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COGNITIVE ORGANIZATION OF PERSON IMPRESSIONS

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This paper reports two series of studies. The first series examines the effect of making first impression judgments on memory for information about the person. It was found that even up to one week later, people have a better memory for facts relevant to the judgment than for irrelevant facts. The second series of studies deals with how memory is searched when making a decision or judgment about another person. It was found that people do not systematically review previously obtained facts about the person. Rather, they recall previous judgments they made about the person, even if those judgments are irrelevant to the present decision, and use them as the basis for the required decision.

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COGNITIVE ORGANIZATION OF PERSON IMPRESSIONS[1]

Our thoughts about another person are rarely haphazard or completely jumbled. Nor are those thoughts usually itemized in a temporal or alphabetical fashion as might be the case with a grocery list or class roster. Rather, it seems that most of the things we know about a person fit together. The person's background, actions, friendships, possessions, and other personal characteristics all seem to follow from one another. The person impression makes sense. It appears to be organized.

Even though our intuitions and informal observations support the belief that impressions are organized, that they have a unity and coherence which distinguishes them from other cognitive arrays, the scientific documentation for this belief is rather skimpy. In this chapter we offer an analysis of impression organization. We review past work in social psychology on impression organization and isolate the several features that appear to underlay most theoretical discussions of the problem. We next show how these fundamental concepts can be effectively represented in terms of modern associative network theory. Finally, we report several series of studies that examine some of the cognitive implications of impression organization.

The Study of Impression Organization in Social Psychology

Concern with how people mentally organize information about social stimuli first emerged in social psychology through the influence of Gestalt theory (Kofka, 1935; Kohler, 1929). Early social psychologists such as Heider (1944, 1946), Lewin (1951) and Kretch and Crutchfield (1948) assumed that many of the Gestalt principles that were known to influence the perception of physical objects also influenced social perception. Such organizational laws as figure-ground, continuation, set, pragnaz, part-whole relationships, past experience, proximity, and similarity are discussed in the theories of these authors. The Gestalt wholistic view of perception emerged as a guiding principle for understanding nearly all social behavior in some of these early theoretical endeavors. For example, one of the guiding principles offered by Kretch and Crutchfield in their 1948 textbook on social psychology was that: "Man is an organizing animal ... As soon as we experience any facts, they will be perceived as organized into some sort of meaningful whole (p. 86)."

Fundamental Concepts in Impression Organization.

A person impression is composed of a heterogeneous collection of elements. That collection may contain observations of the person's behavior, information about the person's likes and interests, knowledge about the person's

memberships and possessions, and characterizations of the person's general traits and abilities. Each separate item that is discriminable from the others is termed a cognitive element. An impression, then, is made up of the cognitive elements that pertain to the person at the time impression-derived responses are being made. Our concern in this chapter is with how these cognitive elements come to be organized into a "meaningful whole."

A number of different approaches have been proposed for understanding how people cognitively organize their social world. Indeed, an entire chapter in the 1968 Handbook of Social Psychology was devoted to this problem area (Zajonc, 1968). Only a subset of these approaches have been specifically applied to the organization of person impressions. Other applications have been to such cognitive domains as nations, social groupings, and a variety of other attitude objects.

We will not attempt to review the differences that exist among the various approaches to the study of organization. These differences are discussed in other sources (e.g., Scott, 1963; Wyer, 1974a; Zajonc, 1968). Our concern, instead, is with identifying the concepts that are common to the several approaches. Fundamental to most analyses of the organization of cognitive elements are the concepts of interelement association and a grouping of elements according to their content theme. These two concepts are

elaborated below.

Interelement associations. One of the earliest comprehensive treatments of interelement association was offered by Heider (1944, 1958) in his discussion of unit formation in social perception. Two cognitive elements form a cognitive unit if they are associated with one another. A person becomes associated with (or in some cases disassociated from) a variety of other features of our perceptual environment. A man forms a unit with his car, his wife, his job, his hobbies, his mannerisms, and a variety of traits that characterize his behavior. These associations typically vary in strength. A person may be viewed as very cooperative but only slightly aggressive.

The above examples of cognitive units were restricted to associations between a person and a feature of the person. However, units can also be formed between two features. For example, the activity of parachute jumping stands in a unit relationship with the traits "daring and adventurous" and the occupation of librarian is associated with the traits "quiet and studious."

Asch (1946) was the first to study such associations in the context of impression organization. He used two kinds of tasks to assess the nature of the traits that are associated with the stimulus person. One task involved spontaneous associations that a person generated when asked to write a brief description of his or her impression.

Presumably this instruction elicited the most salient or accessable of the person's associations. The second kind of task involved directed associations in which the subject was given a list of adjectives and asked to check those that best characterized the stimulus person. In this task, salience is held constant so a person's impression response is due primarily to his or her beliefs regarding the strength of the cognitive unit between the stimulus person and the listed trait. (The implications of this task distinction for the study of cognitive response in general have been discussed by Ostrom (in press).)

The method of directed associations has been the one most widely adopted by researchers interested in impression organization in the years following Asch's initial work. In addition to its use in the study of person impressions, it has been employed to investigate the "implicit personality theory" through which people interrelate general personality traits (Bruner & Tagiuri, 1954). This early work has led in recent years to studying the dimensional structure that underlies the perceived similarities and differences between others in our social environment (Rosenberg & Sedlak, 1972).

Almost all research on interelement associations in social psychology has used the methods described above. That is, subjects are asked to directly report their perceptions regarding the existence of (or magnitude of) an association between two elements. The subjects are invited

to appraise their own cognitive world and describe relevant portions of it to the experimenter. There can be no question that this kind of data is important for understanding impression organization, especially for studying the beliefs people have about how their own perceptions are organized. However, the study of impressions should not be restricted solely to these few manifestations of organization.

We argue in this chapter that the time has come for social psychologists to begin exploring additional ways of assessing interelement associations. Our understanding of the nature of cognitive units has been limited in several ways due to the narrowness of this past emphasis on perceived associations. There are several limitations to the past approach.

First, there is no guarantee that people are conscious of all the associations they have to a person. Just as a computer can scan many memory locations in a fraction of a second, the human mind may also operate with comparable speed in reviewing associations to a person. If this is true, it certainly is not reflected in conscious experience. On most occasions our thoughts about another person procede at a much more sedate tempo, suggesting the possibility that many associations are filtered out before reaching consciousness. If such a filtering process exists (Erdelyi, 1974), it then becomes relevant to ask whether or not the filtered out associations exert an influence on our

responses that is independent of the associations that reach consciousness. Of course such questions cannot be answered until alternative techniques are developed for detecting associations, techniques that are not dependent on the association being verbalized by the research subject.

A second problem with studying only those associations that are reported by subjects is that people may not be able to express all the thoughts that occur to them. The time and effort required to report one association could lead to forgetting of other associations that may have been temporarily stored in short term memory (Roediger, 1978; Sperling, 1960).

A third problem is that even if people were consciously aware of all their activated associations, they may choose to not describe everyone of them to the researcher. Some associations may be withheld because they are seen as irrelevant or unimportant to the aims of the research. Others may be withheld because they seem to be illogical or embarrassing. Even though such associations may not get expressed, it is quite possible they influence impression-mediated responses to the target person.

A fourth problem is that the act of reporting an association may change the nature of its role in the organized impression (Whitten & Bjork, 1977). The strength, or even the very presence, of an association could be affected by the experimenter calling attention to it. By making it

salient to the subject, the weight it carries in subsequent decision making could be altered.

We would like to study impression organization as it affects a variety of social responses, responses such as interpersonal judgments and communication patterns. Unfortuantely, past research has studied only the manner in which the organization affects self reports regarding the nature of interelement associations. Yet there is nothing inherent in the concept of association (or Heider's cognitive "unit") that requires it to be studied exclusively in that manner. A variety of alternative measures useful for studying associations (measures of accuracy, structure, chronometrics) are described in the introductory chapter to this volume. Several of these procedures are used in the research reported later in this chapter.

Thematic grouping of person features. As mentioned earlier, cognitive elements are not only associated with a person, but also to each other. It is this fact that underlies the conception that person impressions are organized into a "meaningful whole." The associations we have about another person "fit together" in the sense that they follow from (or are congruent with one, or more) superordinant themes. In the terminology of Heider's balance theory (1944, 1958), such a theme would exist if a balanced set of unit relations existed among all the person descriptors, and between each of those elements and the person.

It should be noted that this definition of a theme applies to balance among unit relations (Heider's most generic form of association) rather than the more restrictive sentiment relations. An internally balanced theme of "daring" would emerge, for example, if the person were known to engage in such activities as parachute jumping and mountain climbing, and to avoid such activities as visiting libraries and watching television. The former activities have a unit relation with both the person and the theme "daring". The latter two are negatively associated with both the person and the theme. Also, the two activities in each pair are more similar to one another than to either of the activities in the other pair.

This concept of a theme is fundamental to all previous attempts in social psychology to examine how people organize their cognitive worlds. It is inherent in such theoretical terms as "attribute" (Zajonc, 1968), "category" (Bruner, 1957), "concept" (Harvey, Hunt, & Schroder, 1961), "construct" (Kelly, 1955), "dimension" (Osgood, Suci, & Tannenbaum, 1957), "schema" (Kuethe, 1962), and "stereotype" (Katz & Braley, 1933). Each of these several terms evolved within different conceptual frameworks and so differ somewhat in their definitions. However, they all share the concept of a "theme" as we have discussed it above. This concept can also be found in work on learning and memory. A discussion of these ideas can be found in Lingle and Ostrom (in press).

Despite this abundance of theme-related concepts in social psychology, very little is known about how particular themes arise in impression organization. Why do we think of one person as intelligent, another as witty, and a third as adventuresome? When our information about a person can be organized in more than one way, Why does one of the potential themes become dominant while the remaining ones are ignored or subordinated?

Some answers to these questions were sought in Asch's (1946) work on first impressions. He presented his subjects with a person description composed of a list of trait adjectives. Some traits (or more generally, person features) were thought to be especially salient, vivid, or otherwise dominant so as to emerge as the focus of organization. In Asch's research, traits such as warm and cold appeared to occupy this central position, whereas traits like polite and blunt were more peripheral. Asch also found that the order in which information items are presented could influence the nature of the theme. He found that the first items in the sequence tended to provide a thematic organization into which the later items were integrated (this was termed a "primacy" effect).

Most of the research on themes in person impression that followed Asch's work examined the "structure" of impressions. Using the techniques of factor analysis and multidimensional scaling, investigators have studied the

number of themes (or dimensions) people typically use when ascribing traits to others (e.g., Rosenberg & Sedlak, 1972). These procedures also allow the investigator to qualitatively label the dimensions. For example, Rosenberg, Nelson and Vivekananthan (1968) found that two dimensions (one that discriminated good social from bad social and another that differentiated between good intellectual and bad intellectual) were used by their subjects when making impression ratings. Procedures also exist for measuring other structural properties such as complexity, degree of organization, differentiation, homogeneity, segmentation, unity, and valence (Zajonc, 1960, 1968).

Most of this "structuralist" research has been directed toward describing the themes people use (and in some cases, the relationships between themes) in their impressions of others. Unlike Asch's work, it has done little to establish the processes by which one theme rather than another becomes dominant. Perhaps one of the most valuable contributions of the "structuralist" approach was to establish that a single impression may be organized around more than one theme. This possibly was not emphasized in the research of Asch.

Effects of thematic organization.

Most prior research on impression organization has been overly restrictive in the kinds of social behavior

thought to be relevant to the study of organization. This work looked at the extent to which a theme was related to other cognitive elements, but only as subjectively perceived by the person. While it certainly is of interest to understand how people perceive these associations, there are other classes of social behavior that are affected by the thematic organization of impressions. Not only should other kinds of social behavior be studied because of interest in the behaviors themselves, but such research should also improve our understanding of the organizational process. The research reported later in this chapter studies the effects of organization on memory, repeated judgments, and decision time.

Memory is involved in a great deal of social interaction. In conversations we relate anecdotes, describe physical features, and provide character analyses of a variety of current and past acquaintances. It would be expected that an organizing theme should affect the kinds of information items available in memory; memory should be better for theme-relevant than theme-irrelevant information. Since the kinds of information shared in conversation is dependent on what information can be remembered, knowing the effects of themes on memory is integral to understanding social communication.

Most of the people who are important to us are people with whom we have repeated contact and about whom we make

repeated judgments. Those judgments involve such decisions as whether or not to seek help on a term paper or to extend an invitation to a party. The question of interest here is how themes influence repeated social decisions. Are later decisions independent of the earlier ones and based on a review of specific facts known about the person? Or do people sometimes generalize directly from the theme itself?

There are no doubt other important consequences of impression organization beyond the ones studied in this chapter. For example, do themes affect the kinds of information items we notice and attend to when learning more about the person? Do themes affect the nature of the information search we initiate when called upon to make an important decision about another (e.g., take on as a roommate)? Are we more resistant to changing our beliefs about a person's characteristics when those characteristics are theme-relevant as opposed to theme-irrelevant? All these questions are yet to be answered.

Cognitive Analysis of Impression Organization

It was argued in the preceding section that three concepts were at the core of most social psychological attempts to understand impression organization, namely, cognitive elements, interelement associations, and themes. The second major point in that section was that future research on this problem should move away from exclusive dependence on data

derived from subjective reports of associations. The purpose of the remainder of this chapter is to show how a cognitive analysis of impressions can substantially advance these social psychological concerns. Of course a comprehensive understanding of impression organization would involve the many complexities of cognitive processing that are outlined in other chapters in this book (see especially the first chapter by Hastie & Carlston and the last one by Wyer & Srull). Our objective here is much more limited. We propose to illustrate how the previous social psychological concerns regarding impressions can be advanced by viewing them from a cognitive perspective.

In the early and middle 1970's, cognitive theorists began work on associative network models of memory (e.g., Anderson & Bower, Collins & Loftus, 1975; Wyer & Carlston, 1979). One of the goals of these theories is to understand sequential processes in human thought. Why, they ask, does one thought follow from another? Impression organization would be analyzed and explained by these theories in terms of the sequence of thoughts the perceiver has about the target person. This conceptual assumption is very different from the "wholistic" Gestalt orientation that guided the early research on the problem in social psychology.

In our presentation of an associative network analysis of impression organization we will not adhere strictly to any one of the models that have been proposed to date.

Instead we draw upon the terminology and spatial metaphor that are common to all.

Cognitive elements are termed nodes by these theories. Many nodes correspond to concepts for which we have approximate semantic labels (e.g., run, face, or cloud); other nodes can't be labeled so precisely (e.g., the aesthetic experience of observing the setting sun from a deserted beach). Indeed, it is useful to posit the existence of a person node that cannot be labeled by using any feature of the person such as his name, race, or occupation. This is because each feature is represented in the system by a separate node of its own. The person node, then, represents the central person concept to which all nodes representing relevant cognitions about the person are associated.

Nodes are connected to one another by pathways. When one node is activated (e.g., we learn a friend has failed his psychology quiz), other nearby nodes will be activated (e.g., the friend failed his math quiz on the same day) and remote nodes will not (e.g., the friend has blue eyes). Nodes connected by short pathways are more closely associated (and therefore more likely to follow each other in thought) than those connected by long (or no) pathways.

Any person feature that stands in a unit relation (in Heider's terms) to a person, would be represented by a pathway connecting the person node and the feature node. However, there may or may not be a direct pathway connecting

any particular pair of feature nodes. Within this conceptual system a feature node would become an "organizing theme" (or a theme node) to the extent that it is: a) connected to the person by a very short pathway and b) connected to a large percentage of the other feature nodes by relatively short pathways. For example, the characteristic "belligerent" would become a theme node if all the behaviors one observed were seen as being of a hostile, aggressive or threatening nature. Defined in this manner, a theme node will be readily activated once the person node is activated. Once the theme node is activated, the related feature nodes become immediately accessable.

There are several important implications of this approach for understanding themes. It leaves open the question of whether or not the person is aware of the strength (or existence) of an association. One need not be committed conceptually or methodologically to the assumption that people can accurately describe their cognitive associations.

Second, this orientation makes us aware of the possibility that almost any descriptor node could emerge as a theme. For one person it might be his race, for another his flowing red hair, for a third his polished and urbane manner, for a fourth a trait such as intelligent, and for a fifth his occupation (e.g., the typical professor). This abundance of possible themes suggests that the search for "fundamental" dimensions of person organization that has

typified the structuralist approach is completely futile, at least in regard to how we organize our impressions of specific individuals.

Third, and most important, the associative network orientation offers some guidance in understanding how a node may come to serve as an organizing theme. To acquire that status, it must be linked to the person node and pathways to other feature nodes of the person must be established. Next, we discuss several ways this could occur.

Determinants of Theme Nodes

A theme node might be based on a specific item of information received about a person. An example of this was when Asch (1946) directly informed his subjects of the traits warm or cold. In this case, the associative network representing the person would be collectively determined by the theme node, the other items received, and their semantic associates. It is of interest to note that the particular semantic associates brought to mind by a representation may be collectively determined by the particular theme and items that constitute the representation. For instance, the information item "determined" when presented in conjunction with "warm" may bring to mind "steadfast", but when presented in conjunction with "cold", "determined" may bring to mind "stubborn" (Ostrom & Essex, 1972; Wyer, 1974b; Zanna & Hamilton, 1977).

A theme node can also be derived by the perceiver and need not represent an explicit item of person information. Trait labels, such as extrovert and intelligent, can represent abstractions from observed behavior. If each of several information items is closely linked to the same node, that node will be activated each time each of the descriptor nodes is activated and thereby come to take a central position in the network. For example, the "intelligent" node is activated three separate times upon learning the three facts that the person is a member of Phi Beta Kappa, solved a difficult puzzle, and beat Bobby Fisher in chess. Repeated activation of the "intelligent" node in conjunction with the person node would establish a short pathway between the two, allowing the theme of intelligent to emerge.

There is at least one more way theme nodes can be created. This third approach provided the basis of the empirical work we report later in the chapter. As indicated in the first chapter of this volume, most thought is purposive (or goal oriented) in nature. In most tasks (and many interaction settings) people expect to be making judgments and decisions regarding other people. When explicit judgments are required, judgments themselves may activate a theme node and create pathways to the other nodes representing person information. For example, employment managers must decide whether or not to hire an applicant for a specific job (e.g., an insurance sales person). Items of person

information relevant to the job (e.g. friendly, persuasive) are connected by short pathways to the occupation node and irrelevant items (e.g. strong, gentle) are more remotely associated. Because decision tasks require explicit activation of these nodes and consideration of these pathways, it is reasonable to posit that such judgment nodes can acquire thematic properties. This supposition was tested and confirmed in our research.

We turn now to the research which has emerged from this analysis of impression organization. The first section examines the effect of themes on memory and the second presents work on how themes can affect judgments.

The Influence of Themes on Memory

People have a variety of plans and goals when interacting with and acquiring information about others. Sometimes this involves forming a general impression and sometimes it requires specific judgments or decisions about others. When a judgment is made, it may become a thematic node around which information about the person is organized. For example, a judgment made concerning a graduate school applicant's proficiency as a graduate student may serve as an organizing theme for the cognitive representation of information concerning that applicant. One of the consequences of such a thematic organization is that theme-relevant information should be more readily available in memory than

theme-irrelevant information. In the graduate student example, information relevant to the perceiver's judgment (e.g., GPA, GRE scores, research experience, etc.) would be mnemonically represented as a thematically organized cluster and hence should be more easily accessed from memory than other information irrelevant to the judgment (e.g., hometown, extracurricular activities, physical appearance, etc.).

The series of studies in this section investigated the organizing influence that an initial person judgment can have upon the representation of information about the person in memory. In the first two studies, the influence of an initial person judgment upon subsequent recall and recognition of person information was investigated. In the other three studies, the cognitive processes that are involved in the organization of a person impression are explored in greater detail.

All of the studies reported here utilized a paradigm in which subjects read a list of characteristics describing a hypothetical target person and made a judgment (on a 21 point scale) concerning the target's proficiency at an occupation (e.g., bankteller, pilot, comedian, etc.). After a period of time (ranging over the five studies from immediately to one week), subjects were given a test to determine whether more theme-relevant than theme-irrelevant items were remembered. In all experiments, several stimulus

replications were used to provide greater generalizibility.

Relevant Items are Remembered Better than Irrelevant Items

In the initial experiment, reported in Lingle, Geva, Ostrom, Leippe and Baumgardner (1979), subjects were given a list of eight traits describing a target person and asked to predict the target person's success at a designated occupation. Through pre-testing, four of the eight characteristics were chosen to be relevant to the decision and the other four were irrelevant to that occupation. For counterbalancing purposes, other subjects were given an occupational judgment relevant to the latter four traits and irrelevant to the former. On the next page of the booklet, subjects were unexpectedly asked to recall as many of the traits as they could. It was found that subjects were able to recall significantly ($p < .002$) more characteristics that were relevant to their judgment than traits that were irrelevant (Ms = 2.49 and 2.09, respectively). Theoretically, judgment-relevant items were more closely linked to the theme node than were the judgment-irrelevant items. The superior recall of judgment or theme-relevant items parallels the findings of Dooling and Lochman (1971) and Sulin and Dooling (1974) concerning the facilitating effects of thematic organization on recall.

In associative network terminology, the occupational judgment or theme constitutes the nodal focus of an organized

impression with strong associative pathways extending from it to relevant characteristics. Since the judgment was the dominant goal during information acquisition, the theme node should be easily accessed. The question "What do you remember about the person?" should lead to the theme node being more readily accessed than any informational node.

The second study in this series (also reported in Lingle, et al., 1979) had three basic objectives: (1) to extend the findings of the previous study to recognition memory, (2) to examine subject's recall of the theme itself, and (3) to investigate the effects of a thematic judgment over a one week period.

The interest in investigating the effects of time stems from the possibility that as time passes subject may gradually forget the exact characteristics that described the person and utilize the recalled theme in an attempt to "reconstruct" the information (Bartlett, 1932). After only a short delay we may expect subjects whose mental representations of the target person are thematically organized to remember information directly as well as mediated through the theme. As time passes, the ability to directly access information wanes and subjects should come to depend more on the theme as a cue to accessing their memory. Over time, then, overall accuracy should decline because of an inability to remember theme-irrelevant items and the intrusion of theme-relevant errors. Several studies from the

cognitive literature on memory document the existence of such memory deficits (e.g., Higgins & Rholes, 1978; Loftus, 1975).

In an initial session, subjects received a photograph and eleven characteristics that described the target person. They were asked to make an occupational judgment concerning the target person (as was done in the first experiment). For half of the subjects all eleven characteristics were relevant to the judgment and for the other half, all eleven were irrelevant. Another stimulus replication was conducted in which the occupation was relevant to the latter characteristics and irrelevant to the former. Half of the subjects in each of the two judgment conditions (judgment-relevant information vs. judgment-irrelevant information) returned after one day and half returned after a one week time lapse.

In the second session, all subjects were asked to recall the occupation that had been the focus of their judgments in the first session and also to indicate the scale rating that they had made concerning the target person's potential success. Subjects were next given a list of thirty-three characteristics and asked to circle the eleven that had been previously used to describe the target person. Contained in this list were the original 11 characteristics seen in the first session randomly mixed with 22 previously unpresented characteristics. Half of the 22 new characteristics were relevant for the occupation judged and half were irrelevant.

Recall for the occupational judgment and recall for the scale rating were nearly perfect for all subjects and not affected by the time lapse. Ninety-six percent of the subjects were able to recall the occupation and 97% were able to recall their ratings within one point on the 21 point scale.

The mean number of recognition errors for the judgment-relevant and judgment-irrelevant characteristics is presented in Table 1. Subjects in the judgment-relevant condition

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Insert Table 1 about here

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made fewer errors than those in the judgment-irrelevant condition ($p < .002$). This replicated the main finding of the first study. Although the passage of time increased the total number of errors ($p < .001$), it did not have the expected effect of magnifying the relevant-irrelevant difference. One possible explanation is that subjects in the judgment-irrelevant condition spontaneously developed their own theme that was separate from the initial judgment and used this as an aid for recall. This is especially likely when, as in this second study, the items of person information were homogenous in that they all related to a single specific occupation.

Encoding and Retrieval Explanations

There are different ways in which a thematic organization may potentially influence memory for theme-relevant vs. theme-irrelevant information. One possibility is that the theme itself may serve as a retrieval cue. From the second study mentioned above, we may infer that the judgment was a highly salient feature of the experimental task. It may be that the recall of the easily accessible theme facilitated recall of the semantically associated theme-relevant characteristics.

Another possibility involves the differential encoding of theme-relevant and theme-irrelevant information. During their initial exposure to the stimulus information, subjects may have attended more closely to those characteristics that were relevant as opposed to irrelevant to their judgments. This may have resulted in subjects either (or both) selectively encoding the theme-relevant items or processing the relevant items more "deeply" (Craik & Lockhart, 1972) and hence showing better retention for them.

These encoding explanations may be contrasted to the retrieval cue explanation in that they emphasize the presence of the judgment-theme during the subjects' first encounters with the characteristics. Both the encoding explanations imply that judgments introduced sometime after a subject first encounters the person's characteristics should not have a pronounced effect on recall. A series of studies conducted

by Geva (1977) empirically contrasted the retrieval and encoding explanations through the use of a sequential-judgment task. In this task subjects made two occupational ratings instead of just one. Usually the second judgment was unexpected and made without direct access to the stimulus information.

In the first experiment in this series, subjects were given a list of ten characteristics describing the target person and asked to judge how successful the target person would be at an occupation. Half of these characteristics were relevant for the initial judgment and half were irrelevant. Immediately following the judgment, subjects were given a five-minute distractor task (reading a statement concerning discrimination in employment practices). The purpose of the distractor was to temporally separate the exposure of the characteristics from the second judgment task to eliminate the effects of short term memory.

Following the distractor, one third of the subjects were directly asked to recall as many of the characteristics as they could (this replicates the recall study described earlier and so is termed the "replication" condition). Another third were asked to make a second occupational judgment concerning the person (without looking back at the characteristics). The characteristics in the original list that were irrelevant for the first occupational judgment were relevant for this second judgment (related second judgment condition). Immediately following the second

judgment subjects were asked to recall the original list of characteristics. The final third of the subjects were also asked to make a second occupational judgment prior to recall; however, none of the original traits were relevant for this judgment (unrelated second judgment condition).

If the retrieval explanation accounts for the original recall findings, then the inclusion of a second judgment that is relevant to half the information (as in the related second judgment condition) just before the recall task should facilitate recall for that information (i.e., the information that was irrelevant for the first judgment). Since the second judgment should be more salient than the first at the time of recall, the retrieval model predicts a reversal of the original finding in this condition. The encoding explanation, of course, would predict no difference between the recall patterns in these two conditions.

In third condition, the most salient (i.e., the second) judgment was not related to any of the characteristics. In this situation the retrieval cue explanation would predict a general decline in total recall, while the encoding explanation would predict no differences between the recall patterns here and those of the other two conditions.

Table 2 presents the recall means across the three conditions for characteristics that were relevant and irrelevant to subjects first occupational judgment. Note that those characteristics irrelevant for the first judgment

were relevant for the second judgment in the related

Insert Table 2 about here

(second judgment) condition. Analyses of these data revealed only a main effect ($p < .001$) for relevancy to the first judgment. In all three conditions, subjects remembered items that were relevant to their initial judgment better than the irrelevant items. Thus, these results favor the encoding over the retrieval explanation.

If one assumes an encoding explanation of the recall patterns described above, then several additional predictions follow. If subjects are encouraged to encode information around two theme nodes, each relevant to a different half of the information set, then a) overall recall should improve and b) the relative superiority of recall for items relevant to the first (as opposed to the second) judgment should be eliminated. The last two studies in this section pursue these implications.

The first of the two studies tested these predictions using the sequential judgments paradigm. One condition was a replication of the "related second judgment" condition in the last experiment. The second condition was identical except that subjects were re-exposed to the original list of characteristics at the time they were asked to make the second judgment. This "reminder" gave subjects an opportunity to selectively encode the characteristics

relevant for the second judgment as well as those relevant to the first judgment.

The recall means for the reminder and no reminder conditions are presented in Table 3. Not surprisingly, more characteristics were recalled in the reminder than in

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Insert Table 3 about here

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the no reminder condition ($p < .001$). Also, there was an interaction between the two experimental variables ($p < .05$). The previously obtained superiority of recall for items relevant to the first judgment was found in the no reminder condition but not in the reminder condition. The no reminder condition replicated the results of the preceding experiment, but these recall differences were eliminated when subjects were given the opportunity to re-encode on the second judgmental dimension.

While these results are congruent with the encoding model, there exists an alternative explanation of the results. It is possible that the absence of recall differences in the reminder condition was the result of a "ceiling effect" on the recall measure, since re-exposure improved memory in all conditions. This alternative explanation was ruled out in the next study.

A second way to eliminate differential encoding of items relevant to the first judgment would be to make both judgments salient at the time the information is originally

presented. One condition of this experiment (Geva, Pryor & Ostrom, Reference Note 1) provided a replication of the "related second judgment, no reminder" conditions in the last two experiments described. In a second condition, subjects received both judgment dimensions simultaneously in conjunction with their initial exposure to the list of person characteristics. Thus, although the judgments were ordered on the page in the same sequence as in the other condition, subjects were aware of both judgment dimensions during encoding. It was expected that this simultaneous encoding on both dimensions would eliminate any recall differences by encouraging subjects to develop two themes during encoding.

The pattern of recall means was similar to that of the preceding study (see Table 4); however, the level of significance was marginal. Overall recall was better in the simultaneous condition than in the sequential condition ($p < .05$, one tail). As in the previous studies, items

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Insert Table 4 about here

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relevant to the first judgment were recalled better than those relevant to the second judgment ($p < .05$, two tail). This relevance effect was weaker in the simultaneous condition than in the sequential condition ($p < .10$, one tail). Table 4 shows that the improvement resulting from providing a second theme at the time of encoding was primarily due to

the recall of items that were irrelevant to the first theme. Memory for items relevant to the first theme was not substantially improved.

Summary and Discussion of Memory Findings

Several basic points emerge from the five studies reported in this section. Theme nodes can be activated in first impression settings by assigning the perceiver the responsibility of making a judgment or decision about the target person. Presumably this is but one of a class of goals the perceiver may have in interpersonal settings. It may be, then, that most any dominant plan or goal a perceiver has at the time he or she is acquiring information about another person could become a thematic node for organizing the information.

The second major point is that theme-relevant information is recalled (and recognized) better than theme-irrelevant information. Relevant information is more readily accessed up to at least a week after acquisition. In absence of re-exposure to the old information (or encountering new information), the thematic organization that originally structured the impression carries forward with little alteration. Even the subsequent imposition of judgments related to different portions of the information set does not lead to a revision of the original thematic structure.

In the tasks employed in the present studies, it appeared that the memory findings were due to encoding

processes. While it is possible that the theme acted as a retrieval cue for theme-relevant information, selective encoding of the theme-relevant information was necessary to produce the obtained selective recall. Judgments that were made subsequent to subjects' initial thematic encoding of the information failed to affect recall. Therefor, any retrieval-cue process that may have influenced the reported recall differences was necessarily mediated by selective encoding. There are no doubt other task settings in the person perception domain in which selective retrieval may operate alone to affect the availability from memory of information about others (c.f., Snyder & Uranowitz, 1978).

The Influence of Themes on Judgments

In the studies discussed thus far, first impression judgments were shown to thematically organize impressions by influencing the kinds of person information that are available in memory. This section considers the question of how people draw upon that available information while in the process of making judgments about people.

When making judgments and decisions about friends and acquaintances, we are able to draw upon a large array of past information and thoughts we have had about the person. We needn't rely solely on the information available from our environment at the time the judgment is made. For example, you might be asked to judge how attractive a friend's

girlfriend is. If she is physically present at the time of judgment (or if a photo is available) your response could rely exclusively on a direct appraisal of her physical features. We can also make such judgments even if she is not present. We do this by drawing on our memory of past encounters with her. This distinction between judgments made with stimulus information directly available (stimulus-based judgments) and judgments that rely on our memory about the person (memory-based judgments) is important when considering past person perception research. Nearly all this work has been restricted to stimulus-based judgments made of hypothetical persons. Yet it would seem that most day-to-day judgments are made in regard to familiar persons about whom we have a fairly rich set of facts and thoughts in our memory.

In the past there has been little or no work on the difference between judgments that are memory-based and information-based. The last three studies of the preceding section provide some data relevant to this difference.

In the "related second judgment" conditions of these studies, subjects made two sequential judgments, both of which were relevant to the information. The first judgment was made while the stimulus information was available for review (stimulus-based) and the second judgment was made after the stimulus items had been removed (memory-based). Because order of the two rating scales was counterbalanced,

any differences in the two ratings would be due exclusively to their placement in the experimental booklet. In comparing the two occupational ratings for each of the three sequential judgment studies (see Table 5), the memory-based rating was

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Insert Table 5 about here

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always less polarized than the stimulus-based rating. The stimulus-based rating was more extreme (on a 21-point scale) by 1.1 points in the first study ($p < .06$), 2.7 points in the second ($p < .01$), and 2.2 points in the third ($p < .01$).

This finding is provocative in that it implies that the thematic nature of an initial person impression has direct consequences for subsequent judgments. Apparently, the process people use to make decisions differs according to whether information is directly available as opposed to depending on their memory.

The thematic organization of an impression could affect subsequent memory-based decisions in at least two ways, either of which might account for the judgment polarity differences presented in Table 5. First, it might be that people search their memory for previously acquired factual information about the person. It is clear from the studies in the previous section that if such a "memory-for-facts" decision process were employed, a person would be more likely to recall facts that were relevant, as opposed to irrelevant, to an earlier thematic judgment.

When a second judgment was similar to a first judgment, these facts would also be relevant for making the new decision. However, when the second judgment was dissimilar to the first, (as was the case in the reported studies) remembered facts would not be relevant to the second judgment. Such a memory bias might easily make subjects less certain about a memory-based second decision as compared to a stimulus-based initial judgment. This uncertainty, in turn, could result in subjects making less polarized judgments.

Simply because subjects are capable of remembering facts about a person (as demonstrated in the memory experiments), does not necessarily mean that these facts will be actively recalled and considered whenever a memory-based decision is made. An alternative decision making procedure would be to rely on memory for the general theme around which their impression is organized. For example, once a subject has decided someone is the kind of person who would make a good lawyer, he or she might then decide that the person would also make a good doctor (based upon some type of stereotypical notion of what a good lawyer is like). A subject might think something analagous to, "This person would make a good lawyer; traits associated with good lawyers include articulate, well educated, intelligent and analytic; such qualities are likely to also result in a person being a good doctor." Such a "memory-for-theme" judgment process

would not require recalling the initial facts upon which the first decision (i.e., good lawyer) had been based.

If subjects tended to base their judgments on memory for their initial occupational decision and its associated characteristics, their memory-based ratings could again be expected to be less polarized. This is because the more dissimilar a first judgment was to a second, the less relevant the first occupation and its associated thoughts would be for making the second decision. As with the memory-for-facts judgment model, increased irrelevance of remembered cognitions to the judgment being made could be expected to result in subjects making less extreme ratings.

Both the memory-for-facts and memory-for-theme judgment models are capable of accounting for the depolarization effects found in the first set of experiments. The studies reported in this section allow us to differentiate between the two models and determine which one best describes how subjects draw on their memory when they make memory-based person judgments.

The Effect of Thematic Judgments on the Speed of Decision Making

A series of studies conducted by Lingle and Ostrom (1979) investigated the degree to which people rely on memory for an initial impression judgment, rather than memory for stimulus information when they make memory-based person judgments. In a first study, Lingle and Ostrom determined whether

an initial judgment influenced the ease (i.e., speed) with which subjects made a later judgment. They reasoned that if in making a second decision, subjects merely reviewed in memory an unselective set of stimulus traits, the amount of time required to make a decision should not be affected by a previous judgment. However, if an initial judgment in some way influences the set of cognitions subjects remember as the basis of a subsequent judgment, the speed of a second decision should be influenced by its relevance to earlier judgments that have preceded it.

To test this, Lingle and Ostrom first had subjects judge the suitability of a described stimulus person for a designated occupation. This judgment was stimulus-based, being made while the descriptive traits were continuously in view. After this initial judgment, the traits were removed and subjects were asked to make a second, memory-based judgment about the person's sutiability for a second occupation. The dependent variable was the amount of time subjects took to make this second judgment. The independent variable was the similarity of the two judged occupations. On some trials, the first and second occupations involved similar attributes (e.g., doctor-dentist); on other trials the two occupations required dissimilar attributes (e.g., fisherman-dentist). The results indicated that subjects took over a second longer to make a dissimilar second judgment than a similar one.

This first study by Lingle and Ostrom established that an initial thematic judgment can influence the speed with which a subsequent decision is made. However, it did not determine if the time difference in subjects' second judgments was the consequence of their relying on memory-for-facts or memory-for-theme. That is, the decision time differences may have resulted from subjects relying on either memory for stimulus traits relevant to their first judgment or memory for the first judgment itself and its associated characteristics. In both cases, the cognitions that subjects remembered would have been more relevant for making their second decision in the similar, as opposed to dissimilar, condition. To examine what subjects were recalling during their second judgments, Lingle and Ostrom conducted several additional decision time studies that added a manipulation of the number of traits (set size) used to describe the stimulus persons. They reasoned that subjects' second judgments would be influenced differently by occupation similarity and set size depending on the set of cognitions subjects were using as the basis of their decisions. In Figure 1 three possible patterns of second decision times, as a function of set size and occupation similarity, are displayed. Note that in each case subjects are predicted to take longer to make a second dissimilar, as compared to similar occupational judgment when the stimulus person is described by four traits (as was the case in the first decision-time study).

The memory-for-facts model. It has been shown in a variety of decision tasks (c.f., Sternberg, 1969, Kintsch, 1974; Posner & Snyder, 1975) that the amount of time people take to review a set of stimulus items in memory increases as the number of items in the set increases. If it is true that (a) search time increases as set size increases and (b) subjects base their second judgment on a review of the stimulus traits, decision time should increase with set size in both the similar and dissimilar conditions. This is shown in Panel a by the increase in decision time across set size for both similar and dissimilar second judgments.

If it is assumed that subjects review the descriptive stimulus items in memory until they feel they have considered a representative proportion of the judgment-relevant traits in the set, the memory-for-facts model also predicts that increases in decision time across set size should be greater for dissimilar, as opposed to similar, second judgments. The earlier reported research suggests that it is easier to recall traits relevant to a first judgment. In the similar decision conditions these traits will also be relevant to the second judgment. Consequently, subjects will not have to spend time recalling additional traits in the set to make a decision. In the dissimilar condition, however, the set of first-judgment relevant traits that subjects recall should not be relevant to their second judgment. In this case, they will have to spend additional time recalling traits

in the set that were irrelevant to their first judgment, but might be relevant to their second. Since the number of these remaining traits will also increase as set size increases, subjects will have to spend more time reviewing them as set size increases. As a result, the difference in decision time for similar and dissimilar memory-based judgments should increase over set size as shown in Panel a.

In their experimental design, Lingle and Ostrom were careful to make certain that the relevance of the descriptive traits to subjects' second judgments did not vary across the experimental conditions. Consequently one further implication of the memory-for-facts model is that no difference in decision time should result between the similar and dissimilar conditions when a stimulus person is described by only one item of information. This too is shown in Panel a.

The memory-for-theme model. Panel b depicts the expected results if subjects base their second judgment on memory-for-the-theme rather than on memory-for-facts. This assumes that subjects do not retrieve the stimulus items, but rather use their memory of their first judgment as a basis for their second. Knowing they regard the person as a "good doctor," for example, would allow them to estimate whether the assumed characteristics of a good doctor would lead to good or bad performance in the second occupation. Since there is no reason to expect that theme retrieval time should

be affected by set size, subjects second judgment times should not increase with set size. However, for all set sizes (including set size 1) they should be able to make second similar judgments more quickly than second dissimilar judgments. This is because when the two occupations are very similar, the attributes associated with success or failure in the first occupation will be relevant for making a decision about the second; when the two occupations are dissimilar the two sets of attributes are not likely to be related and a subject would have to spend additional time generating an inferential chain between the two decisions.

The mixed model. People are flexible information processors. Subjects may sometimes base a decision on memory for an early judgment while at other times they may recall stimulus traits. In the present judgment context subjects may first recall the initial judgment to see whether it can serve as a basis for the second judgment. If the two are very similar (e.g., doctor-dentist) a decision may quickly be reached. However, if a comparison shows the two occupations to be very dissimilar, subjects may undertake a review of their memory for the original stimulus items in order to obtain a more relevant foundation for their second judgment. Since subjects would only spend time recalling the stimulus traits when the second judgment was dissimilar to the first, decision time would only increase with set size in the dissimilar conditions. For similar pairs of judgments,

second decision times would be independent of set size since subjects would not review the stimulus traits. This prediction is displayed in Figure 1c.

Three separate replications were conducted (Lingle and Ostrom, 1979) in which both set size and judgment similarity were mixed. The results are summarized in Figure 2. Set sizes ranged from one to seven traits, also, both homogeneous

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Insert Figure 2 about here

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trait sets (containing all positive or negative traits) and heterogeneous trait sets (both containing positive and negative traits) were used. For each replication, the results most closely matched the pattern depicted in Figure 1b, the "memory-for-theme" explanation. Subjects' second judgment times were consistently affected by the similarity of the first judgment, but not by the number of traits used to describe the stimulus person. Even when only one trait was presented, subjects took longer to make a second dissimilar, as compared to similar, judgment. Homogeneity of the trait sets did not affect the results.

The Effect of a Thematic Judgment on Subsequent Attribute Ratings

Decision time as a dependent measure has several advantages. It is relatively unobtrusive and can provide data concerning how subjects are accessing information without interrupting their normal judgment process. However, our

confidence in the conclusion of the previous studies would be strengthened if it were possible to verify them using alternative methods. In this section we examined the implications of the memory-for-facts model and the memory-for-theme model for predicting the scale location of the judgment itself.

A study reported by Lingle, Geva, Ostrom, Leippe & Baumgardner (1979) structured a situation in which subjects were expected to exhibit different attribute ratings of a stimulus person depending on whether they were relying on memory for the set of descriptive traits or a judgment they themselves had earlier made about the person. This was done by describing stimulus persons with all negative, all positive, or all neutral traits and then asking subjects to make memory-based ratings of each person's intelligence and friendliness. Before making these two attribute ratings, however, and while the traits were still available, the subjects were asked to make an occupational judgment about each person. Each occupational judgment was relevant to one of the attributes but not to the other (e.g., research physicists for intelligence but not friendliness, and waiter for friendliness but not intelligence). Lingle, et al. reasoned that the interaction between descriptive valence (i.e., the positive, negative or neutral traits used to describe the stimulus person) and occupational relevance on subjects' attribute judgments would be different depending on whether subjects

relied on memory for the stimulus traits as opposed to memory for the occupational judgment.

To see why this is so, consider first the pattern of attribute ratings that might be expected if subjects relied on memory for the stimulus traits when making their memory-based attribute judgments. From the previously described research, it is clear that subjects would tend to recall traits relevant to their initial occupational judgment. Such a memory bias should have the effect of polarizing their subsequent attribute ratings when the occupation is relevant, as opposed to irrelevant, to the attribute being judged. To illustrate this reasoning, consider the situation in which a subject judges a stimulus person described by all negative traits. Subjects would typically conclude the person would be unsuccessful at the occupation. However, that occupational judgment would affect whether or not the subject tended to remember traits relevant to friendliness or intelligence. From the earlier studies we can expect that when a subject judged the person on an intelligent-relevant occupation as opposed to a friendliness-relevant occupation, the subject would tend to later remember more intelligent relevant traits. The more intelligent-relevant negative traits a subject can remember, the less intelligent the stimulus person is likely to seem (see Hamilton & Fallot, 1974, for a demonstration of this effect when subjects make stimulus-based judgments). Just the

opposite would be expected when a stimulus person described by all positive traits was considered. The increased number of intelligent-relevant traits remembered follow an intelligent-relevant occupational judgment would all be positive, thus making the person seem more intelligent. A similar process would of course also be expected following friendliness-relevant occupational judgments when subjects judge the friendliness attribute. This interaction between person description valence and occupational judgment relevance that would be expected if subjects rely on memory for

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Insert Figure 3 about here

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the stimulus traits (the memory-for-facts model) is graphically depicted in Figure 3a.

A different patern of attribute ratings would be expected if subjects based their intelligence and friendliness ratings on memory for their initial occupational judgment, rather than memory for the stimulus traits. In this case, subjects' attribute ratings should reflect the degree to which the rated attribute is stereotypically associated with the judged occupation. When relying on memory for a previous thematic judgment, subjects would be more likely to judge a person as intelligent who had first been judged as a good physicist (as compared to a good waiter) since a good physicist is generally viewed as more intelligent than a good waiter. A bad physicist is also likely to be more

intelligent than a bad waiter. So regardless of the valence of the stimulus traits and the resulting initial occupational judgment, an attribute rating would always be expected to be more positive following a relevant, as opposed to irrelevant, occupational judgment. The memory-for-theme model, then, would predict the pattern of attribute ratings displayed in Figure 3b.

To test between the two judgment models, Lingle, et al. (1979) used a within-subjects design in which subjects judged negatively, positively and neutrally described stimulus persons on both intelligence and friendliness. On half of these judgments subjects first made an intelligence-relevant occupational judgment while for the other half they first made a friendliness-relevant occupational judgment. Whereas the initial occupational judgments were stimulus based, the subsequent attribute ratings of intelligence and friendliness were memory based. Subjects' ratings of intelligence and friendliness, as a function of person description valence and occupation relevance, are displayed in Figure 4. The most striking aspect of these results is that in every

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Insert Figure 4 about here

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instance subjects rated the stimulus person more positively (i.e., stereotypically congruent with the occupation judged) when they had first made a relevant occupational judgment. These findings, then, are consistent with the decision time

experiments in indicating that subjects rely on memory for an earlier thematic judgment, rather than descriptive stimulus traits when making memory-based impression judgments.

People May Access both Facts and Themes when Making a Judgment

Earlier, it was argued that people are flexible information processors. We know subjects are capable of recalling many of the items used to describe a stimulus person. It seems likely that in some judgment contexts subjects will rely more heavily on memory for the stimulus items than they apparently did in the studies discussed thus far (see the Carlston chapter in this volume). For example, if subjects had been asked to explain or justify their memory-based decisions they may have spent more effort in attempting to recall the stimulus traits. To explore this possibility Lingle (1978) examined the degree to which subjects accessed both relevant and irrelevant stimulus information, as well as an initial thematic judgment, in a memory-based decision task that periodically required them to justify their judgments. Before discussing the experiment, we will provide a brief description of the dependent measure Lingle used to assess the thoughts subjects activated in memory when making decisions.

As noted, Lingle was interested in the degree to which subjects might activate relevant and irrelevant descriptive

traits, in addition to an earlier judgment, when they knew they might be asked to justify their decision. To investigate this, Lingle had subjects make pairs of judgments about each stimulus person. The stimulus person was described by two stimulus traits. Subjects were first asked to decide the degree to which they thought the stimulus person would be characterized by a third trait. The two traits used to describe the person in each case were selected so that one was relevant and one was irrelevant for making the required trait judgment. For example, a subject might first be asked, "Would this person be friendly?" and then be presented with a person description that contained the traits "outgoing" (relevant) and "smart" (irrelevant). After their initial trait judgment, subjects engaged in a 50 second distractor task after which they were asked to make a memory-based occupational judgment about the same person. The experimental design employed by Lingle was counterbalanced so that across subjects (a) the same set of probe words appeared as relevant, irrelevant, judgment, and control traits and (b) the occupational judgments were of equal relevance to all the presented traits.

Either early or late during the time subjects were contemplating the occupational judgment they were interrupted by a probe word that was either (a) the judgment trait they had previously responded to for that stimulus person, (b) the descriptive stimulus trait that was relevant to the

judgment trait, (c) the descriptive trait that was irrelevant to the judgment trait, or (d) a matched control trait that had not been associated with the stimulus person. The probe word was written in hard-to-read letters to make the identification task more difficult. The speed with which subjects identified each type of probe was used as an index of the degree to which subjects activated that type of information while making their memory-based occupational judgments. The validity of the probe procedure for making this kind of inference regarding concept activation had been established in a series of earlier studies (Lingle, 1978).

The decision context was structured to encourage subjects to recall the stimulus traits during the decision interval. This was done by unpredictably interrupting subjects on 20% of the experimental trials and asking them to explain the judgment they had just made. Under these conditions Lingle expected subjects' probe recognition scores to show that they activated in memory the traits used to describe the stimulus person, as well as their initial trait judgment about the person. In accordance with the earlier reported memory research, Lingle also expected that probe recognition speeds would show that subjects more readily accessed theme relevant, as compared to theme irrelevant information items.

Subject's probe recognition speeds are pictured in Figure 5. The pattern of obtained probe recognition speeds

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Insert Figure 5 about here

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indicates that subjects accessed both the descriptive traits and their thematic trait judgments when making the memory-based occupational judgments. Both the relevant and irrelevant descriptive stimulus traits were identified faster than a control trait unassociated with the stimulus person. In addition, the probe recognition times indicated that subjects more readily accessed during the judgment interval stimulus traits that were relevant, as opposed to irrelevant, to their initial thematic judgment. It should be emphasized that these two traits were not differentially relevant to the occupational judgment which was the judgment being considered at the time the probe was introduced. Finally, the results indicated that when making their occupational judgments subjects accessed their initial trait judgment, in addition to the two descriptive traits. The speed with which subjects identified the initial judgment trait was equal to the speed with which they identified the most relevant trait descriptor. This overall pattern of results held true regardless of whether the probe was presented early or late in the decision interval.

Researchers in the area of social perception have long aspired to know what thoughts are passing through a person's mind while that person is in the midst of making a judgment. The present findings move us a long way toward that goal.

In this study, people were apparently activating both the theme and the theme-relevant descriptive information while making an occupational judgment. To a lesser extent, they were also reviewing the theme-irrelevant information item. People do, then, draw upon their memory for facts when making a judgment, even facts that are irrelevant to the theme.

Some caution is required in interpreting Lingle's result. Studies (c.f. Warren, 1972, 1974; Meyer & Schvaneveldt, 1976) indicate that when a concept is activated in memory it increased the speed with which subjects can recognize closely associated words (although this association effect is not generally as strong as facilitation for recognition of the word itself). Lingle's traits were selected in a way that resulted in a relevant descriptor trait sometimes being a close associate of the judgment trait. Consequently, it is not clear whether the high recognition speed for the judgment trait and the relevant descriptor resulted from one or both being accessed in memory when subjects made their occupational judgments. Lingle's results, nevertheless, do provide an additional demonstration of the ways in which the thematic organization imposed on an impression by an early judgment is reflected in subsequent responses that are based upon that impression.

Summary and Discussion of Judgment Findings

The studies discussed in this section employed several divergent methods for identifying how people draw on memory when making memory-based decisions. Nevertheless, their results are strongly convergent in demonstrating the importance of an early organizing impression judgment on subsequent judgments made about a person. Most striking is the persistent evidence that an initial judgment, rather than factual stimulus information, is remembered and used as the basis for subsequent judgments. In the decision time studies this was demonstrated by the fact that subjects' judgment times were affected by the earlier decision they had made, but not by variations in the amount of descriptive information provided about each person. In the attribute rating study it was shown that the extremity of subjects' attribute ratings reflected the sterotypical characteristics of a previously judged occupation rather than memory for occupation-relevant facts. Finally, the last study (in which subjects were asked to justify some of their judgments), probe recognition speed showed that an earlier thematic judgment was accessed as readily as any of the traits initially used to describe the stimulus person. Consistent with the recall studies, this last study also indicated that traits irrelevant to an earlier judgment were not accessed as easily as the judgment-relevant traits during a subsequent memory-based decision.

General Discussion

One of the primary objectives of this chapter was to describe the similarities that exist between past social psychological research on impression organization and contemporary research on memory and cognition. Indeed, it is difficult to find dissimilarities in their fundamental objectives. Both aspire to understand how and why one thought follows another, neither assume people are necessarily aware of all their cognitive activity, and both agree upon the need to posit the existence of cognitive elements (concepts or nodes), interelement associations (units or pathways), and thematic clusters of elements (categories or schemas).

It could be argued that people are a unique and complex category of stimulus objects, and that theories of impression organization cannot be borrowed from memory and cognition research that deals with simpler stimulus units. Of course, this issue cannot be resolved until the dimensions of difference are specified and research is undertaken to establish whether such differences qualitatively alter the character of the cognitive processes. In the meantime, the research reported in this chapter (as well as other chapters in this volume) support the value of establishing the regions of empirical and conceptual comparability between the two areas.

One serious limitation to the breadth and utility of past impression organization research is illuminated when comparing the two areas of study. Most previous work on impression organization was restricted to studying subjects' subjective reports of elements and associations. However, it is reasonable to expect that the effects of impression organization should be detectable in a variety of other overt responses. Studying the effects of organization on memory and on decision making, as was done in the experiments reported in this chapter, broadens our understanding or organizational processes in at least three ways.

It compels theoretical elaboration because of the new questions that must be answered when a different response domain is explored. For example, the question of whether impression organization operates at the encoding or retrieval (or both) phases of processing had never been raised by earlier researchers in this area. The different accessing strategies used in memory-based versus information-based judgments had also not received previous attention.

The second advantage also has the potential of advancing our conceptual understanding of organizational processes. By having several kinds of organization-related responses available for study, we can avoid the tendency to regard our dependent measure as an error-free index of the underlying construct. Most previous researchers in impression organization treated their subjects' subjective reports of

elements and associations as though those reports were unadulterated, that the reports provided accurate indices of their theoretical counterparts. Yet it seems reasonable to expect that organization can, under some circumstances, have different effects on memory, subjective reports, and interpersonal decisions. For example, people may recall a particular fact about a person and report that it had an important bearing on their judgment, and yet no effects on judgment can be detected. Conversely, background information about the target person that is not recalled and/or is not subjectively accorded much importance may have a substantial effect on judgment. Expanding the number of organization-related responses available for study encourages theoretical development into the problem of when and why such differences will emerge.

The third advantage to this approach is of special interest to social psychologists. Much of social interaction involves communicating information that has been learned earlier and must now be retrieved from memory. It would appear that to understand this process, we must first know how that information was originally stored (and organized) in memory. Of course other phases of this communication process (such as the decision to report or withhold a specific recalled item) must also be explored. An adequate understanding of organizational processes should help refine our analysis of interpersonal communication. Many other

important social behaviors, such as conformity, aggression, and attitude change may ultimately be found to be dependent on impression organization.

Reference Note

1. Geva, N., Pryor, J. B., & Ostrom, T. M. Simultaneous versus sequent judgments in the development of thematic organization in recall. Unpublished study, The Ohio State University, 1978.

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Footnote

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Table 1

Average Number of Recognition Errors

	Stimulus information	
Time interval	Judgment relevant	Judgment irrelevant
One day	1.50	2.54
One week	2.69	3.15

Table 2

Recall Means from the First Sequential Judgment Study

	No second judgment	Related second judgment	Unrelated second judgment
Characteristics relevant to first judgment	3.00	3.24	3.06
Characteristics irrelevant to first judgment	2.48	2.37	2.58

Table 3

Recall Means from the Second Sequential Judgment Study

	No reminder	Reminder
Characteristics relevant to the first judgment (and irrelevant to the second judgment)	2.69	3.62
Characteristics irrelevant to the first judgment (and relevant to the second judgment)	2.07	3.67

Table 4

Recall Means for the Third Sequential Judgment Study

	Sequential judgments	Simultaneous judgments
Characteristics relevant to the first judgment (and irrelevant to the second judgment)	2.17	2.25
Characteristics irrelevant to the first judgment (and relevant to the second judgment)	1.69	2.13

Table 5

Effects of Sequence on Occupation Judgments

	Sequential judgment studies		
	First	Second	Third
First judgment (stimulus-based)	6.48	7.10	7.69
Second judgment (memory-based)	5.39	4.36	5.50

Note. All ratings were made on a scale from +10 (very successful in this occupation) to -10 (very unsuccessful in this occupation).

Figure Captions

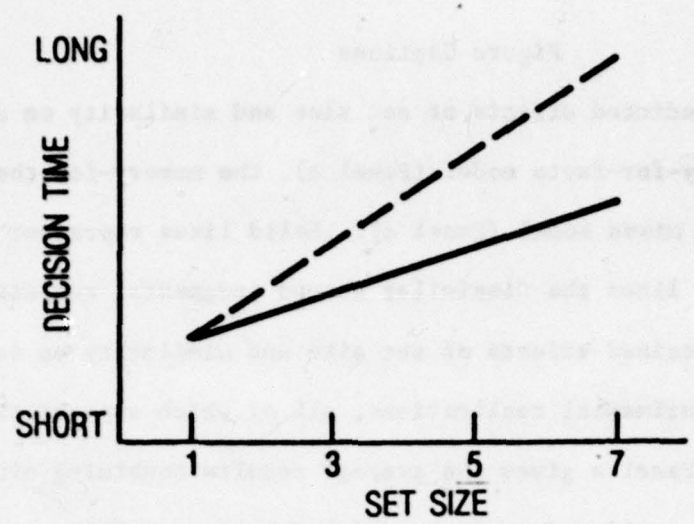
Figure 1. Predicted effects of set size and similarity on decision time for the memory-for-facts model (Panel a), the memory-for-theme model (Panel b), and the mixed model (Panel c). Solid lines represent the similar and dashed lines the dissimilar second judgments, respectively.

Figure 2. Obtained effects of set size and similarity on decision time for three experimental replications, all of which support the memory-for-theme model. Panel a gives the average results combining over the first two stimulus replications (one used homogeneous and one used heterogeneous stimulus sets) and Panel b provides the findings for the third stimulus replication (in which homogeneity of the stimulus sets was manipulated). Similar second judgment responses are solid lines and dissimilar second judgment responses are dashed lines.

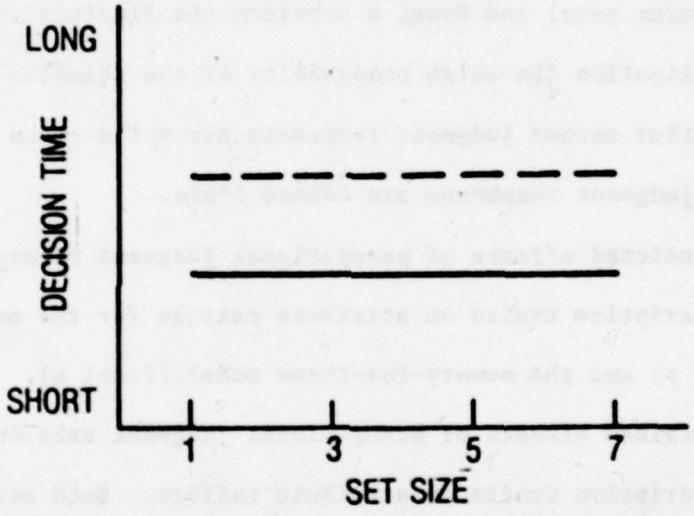
Figure 3. Predicted effects of occupational judgment relevance and valence of the descriptive traits on attribute ratings for the memory-for-facts model (Panel a) and the memory-for-theme model (Panel b).

Figure 4. Obtained effects of occupational judgment relevance and valence of the descriptive traits on attribute ratings. Both attribute replications (friendliness for Panel a and intelligence for Panel b) support the memory-for-theme model. Higher numbers correspond to more positive attribute ratings.

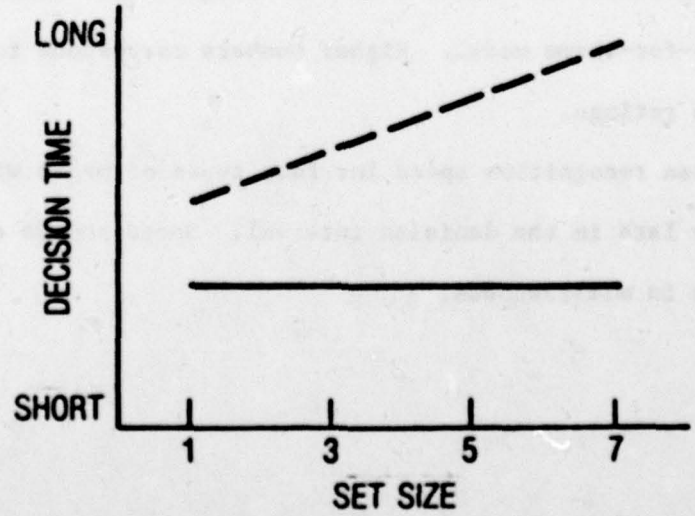
Figure 5. Mean recognition speed for four types of probe words presented early or late in the decision interval. Speed scores equal 1000/response time in milliseconds.



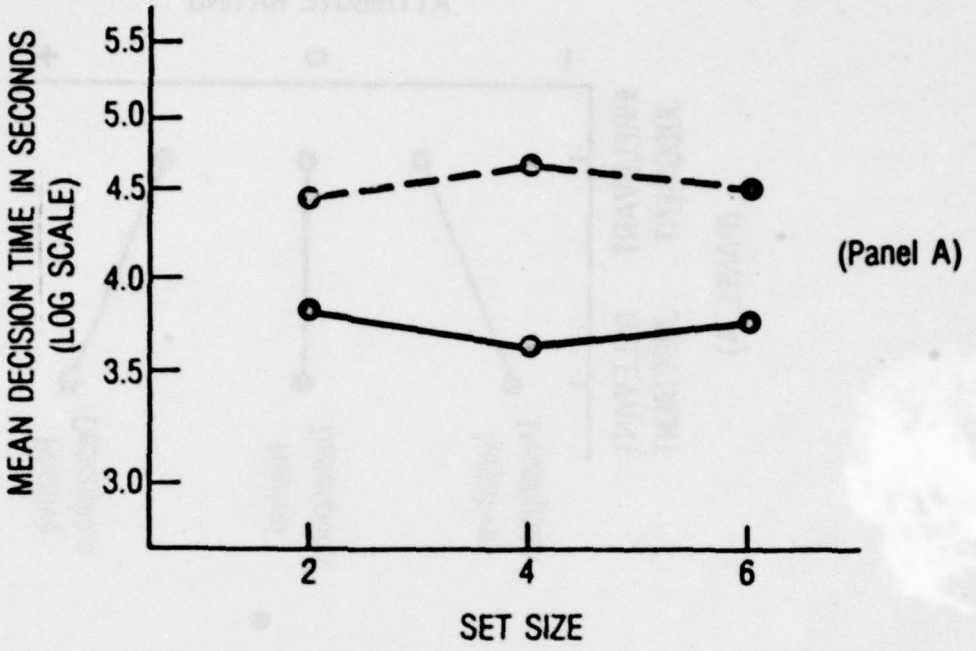
(Panel A)

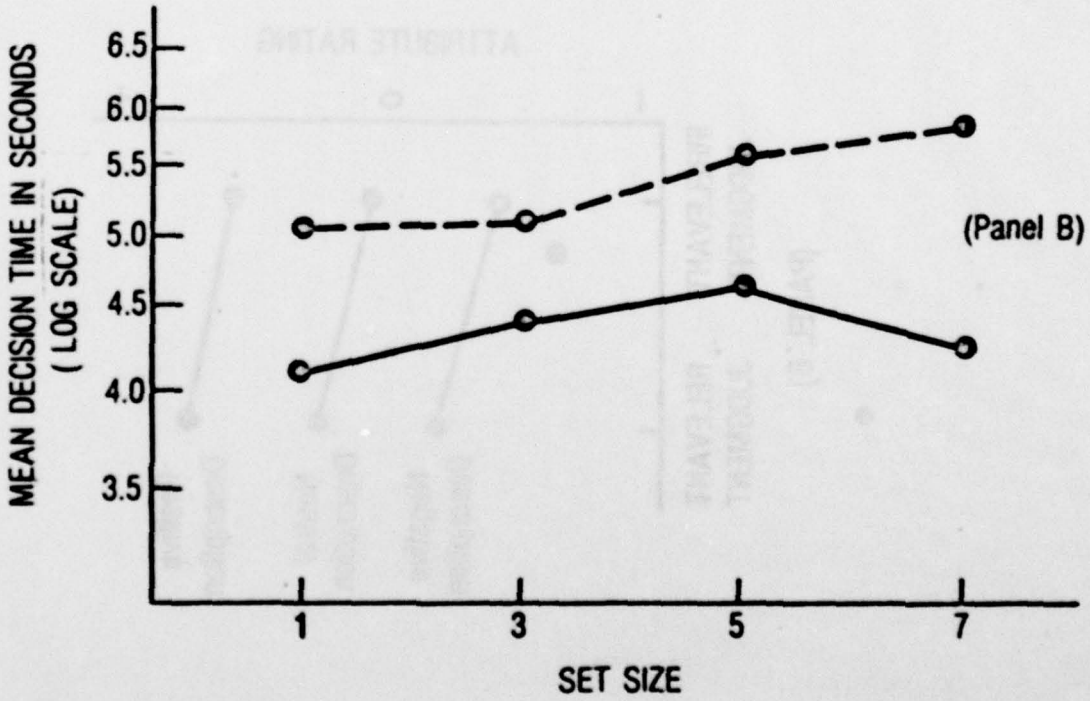


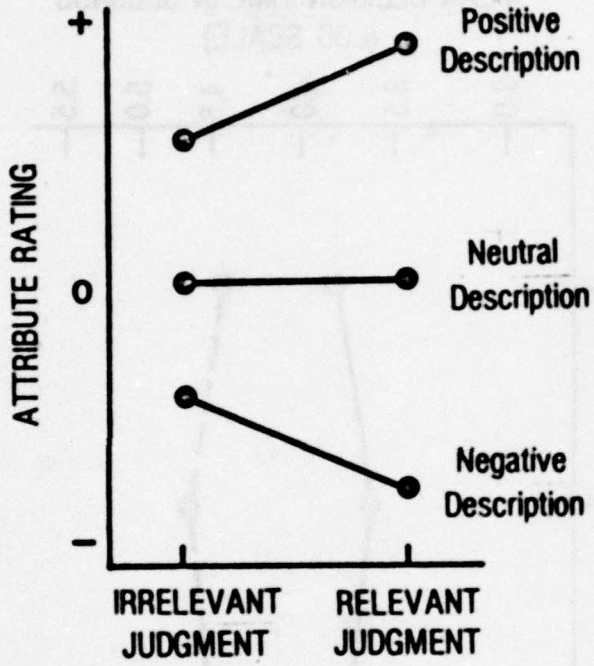
(Panel B)



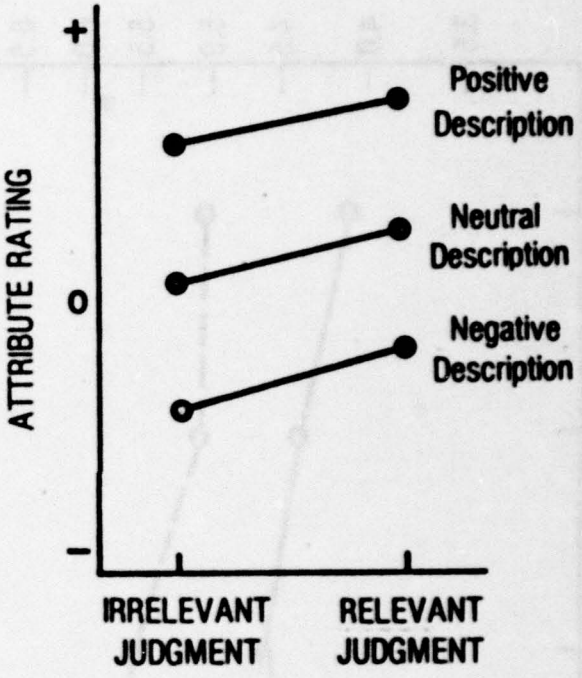
(Panel C)


MEAN DECISION TIME IN SECONDS
(LOG SCALE)
5.5
5.0
4.5
4.0
3.5
3.0
2
4
6
SET SIZE
(Panel A)

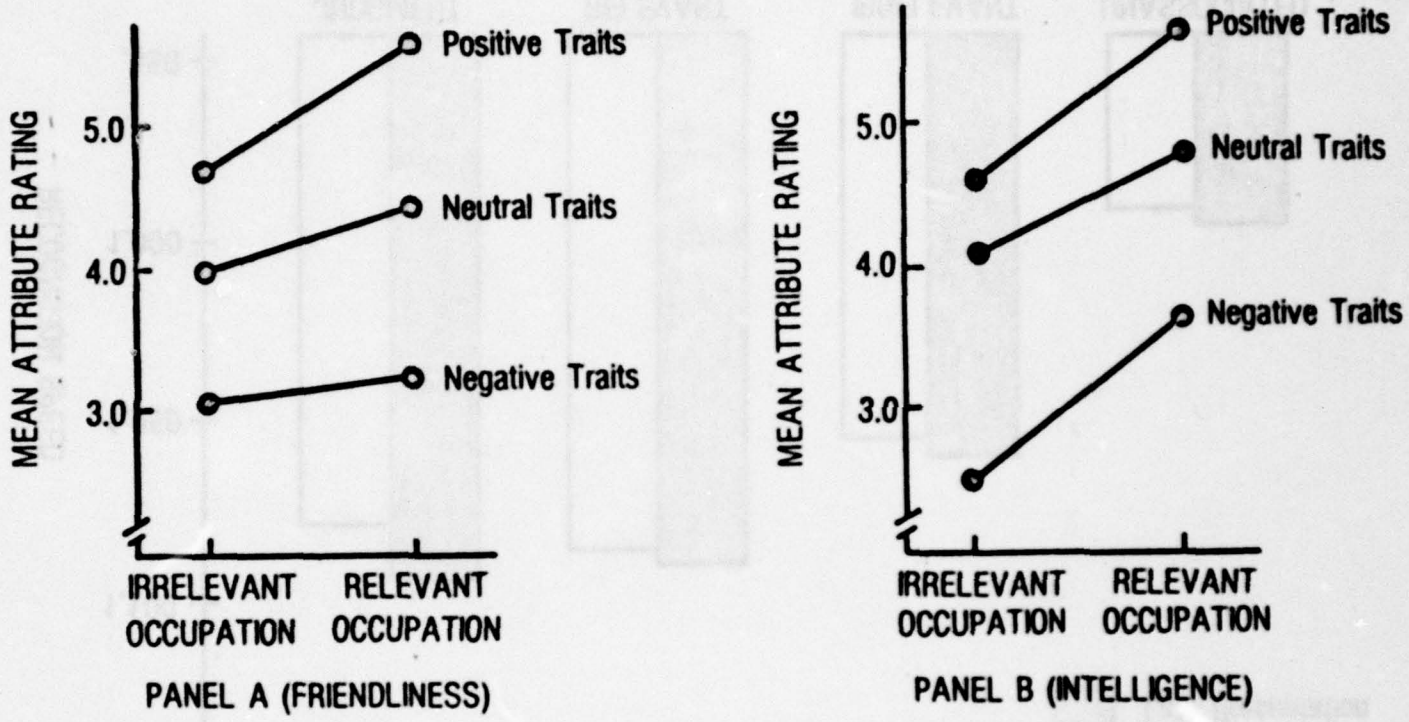

MEAN DECISION TIME IN SECONDS
(LOG SCALE)
6.5
6.0
5.5
5.0
4.5
4.0
3.5
1
3
5
7
SET SIZE
(Panel B)

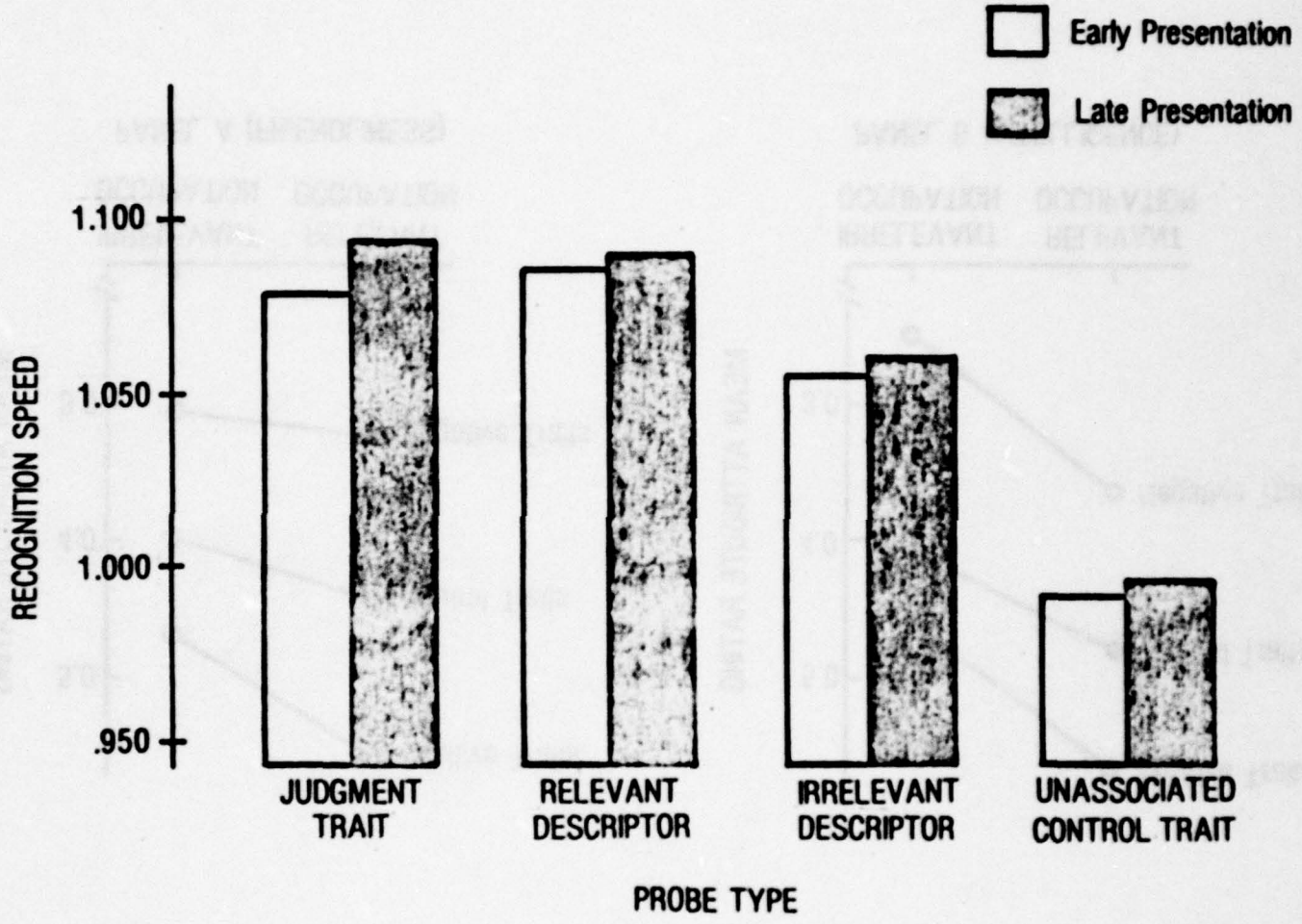


(PANEL A)



(PANEL B)


MEAN ATTRIBUTE RATING
5.0
4.0
3.0
Positive Traits
Neutral Traits
Negative Traits
IRRELEVANT OCCUPATION
RELEVANT OCCUPATION
PANEL A (FRIENDLINESS)
MEAN ATTRIBUTE RATING
5.0
4.0
3.0
Positive Traits
Neutral Traits
Negative Traits
IRRELEVANT OCCUPATION
RELEVANT OCCUPATION
PANEL B (INTELLIGENCE)


Early Presentation
Late Presentation
RECOGNITION SPEED
1.100
1.050
1.000
.950
JUDGMENT TRAIT
RELEVANT DESCRIPTOR
IRRELEVANT DESCRIPTOR
UNASSOCIATED CONTROL TRAIT
PROBE TYPE

P4-5/A1

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