situations, think of *x* as an issue that is very unimportant to you, one whose consequences have absolutely no effect on or relevance to you personally. How pleasant is each social situation?

The remainder of the booklet was identical for all subjects. The triads were presented in a random order, and each was preceded by a blank. Subjects were given as long as they needed to judge each of the eight *p-o-x* triads using the 10-point pleasantness scale. Afterwards, subjects responded to a dichotomous scale that asked whether *x* was an involving or noninvolving issue.

Results and Discussion

Responses to the manipulation check for issue involvement confirmed that subjects were cognizant of the instructional manipulation. All of the subjects (26 of 26) in the low-involvement condition checked the low-involvement item, whereas 23 of the 25 subjects in the high-involvement condition checked the high-involvement item, $\chi^2(1) = 21.82$, $p < .001$.

The pleasantness ratings of the *p-o-x* triads were analyzed in a 2 (issue involvement) × 2 (*p-o* relation) × 2 (*p-x* relation) × 2 (*o-x* relation) mixed model analysis of variance treating the last three factors as within-subjects variables. The analyses disclosed that, as was the case for time to think, issue involvement per se did not affect the pleasantness ratings ($F < 1$). The attraction effect, however, was clearly evident: Subjects rated triads containing a positive relation between *p-o* (M for attraction = 7.07) as being more pleasant than triads containing a negative *p-o* relation (M for nonattraction = 3.58), $F(1, 48) = 98.94$, $p < .001$. The two-way interaction between *p-o* and issue involvement was not significant ($p > .30$).

The analyses revealed a significant two-way interaction indicating an agreement effect as well, $F(1, 48) = 49.85$, $p < .001$, which, as in Experiment 1, tended to be stronger when subjects were exposed to a treatment that was meant to enhance their thinking about the triads (a three-way interaction), $F(1, 48) = 2.74$, $p < .11$ (see Figure 2). No other two- or three-way interaction with issue involvement was significant.

As in Experiment 1, the three-way inter-

[4] We might note that observations reported by Insko and Adewole (1979) are in accord with these predictions. Although no explanation was given, Insko and Adewole reported "a tendency for subjects to react more to the simpler aspects of the triads when they are not personally involved and to react more to the complex aspects of the triads when they are personally involved" (p. 796; see also, Cottrell, 1975; Rodrigues, 1965).

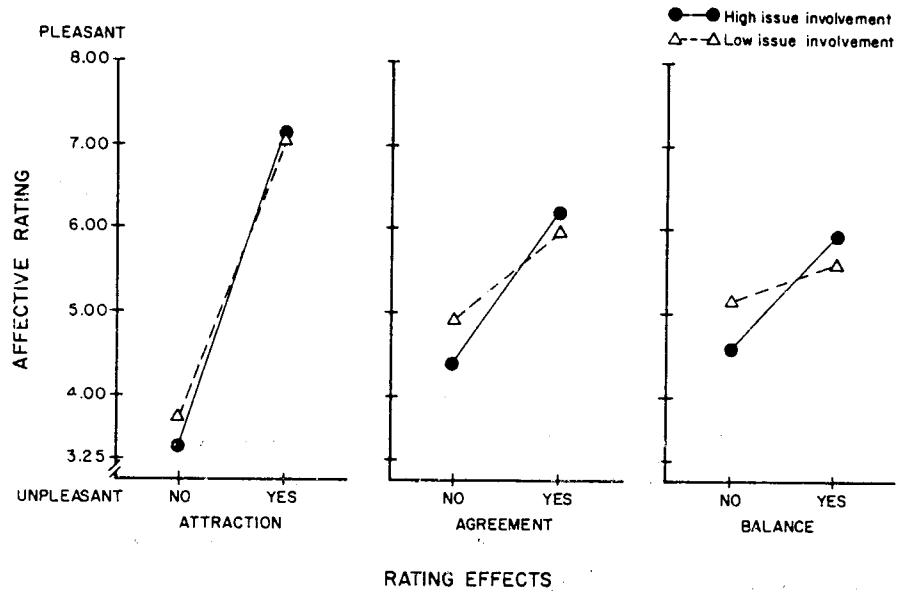

Figure 2. Mean pleasantness ratings of the attraction, agreement, and balance effects as a function of issue involvement.

action that is the balance effect emerged (M for balance = 5.79, M for imbalance = 4.87), $F(1, 48) = 16.81$, $p < .001$, and was qualified by the predicted four-way interaction between p-o, p-x, o-x, and issue involvement, $F(1, 48) = 4.40$, $p < .05$ (see Figure 2).

Contrasts were calculated again to decompose the four-way interaction and to determine if, as hypothesized, the balance effect was significant only when subjects were especially motivated to think about the triads because of the purportedly important nature of x. As can be seen in Figure 2, triads were rated as more pleasant when balanced than imbalanced, when subjects considered x to be an important and consequential issue, $F(1, 48) = 9.54$, $p < .01$, but not when subjects considered x to be an unimportant and inconsequential issue, $F(1, 48) = 1.06$, *ns*. An analogous contrast revealed that the attraction effect was evident whether x was described as personally important, $F(1, 48) = 26.96$, $p < .001$, or unimportant, $F(1, 48) = 22.19$, $p < .001$. A similar contrast, when calculated for the agreement effect, revealed that under conditions of both low involvement, $F(1, 48) = 7.16$, $p < .05$, and high involvement, $F(1, 48) = 18.77$, $p < .001$, triads were rated as being more pleasant when the p-x and o-x relations were of the same rather than opposite sign (see Figure 2). This pattern of data, which is remarkably similar to that obtained in Experiment 1, is consistent with the notion that the attraction effect emerges with less thought than does the agreement effect, which emerges with less thought than the balance effect.[5]

[5] The tests reported above, in which we examined the effects of interactions among the p-o, p-x, and o-x relations and the extent of thought manipulation, deplete our degrees of freedom for orthogonal comparisons. From these tests we found, as one reviewer put it, a "first-order effect" demonstrating the attraction, agreement, and balance influences and a "second-order effect" demonstrating that the strength of attraction, agreement, and balance was influenced predictably by the extent of thought manipulations (e.g., nonsignificant two-way interactions between p-o and extent of thought and statistically significant four-way interactions between p-o, p-x, o-x, and extent of thought). As we have noted and as we shall elaborate on in the Discussion section, this pattern of data seems best explained in terms of a formulation in which the attraction, agreement, and balance effects are viewed as judgmental tendencies that emerge after having devoted differing amounts of thought to the elements and relations in the p-o-x rating task.

A reviewer mentioned also that the impressiveness of the present data would be enhanced if the difference between the 10- and 30-sec slopes in Figure 1 and the low and high issue involvement slopes in Figure 2 were *significantly* greater when the balance effect was being evaluated (third panels) than it was when the attraction effect was being evaluated (first panels). The question, as the degrees of freedom have been partitioned above,

Finally, one unexpected effect was obtained. The analyses indicated that the attraction effect was stronger when *o* evaluated *x* positively (*M p-o* [positive] = 7.48, *M p-o* [negative] = 3.54) than when *o* evaluated *x* negatively (*M p-o* [positive] = 6.89, *M p-o* [negative] = 3.72), $F(1, 48) = 6.80$, $p < .02$. Since issue involvement had no impact on the strength of this effect, it may reflect that instructions about *x* make it a more salient element to subjects and, hence, more likely to be encompassed in their focus of thought and be a part of a judgmental effect.

General Discussion

Clearly, attraction, agreement, and balance effects were produced by subjects' judgments of the eight hypothetical social situations. What is more interesting in the present study is the specification of how factors that influence a person's motivation or ability to think about the triads differentially alters or obviates these effects.

Previous research suggests that people achieve more complex cognitive analyses of a focal stimulus (e.g., a piece of information about a person) when it is presented for a moderate rather than for a short period of time (Rogers, 1977; Tesser, 1978). The more elaborate analyses of the stimulus presumably result from the greater opportunities provided by the longer presentations to rehearse, embellish, and interrelate the items constituting the focal stimulus and information from long-term memory. In Experiment 1, subjects were given either brief (i.e., 10 sec) or moderate (i.e., 30 sec) durations to view and judge each of the eight *p-o-x* triads along the pleasantness dimension. The results indicated that the attraction effect emerged strongly after 10- or 30-sec intervals, the agreement effect tended to be stronger after 30- than 10-sec intervals, and the balance effect was evident after 30-, but not 10-sec, intervals. In Experiment 2, subjects were given as long as they desired to judge the pleasantness of each of the eight triads. Half of the subjects believed that *x* represented a personally important and consequential issue, whereas half believed that *x* represented a personally unimportant and inconsequential issue. This manipulation was selected to alter the amount of thought that subjects devoted to rating the triads by varying their motivation rather than their ability to think about the task (cf. Petty & Cacioppo, 1979). The results constituted a conceptual replication of Experiment 1. The attraction effect emerged whether or not *x* was said to be a consequential issue, the agreement effect tended to be stronger when *x* was consequential than inconsequential, and the balance effect obtained only when *x* was described as consequential.

Given the minimum number of experimenter-specified relations among the *p-o-x* elements that is necessary to obtain the (one-sign) attraction, (two-sign) agreement, and (three-sign) balance effects, and given the pattern of data obtained in both experiments as a function of the likelihood that subjects were thinking (rather than being careless or mindless) about the attributes that constituted the triads that they were rating, we favor viewing the attraction, agreement, and balance effects as the consequence of simple, moderately complex, and complex cognitive analyses, respectively, of the *p-o-x* triads. Furthermore, these experimental results would seem to challenge the plausibility of any testable balance interpretation that con-

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is whether or not the nonsignificant *F* ratio for the two-way interaction between *p-o* and extent of thought is significantly smaller than the *F* ratio for the four-way interaction between *p-o*, *p-x*, *o-x*, and extent of thought. With an alternative partitioning of degrees of freedom, however, the question about this "third-order effect" becomes amenable to an analysis of variance, although the partitioning of the degrees of freedom is not orthogonal to the contrasts employed in Experiments 1 and 2 to test the experimental hypotheses (i.e., the "first- and second-order effects"). Nevertheless, 2 (time to think) × 2 (effect: attraction or balance) × 2 (presence of effect: yes or no) and 2 (issue involvement) × 2 (effect) × 2 (presence of effect) mixed model analyses of variance were conducted to shed some light on this issue. As might be expected by the present formulation, the Presence of Effect × Effect interaction indicated that the attraction effects were larger than the balance effects (*ps* < .05); but the three-way interactions, which indicate whether the difference between the slopes of the attraction and balance effect differed as a function of extent of thought, were not significant (*ps* < .20). Further research into these and other factors that might influence the emergence and strength of attraction, agreement, and balance effects is clearly desirable.

agreement effects require the same amount of thought or are as complex a judgmental process as the (*p-o, p-x,* and *o-x*) balance effect. For instance, balance theory *might* account for these data ex post facto as follows: (a) Attraction, agreement, and balance effects would be conceived as consequences of different, partially overlapping sets of elements and relations, some components of which are specified by the investigator and some generated by the subject; and (b) the focus of attention would be directed initially to the set of elements and relations yielding the attraction effect (which contains a single investigator-specified relation but two subject-generated relations), secondly to the set of elements and relations underlying the agreement effect, and finally to the set of elements and relations yielding the balance effect (which contains the three investigator-specified relations). Surprisingly, according to this account, the last set of elements and relations that elicit subjects' attention would be the investigator-specified *p-o-x* elements and relations!

The notion that attraction, agreement, and balance effects emerge after varying amounts of analysis of the *p-o-x* triads is not only a simple and plausible account of the present evidence, but it is in accord with past research on balance theory as well. Cottrell (1975) found that the "balance rule" was more difficult for subjects to learn and use than the rules of "friendship" (attraction) and agreement. Rodrigues (1965) asked subjects which of a number of issues they favored, which they disfavored, which they considered important, and which they considered unimportant. Tension ratings of triads revealed that the initial likability of the issue was not nearly as important a factor in subjects' judgments of the triads as was the rated importance of the issues: More tension was reported for unbalanced relative to balanced triads when the issue was important, but not nearly so much when the issue was unimportant. Finally, Zajonc and Burnstein (1965) found that balanced triads were learned with fewer errors than unbalanced triads, primarily when the issue was personally important and consequential (e.g., racial integration in contrast to *Newsweek*).

By conceiving attraction, agreement, and balance effects as distinct and increasingly complex products of social cognition, we are faced with the question of what might be the nature of the underlying judgmental process or judgmental processes. Perhaps it is the tendency for people to impose and prefer positive relations among elements (cf. Boucher & Osgood, 1969; Osgood, 1964) that underlies the attraction effects obtained in Experiments 1 and 2 as well as the finding in Experiment 1 that positive relations between each pair of elements were rated more pleasant.

The process accounting for the agreement effect could be due either to a preference for agreement over disagreement with others because of the previous outcomes associated with each (Byrne & Clore, 1970) or to the preference to avoid cognitive work (i.e., the "lazy organism" effect—cf. McGuire, 1969). The former account for the agreement effect presumes that agreement is pleasant because it has been associated with relatively positive outcomes, whereas the latter presumes that disagreement is unpleasant relative to agreement because it signifies that one's attitude might be incorrect. Hence, cognitive work and reorganization are needed.

The balance effect is, of course, explicable as the predicted result of good-figure forces that move people to seek closure, complete gaps, and chunk new, incoming information (Heider, 1946; Sentis & Burnstein, 1979).

In summary, the results observed here suggest that people learn to direct their attention spontaneously to particular *and increasingly complex* aspects of social situations when judging their pleasantness. People may have learned that the single most important relation in a two-person, one-object/issue triad is that which exists between oneself and another person (i.e., the *p-o* relation); the next most thought-eliciting aspect (and single most important *pair* of relations) is that which indicates whether agreement or disagreement exists (i.e., the *p-x, o-x* relations); and the third most thought-provoking (and only complex, triad of relations) is that which involves oneself, the other person, and the object/issue. If this is indeed the case, then the attraction, agreement, and balance effects may be the consequence of three independent judgmental tendencies or

of some yet unspecified single psychological process whose consequences are distinctively evident after differing amounts of thought.

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