New Directions in Behavioral Process Research: Implications for Social Psychology

JACOB JACOBY

New York University

JAMES JACCARD

State University of New York, Albany

ALFRED KUSS

Free University, West Berlin

TRACY TROUTMAN

New York University

AND

DAVID MAZURSKY

Hebrew University, Jerusalem

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Current theories of social judgment and social decision making emphasize dynamic process perspectives, but the methods used to investigate these processes have been relatively static and limited in scope. This paper describes a set of evolving procedures designed to capture process data and discusses how this approach may be used to study various psychological phenomena, including control schemata, attribution theory, attitude formation, impression formation,
implicit personality theory, verbal report accuracy, postdecision dissonance reduction, attraction, choice behavior, time constraints, gender stereotypes, agenda effects, and task feedback effects. © 1987 Academic Press, Inc.

Much of contemporary psychology is characterized by a cognitive process orientation according to which many key phenomena are postulated to function as dynamic processes. Yet the empirical procedures typically used for studying these processes have limited ability to capture and preserve their dynamic and sequential nature. One objective of the present paper is to describe a set of procedures which enable the information input portion of these processes to be identified and traced. While studies employing these procedures are becoming more prevalent in other domains (e.g., consumer and marketing research), their impact on psychological research has been relatively negligible. This is especially true of research in social psychology. A second objective is to describe new developments which make these procedures suitable for addressing a wider variety of psychological phenomena and issues than has heretofore been the case.

Both objectives are facilitated by focusing on two fundamental areas of research, namely, social judgment and social decision making. Judgment forms the foundation of numerous social psychological content areas, including judgments of attraction, impressions of other people, judgments of preferences and attitudes, and attributions of causes of behavior. Social and behavioral decision making has been examined in such contexts as the formation of behavioral intentions, altruistic decision making, juror decision making, and discriminatory decisions, to mention but a few. Accordingly, the issues considered in this paper should have widespread interest for social psychologists.

Traditionally, studies of social judgment have involved presenting subjects with stimuli and then collecting their responses on rating scales that are assumed to map onto the individual’s cognitive judgments. Although this strategy allows one to infer the effects of stimulus parameters on social judgments, it fails to provide perspectives on aspects of the judgment situation that are critical in natural settings. In particular, rather than being passive recipients of stimulus information, individuals frequently are active in seeking out and extracting information from the environment. In doing so, they tend to be selective and rarely use all the available information. Moreover, this information accessing tends to occur sequentially and these sequences may have important implications. At the very least, information that is accessed earlier may exert considerable influence on how much and just which information is accessed subsequently. This implies that social judgment is a process by which judgments are formed over time as selected information features of a stimulus are attended to, encoded, and evaluated, and other features are ignored.

This process perspective has become increasingly prominent in psy-
chological theories, yet the methods used in analyzing judgment phenomena are limited for elucidating the information accessing behavior of individuals. For example, Cook and Stewart (1975) studied judgments of qualifications for financial aid by presenting subjects with hypothetical profiles describing stimulus persons in terms of three types of information: need, grade point average, and a faculty rating. Although this research can isolate how this information affects judgments when such information is made salient, it does not indicate unambiguously whether the information would be sought out under naturalistic circumstances. It further fails to address the possibility that the order in which information is accessed may exert appreciable impact. Although experimental studies can be structured to elucidate order effects in the context of this methodology (Anderson, 1965; Shanteau, 1970), the requisite designs tend to be complicated, generally involve drawing inferences from after-the-fact assessments, and are not adapted easily to the study of the combined effects of accessing order and other processing features of the judgment situation.

Traditional decision-making research has reflected this same orientation. For example, studies of subjective-expected-utility (SEU) models present individuals with expected-utility information on each of a set of behavioral alternatives. The choice that results, which is necessarily a function of the information provided to the subjects, is then examined. The process of information acquisition and its implications for the decision that results generally are not addressed in this research (cf. Hammond, McClelland, & Mumpower, 1980). More applied applications of SEU theory (or variants of it) involve asking subjects to list information they believe they considered in making a decision (Fishbein & Ajzen, 1975; Mitchell, 1974). These self-reports may be subject to distortion, rationalization, social desirability response sets, and forgetting. These procedures also fail to capture the sequential nature of information acquisition and processing in decision situations.

As a means of circumventing some of these problems, verbal protocols of the decision-making situation are sometimes used to augment the standard procedures. Such an approach can offer numerous insights into judgment and decision-making phenomena. However, the fact remains that much mental processing occurs either at subconscious levels or with such rapidity that it defies the individual’s ability to grasp what has actually occurred (cf. Mandler, 1975; Miller, 1962; Niesser, 1967). As McGuire (1976, p. 313) comments: “We have mentioned several times in this discussion of the information processing steps that the person is often unconscious of what he or she is doing and when explicitly questioned is unable to give an adequate explanation of how the information was handled or the decision reached. . . . Even people in highly rational enterprises who make decisions of great personal importance to them . . . are often unaware of the bases of their own decisions.” The evidence
and arguments by Nisbett and Wilson (1977) also suggest that people may have limited ability to report accurately their cognitive processes or the impact of environmental stimuli on these processes (however, see also Ericsson & Simon, 1984).

This paper describes a relatively new methodology for studying a wide range of judgment and decision phenomena. The approach is designed to complement existing methodologies by enabling the investigator to take into account the processing features of information acquisition. Although the approach has been used most in formal decision-making research (e.g., Klayman, 1983, 1985; Payne 1976; Williams, DeNisi, & Blencoe, 1985), applications in social psychology are relatively rare (Abelson & Levi, 1984). Three sections follow. The first outlines the foundations of the framework. The second briefly describes an investigation that employs recent extensions and illustrates the utility of the methodology for analyzing process-based phenomena. Finally, the implications of the approach for studying a variety of social psychological phenomena are discussed.

A BEHAVIORAL PROCESS FRAMEWORK

Conceptually, the behavioral process (BP) framework discussed in this paper is a simulation approach which involves the following steps. First, a problem solver is confronted with a problem. Typically, these are either selection or evaluation problems; that is, the problem solver must either select or evaluate one or more options from a set of available options (e.g., out of the set of available birth control methods, select the method that you would most prefer to use; evaluate the set of career possibilities, ranking them from highest to lowest in terms of overall interest value).

Second, the problem solver is provided access to an external information environment which contains information relevant for solving the problem. This information may be authentic or hypothetical. If appropriate, the environment also may contain irrelevant information. Usually, the information environment is conceptualized either as a two-dimensional options \( \times \) properties matrix or as a three-dimensional options \( \times \) properties \( \times \) sources cube. Options represent objects (e.g., dating partners, roommates), organizational entities, living things, including people, or alternative courses of action. Properties represent describable characteristics of the options (e.g., physical attractiveness, age, intelligence). Sources represent entities from which property \( \times \) option information can be obtained (e.g., male friend, female friend, mother).

Third, the problem solver is permitted to acquire as much or as little of the available information as he/she wishes, in any order he/she wishes, and as often as he/she wishes. A variety of procedures have been used to capture and preserve a trace of this information-accessing behavior. Thus, in addition to learning the outcome (i.e., what option was selected
or how the options were evaluated), the resultant data also indicate "how much" and "just which" information was considered and "in what order." These types of data are referred to as the depth, content, and sequence of information accessing, respectively.

**Behavioral Process Methods**

Though isolated investigations employing some form of BP methodology occurred earlier (e.g., de Dombal, Horrocks, Staniland, & Gill, 1971; Hammond, Kelly, Castellan, Schneider, & Vancini, 1966; Rimoldi, 1964; Wilkins, 1967), the impetus for the increasing usage of BP methods over the past decade may be traced to the work of Payne (1976) and Jacoby (1974, 1975, pp. 210-213; Jacoby, Chestnut, Weigl, & Fisher, 1976; Bettman & Jacoby, 1976). The principal method of information presentation in these early investigations was an information display board (IDB). IDBs are structured as matrices with each cell containing information about a particular option on a particular property. Options are typically listed as columns of the matrix, while properties are listed as rows. The information within each cell, however, is "concealed" by virtue of the fact that it is provided on the back sides of the cards contained in each cell. To acquire this information, the subject must engage in a series of behaviors, i.e., remove the card containing the desired item of information, turn the card over, and read the information. Payne (1976) investigated the effects of task complexity on information processing, using an information display board. Payne manipulated the number of options available (2 vs 6 vs 12) and the number of properties available (4 vs 8 vs 12) in a $3 \times 3$ between-subjects factorial design where the task was to choose between hypothetical apartments. He found that when faced with a more complex decision task, the subjects employed decision strategies designed to eliminate some of the available alternatives as quickly as possible and on the basis of a limited amount of information search and evaluation.

Jacoby developed BP methods primarily in the context of consumer behavior. In the Payne experiment, once obtained, the information remained visible to the subject. In contrast, Jacoby's research has typically imposed a memory load whereby the selected information is concealed after the individual has accessed and read it. The subject has always been free to reaccess this information if he/she so desired, though this instruction can obviously be changed to suit the research objectives. Jacoby's early research used the approach to study a number of issues in the processing of nutrition information for food purchase decisions. Regardless of whether the Payne or Jacoby variation is used, the items that the subject accesses

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in the process of arriving at a judgment or choice are recorded and thus provide a trace of the subject’s information-accessing behavior.

Since 1976, an increasingly common variant for BP methods has involved using computers to store the entire “external information environment,” display elements of this environment on demand from the subject, and collect a trace of that respondent’s information-accessing behavior (e.g., Chestnut & Jacoby, 1980; Hoyer & Jacoby, 1983; Jacoby, Mazursky, Troutman, & Kuss, 1984b). The contents of the stored information environment are typically represented in one of two ways. In the first approach, the screen displays a set of “menus” which list the options and properties (or the options, properties, and sources) that are available. With relatively small two-dimensional matrices, an alternative approach is to display an actual “blank cell” matrix (one which crosses the options and properties, but which does not display the contents of each cell) and have the respondent indicate the cell(s) which contains the desired information, which then would be displayed.

**Behavioral Process Measures**

The application of BP methods yields output which necessitated the development of various measures for describing and summarizing the depth, content, and sequence of information accessing. To facilitate discussion, some of the more frequently used measures are described in terms of a simple two-dimensional \( O \times P \) matrix.

**Depth measures.** Search depth refers to the amount of information accessed from the available information environment. Useful measures include: (1) the total number of items of information chosen; (2) the proportion of all the available information that was accessed; (3) the number of different options considered; (4) the number of different properties considered; (5) the number of different sources consulted; (6) the percentage of all options considered; (7) the percentage of all properties considered; (8) the percentage of all sources considered; (9) the time taken to arrive at decision; (10) the proportion of acquired items devoted to the option chosen; (11) the variance of the number of properties considered per option; and (12) the variance of the number of sources considered per option.

**Content measures.** Content measures refer to just what information—in terms of options, properties, sources—is acquired. Indices typically focus on only those items of information acquired and include: (1) the proportion of times a given option was acquired; (2) the proportion of times a given property was acquired; (3) the proportion of times a given source was acquired; (4) the average rank order of access of property \( j \); and (5) the proportion of subjects considering a given option, property, or source.

**Sequence measures.** One frequently used procedure for describing
search sequence relies on the "transition analysis" approach first presented in Jacoby et al. (1976). These measures focus on the change in option and property from the acquisition of any one item of information to the next. Given any two adjacently accessed items \((n, n + 1)\) out of a total search length of \(N\) items, the types of transitions that are possible can be defined as follows:

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Same option–same property (i.e., immediate reaccessing of same item)</td>
</tr>
<tr>
<td>2</td>
<td>Same option–different property (i.e., within-option search)</td>
</tr>
<tr>
<td>3</td>
<td>Different option–same property (i.e., within-property search)</td>
</tr>
<tr>
<td>4</td>
<td>Different option–different property</td>
</tr>
</tbody>
</table>

Any search length of \(N\) items can thus be expressed as a vector of \(N - 1\) transitions, with each element in the vector assuming the value 1, 2, 3, or 4, depending upon the nature of the transition observed. Since different subjects engage in different search lengths, comparisons across subjects can be made by calculating for each subject the proportion of Type 1, 2, 3, and 4 transitions that occur. When aggregated, the proportions permit comparisons to be made across groups.

For source \(\times\) option \(\times\) property information environments, eight transitions can be defined. For a given facet (e.g., option), let \(S\) represent the case where the same level of the facet is acquired again and \(D\) represent the case where a different level of the facet is acquired. The eight transition types are:

<table>
<thead>
<tr>
<th>Type</th>
<th>Source</th>
<th>Option</th>
<th>Property</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>(S)</td>
<td>(S)</td>
<td>(S)</td>
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<tr>
<td>2</td>
<td>(S)</td>
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<td>3</td>
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<td>8</td>
<td>(D)</td>
<td>(D)</td>
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The first four transitions correspond to the four previously described. Transition Types 5 through 8 are similar to Types 1 through 4 with the exception that the information has been acquired from a different source. Transition proportions provide a numerical description of sequence. In contrast, "sequence graphs" provide a visual description. Perhaps because BP data were gathered using IDBs, the early approach to generating these depictions involved forming the axes for these graphs by listing the properties and options in an order that corresponded to the order in
which they appeared on the IDB. When the IDBs were replaced by computers, the approach was preserved by generating axes in terms of the order in which the properties and options appeared on the menus. However, such "experimenter-based" sequence graphs tend to be minimally useful because they present an artifactually confused picture which, particularly when the search has been extensive, generally obscures the sequence patterns inherent in the respondent's search. In contrast, our more recently developed approach begins by reordering the properties and options along the axes so that their order corresponds to the order in which they were actually accessed by the subject. Such "respondent-based" sequence graphs generally bring a greater sense of order to the depiction and, as illustrated by one of the studies described below, often reveal the presence of startlingly clear and illuminating sequences.

Figure 1 illustrates how these graphs are constructed. The experimenter-based graph to the left depicts the subject's accessing sequence in terms of the order in which the various properties and options appeared in the menus generated and provided by the experimenter. The cell numbers indicate that the subject first accessed information on Property 4 for Option C, then looked at Property 4 information for Option E, and so on, until concluding his search on the 22nd trial by examining Property 2 information for Option B. These very same data are also plotted in the respondent-based sequence graph to the right, but the simple procedure of generating the axes in terms of the orders in which the properties and options were first considered by the subject more clearly reveals how
the subject began by considering all six options along the same property, then successively reduced the comparison from six, to four, to three options, before concluding (on Trials 19–22) with paired comparisons for the two remaining options. The sequence strategies employed by decision makers may vary dramatically and, as described more fully below, this may have important implications for decision quality and effectiveness.

The above depth, content, and sequence measures are not exhaustive but illustrate the diversity of indices that can be extracted from a behavioral process approach. Investigators generally employ different measures, depending upon the theoretical or empirical question being addressed.

**Flexibility and Limitations of Behavioral Process Approaches**

Criticisms may be raised to the effect that behavior process methods (1) are basically verbal in format and, hence, are subject to traditional criticisms of studies that use verbal stimuli; and (2) have limited generalizability because (a) the experimenter determines the options, attributes, and information that are available, (b) unlike typical decision tasks, all information is equally available, relevant, believable, and costly to obtain, and (c) the task is subject to demand characteristics since subjects are aware that their decision processes are being observed.

Behavioral process methods are not, in our opinion, limitation-free. However, they are flexible and can be used in ways that either circumvent the above criticisms or that directly manipulate features of the information environment so as to provide perspectives on how the features impact upon information acquisition and choice.

First, many decisions and judgment situations, by nature, use verbal information and, hence, this is entirely appropriate in behavioral process methodology. However, it is not necessary to use verbal information in all contexts. In research conducted in our laboratory, subjects chose the type of designer jeans they would like to buy from a set of jeans and were provided information on dimensions such as color, pocket cut, fabric, and waistbands. This information was presented pictorially (e.g., the subject was shown the pocket cut, if that information was requested), avoiding the use of verbal descriptions. Another investigation (Mazursky & Jacoby, 1985) examined how impression formation was affected when subjects were permitted to access both verbal and photographic information.

Second, the information in a BP matrix does not have to be equally accurate (believable), equally relevant, equally available, or equally costly. These features can be manipulated by the experimenter. For example, subjects could be told that some of the information may not be accurate or relevant. Or, when they search a given cell of the information matrix, they can be told that the information is not available. Or they can be given a fixed number of units (e.g., money) which they must use to
"purchase" information, with different types of information being more costly than others.

Third, it is not necessary for the experimenter to impose options, properties, and information content on the subject. In a pretest session, a subject could list the options that he/she is aware of, the properties that he/she believes are important, and, if desired, how the options map onto each property. This information can then be used to construct a BP information environment and task. For example, this was done for a birth control task in a study conducted in our laboratory. Two weeks after the pretest session, subjects were given an information matrix and told to select the method of birth control that they would use. All options, properties, and information were based on the pretest data, with the exception that the options were not meaningfully labeled (e.g., "the pill"), but rather were ostensibly hypothetical methods labeled as Method A, Method B, etc. In one condition, the information in the cells for a given property was altered relative to the subject's initial perceptions to see how this would affect search and the ultimate choice of a method. Behavioral process methods are thus flexible in that the experimenter can control and manipulate the types of information to which subjects have access.

Fourth, it is frequently possible to structure the BP task to incorporate real-life motivational features. For example, in the designer jeans study, subject payment for participation in the research was a discount on the pair of the particular jeans that the subject ultimately chose from the BP task. This contingency encouraged subjects to treat the task seriously. For the very same reason, other studies have employed "cents-off" coupons (cf. Jacoby et al., 1976). As Janis and Mann (1977, p. 69) note, this has important implications since considerable research shows that "when people are confronted with a consequential choice, they often react in an entirely different way than when they are confronted with the same cognitive problem as a purely hypothetical issue or as an intellectual exercise."

Such contingencies also can help to counteract demand characteristics. If performance has implications for reward, then it is unlikely that subjects will arbitrarily alter information-acquisition strategies to confirm a suspected hypothesis of the experimenter. For example, in a study described later, stock analysts competed for $500 based on the task of selecting the best-performing stocks from a BP matrix. It probably can be assumed that these subjects were motivated to use search strategies that their experience had suggested were best, with less concern for the hypotheses of the experimenters. We have also found that subjects tend to become quite involved in BP tasks, thereby lessening the probability of demand features.

Another limitation with early applications of BP methodology was the potential problem of response biases in reading information display boards.
(e.g., people prefer to read left-to-right and top-to-bottom and such preferences may introduce biases in search patterns). Potential bias was minimized, at least for property search, by having subjects study the different property dimensions that were to be used in the task prior to exposure to the IDB. With the current use of microcomputers to present BP tasks, the order of presentation of options and properties can easily be randomized across subjects, reducing the influence of response biases (if any) to within-cell error variance. It is also possible to use order of presentation of properties or dimensions as a covariate to remove response bias effects, if order has been systematically or randomly varied.

BP methods will have limitations depending upon the particular context in which they are used. However, the approach is flexible and with some careful thought, investigators can probably use this flexibility to their advantage.

Relationship to Other Methods

Thus far, few studies have contrasted inferences derived from behavioral process methods with those collected via traditional verbal report methods. To date, the evidence suggests that the approaches will tend to yield slight to moderately correlated information. For example, Jaccard and Sheng (1984) compared the BP indices and verbal reports for inferring the relative importance of different property dimensions in influencing birth control decisions. Two indices of importance were derived from a BP task: the proportion of times a property was accessed and the average order of access of the property. Subjects also rated each property on an 11-point scale reporting how important it was in influencing their birth control decision. Across subjects, the two BP indices were, on the average, correlated only .12 with the importance ratings. This result was replicated for a career decision task as well.

Jacoby and Chestnut (1977) examined the relationship of BP data and verbal reports in the context of consumer purchase decisions. Correlations between the subjects’ verbal reports of the information typically acquired when purchasing breakfast cereal, headache remedies, and margarine and BP-derived estimates for this information-accessing behavior ranged from .22 to .33 (cf. Jacoby, Chestnut, Hoyer, Sheluga, & Donahue, 1978). As might be expected, these correlations increased to .45 to .50 when the analyses were confined to the five most frequently accessed properties rather than being based on all available properties.

Two points are worth mentioning with respect to the above data. First, it is likely that the correlation between verbal reports and BP measures will vary as a function of the nature of the judgment situation being investigated. For example, differences in correspondence might be found as a function of task complexity (as described by Payne, 1976) such that simpler tasks yield higher correlations between BP and verbal report
measures than complex tasks. As discussed later, interesting theoretical questions can be addressed with respect to the psychological factors influencing this correspondence. Second, it is clear that BP data can offer information that is not redundant with verbal reports. Had correlations between verbal reports and BP measures in the above studies been large (e.g., \( r > .80 \)), then either measure could be used interchangeably. The above findings suggest that the two approaches are differentially sensitive to aspects of the judgment situation (see below). Considerable research has examined the issue of assessing property importance by multiple methods. Detailed consideration of this area is beyond the scope of this paper (see Green & Srinivasan, 1978; Jaccard & Sheng, 1984, for some useful perspectives).

Two major approaches other than the BP method have appeared in the decision literature for purposes of analyzing process phenomena (Einhorn & Kleinmuntz, 1979; Russo & Rosen, 1975, Billings & Marcus, 1983; Ericsson & Simon, 1984; Svenson, 1979). One is based on eye fixations whereby eye movements are monitored as subjects scan a fully exposed information display board. The other uses verbal protocols in which individuals actively verbalize their decision process as they work on a decision task. The “think aloud” sessions are recorded verbatim and analyzed in terms of process phenomena.

The three methods tap into somewhat different features of the decision process. Eye fixations can indicate information which is ignored (if it is never looked at) but cannot unambiguously determine what information is accessed. Just because the eye stops for a few seconds pointing in a certain direction provides no guarantee that the subject was focusing on and attending to that part of the visual stimulus array. The eye has to point somewhere and may simply have been at rest at that particular time.

By the same token, although BP methods permit one to be relatively confident that the subject has deliberately sought out a particular item of information, there is no guarantee that the information has registered in consciousness, been accurately comprehended, or been placed into long-term memory. All BP methods permit one to say is that a particular item of information was accessed. Thus, BP assessment reflects that point in time after which an item has been deliberately accessed, but before it is read and comprehended. In contrast, verbal protocols necessarily reflect that point at which the stimulus information has already reached consciousness and been interpreted in terms of the individual’s prior mental contents.

The three different process tracing techniques are seen to offer three qualitatively different assessments of the same process and, as such, are more complementary than competing (Einhorn & Kleinmuntz, 1979; Svenson, 1979). It is beyond the scope of this paper to discuss the relative
merits of the three process assessment methods. Rather, the intent is to describe the potential contributions that more widespread use of BP can engender.

Reliability and Validity Considerations

Like any set of measures, the reliability and validity of BP data will be influenced by the particular domain in which it is applied. Wherever possible, researchers should obtain reliability and validity estimates for the particular empirical context being examined. For reliability issues, it is useful to administer the same BP task in multiple sessions using test–retest estimation procedures (cf. Jacoby et al., 1978). Given $p$ sessions, an error theory can be developed for the transition measures discussed earlier at both idiographic and nomothetic levels. For example, at the idiographic level, the mean proportion of each transition type across the $p$ sessions would represent an index of the true score for the transition type in question. Error score variance would be reflected by the variation of proportions about the true score within transition types and across sessions. Analysis of variance techniques, in the spirit of Cronbach’s (1982) generalizability theory, can then be applied to contrast true score differences in transition types relative to the impact of measurement error. This can also be accomplished collapsing across subjects, and hence at the nomothetic level.

In terms of validity, it is often possible to include validation checks that relate BP performance to meaningful criteria outside of the laboratory context. For example, Jacoby and Jaccard (1984) presented subjects with a matrix of 12 birth control methods (labeled “Method A, Method B, . . . Method L”) and then asked each subject to choose the method that they would use. In actuality, the matrix contained veridical information describing existing methods of birth control. One would expect some correspondence between the method chosen as the most preferred in the BP task and the method actually used by subjects. These were in agreement for 46% of the subjects. The correspondence rate was not higher since much of the information included in the BP task was probably not available to subjects when they made their real-world birth control decisions. In addition, subjects’ perceptions of the methods may not have corresponded to the veridical information. Jaccard and Jacoby (1984) had subjects generate an information matrix on birth control methods using self-generated options and properties. These were later presented to subjects in the guise of another experiment on hypothetical methods of birth control. The correspondence rate in choice behavior for this study was 88%.

The nature of validational data will differ depending upon the BP application. The above examples are intended to show that external validation measures are frequently available at relatively low cost. Additional perspectives on the validity of BP measures may be found in
Jacoby et al. (1978), Lehman and Moore (1980), and Billings and Marcus (1983). These latter investigations present evidence supporting the predictive and concurrent validity of BP measures in different contexts. For example, Billings and Marcus (1983) found that BP measures of information search were sensitive to manipulations of information load, as would be predicted on the basis of past research in decision making.

AN EMPIRICAL ILLUSTRATION

This section presents an empirical illustration of BP methodology to show how it can be used to study information-acquisition strategies and related cognitive processes. The study focuses on the notion of control schemata (cf. Kozminsky, Kintsch, & Bourne, 1981). It illustrates the importance of respondent-determined information-accessing sequences and provides the first illustration of how sequence graphs can be used to provide visually striking and insightful descriptions of information-accessing behavior.

Kozminsky et al. (1981) introduced the notion of control schemata in problem-solving situations. The thrust of this approach is the contention that both information acquisition and analysis are guided by cognitive structures called control schemata. These are heuristics that individuals develop, over time, to guide the flow of information from the environment to and within the cognitive system. Of interest is the identification of different types of control schemata that individuals employ.

Kozminsky et al. studied how certain control schemata emerge over time as a function of task feedback. Their focus was on college students who were asked to role-play being a stockbroker charged with making “buy” and “don’t buy” recommendations to a client. Subjects read a paragraph describing a stock on each of six different properties, after which they made a buy–don’t buy recommendation. This was done for each of 20 stocks. Two of the properties used to describe the stocks were always predictive of a “correct” decision, whereas four of the properties were irrelevant. Subjects were paid 50¢ for each correct decision. Feedback was provided after each recommendation.

Based upon the subjects’ verbal reports, two major content-oriented control schemata emerged. The first was a deliberate hypothesis-testing approach in which subjects analytically learned to zero in on specific properties and make recommendations accordingly. The second was a more passive approach driven by the overall atmosphere created by the paragraph. Kozminsky et al. developed a tentative model describing how analytic subjects used feedback to arrive at the identification of relevant properties.

The present study builds on the work of Kozminsky et al. by identifying the nature of the control schemata used by individuals after being exposed to a set of relevant properties. The research involved professional security
analysts who presumably, through previous training and real-world experience, have evolved control schemata that identify properties they think are predictive of the behavior of stocks over time. Their task was to evaluate different stocks on these properties and to then make buy–don’t buy recommendations. Not only should their information-acquisition behavior reflect depth and content-oriented control schemata dictating how much and just which properties should be accessed and which should be ignored, but it should also reflect sequence-oriented control schemata to dictate the order in which information should be acquired and processed.

The present research used 17 security analysts working for investment firms in the Wall Street area. The analysts were recruited via mailed invitations to participate in a competition. The incentive to treat the task seriously was $500 to the winner, plus a press release distributed to the appropriate New York media. The subjects had worked as professional security analysts for a mean of 6.9 years ($SD = 1.8$; range = 1.5 to 17 years). Of those responding to an item regarding the income they derived from their activities as professional security analysts, 8 indicated that their annual income was below $75,000 and 7 indicated their income was above this amount.

Each analyst was tested individually. The task involved four test periods, each of which required identifying the one stock, out of a set of eight stocks, that would experience the greatest net growth in price per share over each of four successive 90-day periods. For each test period, the information environment consisted of 208 separate items of information—26 fundamental factor properties (such as price/earnings ($P/E$) ratio for last 12 months, latest earnings trend, adjusted annual earnings per common share, long-term debt) for each of the eight stocks. This information was authentic, and described the performance of eight major retailing companies listed on the New York Stock Exchange during 1969–1970. However, instead of the actual names, the companies were designated by code letters which camouflaged their identities.

The 8 options (i.e., stocks) × 26 properties (i.e., fundamental factors) were displayed as menu lists, and the analysts used a light pen to indicate which items of information (e.g., $P/E$ ratio for stock A) they wished to consider. Each analyst continued in this manner until the point at which he/she was ready to select a stock. After a choice was made, the computer updated the information by 90 days and the analysts resumed their decision task until they had completed the four test periods. The computer recorded the sequence in which each item of information was acquired across each of the four decision periods. Since the information was authentic and objective performance criteria existed, it was possible to rank order the 17 analysts in terms of their performance, as determined by the cumulative net growth of the four stocks they selected over the four periods. The depth and content aspects of this study are described in
TABLE 1
COMPARING BEST AND WORST PERFORMING ANALYSTS IN TERMS OF TRANSITION PROPORTIONS

<table>
<thead>
<tr>
<th>Test period</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Base</th>
</tr>
</thead>
<tbody>
<tr>
<td>Five Best Performing Analysts</td>
<td>.02</td>
<td>.23</td>
<td>.62</td>
<td>.13</td>
<td>273</td>
</tr>
<tr>
<td>2</td>
<td>.02</td>
<td>.05</td>
<td>.79</td>
<td>.14</td>
<td>255</td>
</tr>
<tr>
<td>3</td>
<td>.01</td>
<td>.09</td>
<td>.75</td>
<td>.15</td>
<td>252</td>
</tr>
<tr>
<td>4</td>
<td>.01</td>
<td>.02</td>
<td>.83</td>
<td>.14</td>
<td>288</td>
</tr>
<tr>
<td>$\bar{x}$</td>
<td>.014</td>
<td>.098</td>
<td>.748</td>
<td>.140</td>
<td></td>
</tr>
<tr>
<td>Base</td>
<td>15</td>
<td>105</td>
<td>799</td>
<td>149</td>
<td>1,068</td>
</tr>
<tr>
<td>Five Poorest Performing Analysts</td>
<td>.01</td>
<td>.53</td>
<td>.32</td>
<td>.13</td>
<td>310</td>
</tr>
<tr>
<td>2</td>
<td>.00</td>
<td>.33</td>
<td>.46</td>
<td>.21</td>
<td>158</td>
</tr>
<tr>
<td>3</td>
<td>.00</td>
<td>.28</td>
<td>.51</td>
<td>.21</td>
<td>152</td>
</tr>
<tr>
<td>4</td>
<td>.02</td>
<td>.30</td>
<td>.46</td>
<td>.21</td>
<td>182</td>
</tr>
<tr>
<td>$\bar{x}$</td>
<td>.010</td>
<td>.391</td>
<td>.416</td>
<td>.183</td>
<td></td>
</tr>
<tr>
<td>Base</td>
<td>8</td>
<td>314</td>
<td>333</td>
<td>147</td>
<td>802</td>
</tr>
</tbody>
</table>

Note. "Base" refers to the total number of transitions involved.

Jacoby, Kuss, Mazursky, and Troutman (1985). Present interest attaches only to the sequence of search data.

Table 1 provides the transition proportions for the five best and five poorest performing security analysts. As can be seen, both groups engaged in a negligible amount of Type 1 (immediate reaccess) search. The principal differences are in regard to Types 2 and 3 search. Compared to the poorer performing analysts, the better performing analysts engaged in significantly less Type 2 (within-option) search, 39.1% vs 9.8% ($t = 2.39$; $p = .02$). Compared to the poorer performing analysts, the better performing analysts engaged in significantly greater amounts of Type 3 (within-property) search, 41.6% vs 74.8%, respectively. The difference in Type 4 search between the two groups across all four periods was not statistically significant.

The within-group patterns are also interesting. After the first period, the better performing analysts reduced their within-option search (from 23% to under 10%) and increased their within-property search. Overall, the better performing analysts' search sequences were overwhelmingly within property, compared to within option. This contrasts markedly with the findings for the poorest performing analysts, whose search sequences evidenced near parity between within-option and within-property.

2 An arcsine transformation (Winer, 1971, p. 400) was applied to the dependent measure for purposes of statistical analysis.
search (39.1% vs 41.6%). The poorer performing analysts also evidenced a shift in Type 4 search, increasing from 13% in the first period to 21% in periods 2, 3, and 4. This reflects a lower degree of systematicity in search.

Figures 2 and 3 present respondent-based sequence graphs for the best and poorest performing analysts (who, it should be noted, are representative of their respective subgroups). Note that the better performing analyst is generally (especially in periods 2, 3, and 4) quite methodical in selecting a property (i.e., row) of interest and then comparing all eight stocks along this property before moving on to do the same for another property. In contrast, the poorer performing analyst generally does just the opposite, i.e., selects a single option (i.e., column) and then considers how it fares with respect to a subset of properties. His objective seems to be to arrive at a holistic impression of one stock before moving on to consider another. Only at the end of the fourth period are within-property (cross-option) comparisons made, but even then it is only for two options (i.e., paired comparison for what are likely his two best choices), not for the entire set of eight options.

Taken together, these data suggest support for the notion of sequence-
driven control schemata. The acquisition strategies employed by the better performing analysts correspond roughly to those implied by Kozminsky et al. Some subjects acquired information in a fashion that was compatible with analytic comparisons across options as opposed to overall, holistic judgments of an option; this latter strategy was the dominant approach used by the poorer performing analysts. Perhaps the same style of control schema governs both the problem-solving task of isolating relevant properties and the task of contrasting options. Future research integrating the BP and Kozminsky et al. methodologies could address this interesting and important issue.3

In sum, while previous work suggests that experimenter-generated sequences can exert appreciable impact on judgments and decision making (cf. Asch, 1952; Kahneman & Tversky, 1972, p. 432), the present research reveals that sequences generated by subjects as a function of their own selective information accessing may produce equally potent effects.

3 In addition to the sequence of information acquisition, best and worst performing analysts also differed in terms of the depth of acquisition and the content of properties accessed. Details are given in Jacoby et al. (1985).
SELECTED AREAS OF APPLICATION FOR BP METHODS

This section briefly highlights some existing and potential applications of the BP framework. It is our belief that this approach can complement existing methodologies in the analysis of diverse social psychological concepts and processes. The present treatment samples this diversity.

Attribution Theory

Social psychologists have studied extensively factors influencing attributions of causes of behavior. Kelley’s (1967) model is concerned with attributions for an event in which a person behaves in some way toward an entity. Observers are assumed to interpret the event using three types of informational dimensions—consistency, distinctiveness, and consensus. McArthur (1972) and others (e.g., Orvis, Cunningham, & Kelley, 1975; Ruble & Feldman, 1976) have tested Kelley’s theory by providing subjects with general descriptions of each dimension (e.g., for the event “John laughs at Roy, the comedian,” distinctiveness information might take the form “John laughs at all the comedians he hears”). Attributions of whether the event is due to something about the actor, the entity, or the particular circumstance are then measured.

Fischoff (1976) has criticized this methodology since subjects are presented with empirical generalizations rather than specific instances of behavior (e.g., “John laughs at Bob Hope, John laughs at Steve Martin”). Fischoff suggests that people may not be able to make the generalizations suggested by Kelley when specific instances of behavior are provided. He also noted that, in everyday life, information is usually received sequentially in the form of specific instances of behavior.

BP methodology can be used to address this problem. Major (1980) described an event (“John got in a fight with a fellow prisoner, Reggie”) and then provided subjects with a 3 × 12 information matrix. The “properties” corresponded to consistency (“John’s past behavior toward Reggie”), distinctiveness (“John’s behavior toward other prisoners”), and consensus (“Other prisoners’ behavior toward Reggie”) information. The “options” corresponded to 12 specific instances of the dimension in question (i.e., 12 instances of consistency information, 12 instances of distinctiveness information, and 12 instances of consensus information). Subjects observed as many instances as they wanted on whatever dimensions they wanted, using the standard BP format, in order to determine “what caused the event.” At the conclusion of information acquisition, attribution measures were obtained.

Subjects were assigned randomly to one of 8 conditions, defined by a 2 (high vs low consistency) × 2 (high vs low distinctiveness) × 2 (high vs low consensus) factorial design. The manipulations referred to the nature of the instances in the cells of the BPT matrix. For example,
in the low distinctiveness condition, each instance revealed that John had fought with another prisoner. Major found that (1) subjects tended to access more consistency and distinctiveness information than consensus information; (2) subjects tended to access only about one-third of all the instances available; (3) consistency information tended to be accessed first, followed by distinctiveness and then consensus information; and (4) subjects generally made attributions consistent with hypotheses derived from Kelley's theory.

In a second experiment, Major (1980) obtained verbal reports of perceived consistency, distinctiveness, and consensus after information search. These were correlated with the number of instances accessed on the respective dimension. (Note: The instances were always either consistently "high" or consistently "low.") It was found that the perceptions were unrelated to the amount of information acquired, perhaps indicating that the proportion of consistency, distinctiveness, and consensus information is more critical than the sheer number of such instances on a given dimension.

Major's experiments illustrate how the information within a BP matrix can be manipulated to permit theory tests. They also highlight how the approach can be used to isolate factors that determine general inferences from specific instances of behavior. For other potential applications of BP methodology in the attribution area, see Williams et al., 1985).

**Attitude Formation**

Attitude theorists have been concerned with how attitudes toward an object form as a function of the information the individual acquires about that object. The most prominent theories are those of Fishbein (1963), Fishbein and Ajzen (1975), and Anderson (1982). In Fishbein's research, subjects are typically asked to list all of their beliefs about an attitude object and then measures are taken on these beliefs and used to predict attitude. The beliefs presumably reflect the information the individual has acquired about the attitude object. In Anderson's research, subjects typically are presented descriptions of hypothetical objects on two or three informational dimensions. The descriptions are factorial combinations of the dimensions of interest. Attitudes toward the hypothetical stimuli are analyzed to assess how the information contained in the description impacts on attitude.

Because of limited information-processing capacities, it is rare for an individual to process multiple bits of information at a single point in time. Rather, information is frequently processed sequentially. In everyday life, it is usually the case that individuals are exposed to information in a serial fashion. Attitude formation can thus be characterized as a process in which the attitude is modified as additional pieces of information are accessed. Neither the Fishbein nor Anderson approach is adapted easily
to studying the sequential changes that attitudes manifest as information is accessed. In contrast, BP methods might prove useful.

One possibility is to use a tracking method in a one-option by $p$ property matrix. Prior to the task (perhaps in the context of a different experiment), the utilities (evaluations in Fishbein's terms, scale values in Anderson's terms) of the information values in each cell of the matrix can be determined. Subjects could then be allowed to acquire as much information as they want in order to make a like–dislike judgment. However, a tracking procedure would be used so that like–dislike judgments are obtained after each piece of information is accessed. Attitude development and change would be traceable throughout the information-acquisition process. The individual cell utilities could be mapped onto the attitude at each stage, permitting a test of various cognitive algebra models at different stages of the attitude formation process. The effect of utility on information search behavior could also be explored. Jacoby and Jaccard (1984) have evaluated the methodological viability of tracking and found that the assessment of attitudes at earlier stages of information acquisition does not bias attitudes or information search at later stages of information acquisition.

**Impression Formation**

A major methodological paradigm in impression formation research is to describe hypothetical individuals to subjects and then to obtain judgments of the extent to which the subject would like or dislike the individual. Based on responses to several stimulus persons, inferences are made about the impact of different pieces of information on liking for another. This paradigm is useful and has provided numerous insights into impression formation processes when information about a stimulus person is provided to an individual.

A related issue that has not received attention in this literature is the analysis of the type of information a person will seek out actively when trying to determine if he or she will like someone else. It may be the case that information imposed on and used by individuals in the context of experiments has little bearing on the information the person would seek out or use in trying to make a judgment of likeability. BP methodology can reveal some insights into this issue. The relevant information matrix would have trait dimensions as rows (e.g., intelligence, extroversion, conscientiousness) and hypothetical individuals as columns (Person 1, Person 2, through Person $p$), and information about the extent to which the person has the trait would appear in the cells of the matrix. The content of trait dimensions could be based on factor analytic studies of dimensions of person perception (e.g., Norman, 1963; Wiggins, 1972). The task of the subject would be to choose the person that he or she would like most. Analyses of the types of information that the subject
accesses would reveal the kinds of trait information that individuals seek out when making likeability judgments of others. Analysis of transition types and sequence graphs would also suggest judgmental rules that the individual employs in making such judgments. Predictions about which dimensions will be searched can be derived from different theoretical frameworks. For example, based on schema theory, one might predict that the individual will seek out information on trait dimensions that are descriptive of himself/herself and which are important to his or her self definition. This approach represents an alternative methodology to the dominant functional measurement framework in this area.

**Implicit Personality Theories**

The above paradigm can also be used to explore implicit personality theories. Most empirical investigations of implicit personality theories use factor analysis or multidimensional scaling of similarity indices between traits as a basis for inferring personality structures. Additional perspectives on the relationships between traits can be gained by using a trait × hypothetical person BP task as described above. However, instead of being told to choose the person he/she would like most, the subject might be told to choose the person who is most outgoing. Trait dimensions searched by the subject would suggest the kinds of trait information an individual would call upon to make judgments of extroversion. The choice task could focus on any trait dimension (e.g., instead of extroversion, the task might focus on choosing the most intelligent person). Similarly, the informational dimensions need not be restricted to trait descriptors (e.g., they could include behavioral information, opinions of others, and so on).

**Assessing Verbal Report Accuracy**

There has been some controversy among psychologists about the ability of individuals to accurately characterize their thought processes in judgment situations (e.g., Nisbett & Wilson, 1977). The BP approach can be used to isolate individual differences in the ability to describe information search behavior. Subjects are given a standard BP task in which search behavior is monitored. After some time interval, the subject can be asked to describe his or her search behavior on the task (e.g., How many different options did you access? What properties did you access?). Discrepancies between actual and verbalized search behavior can then be studied as a function of task, situational, and individual difference variables. Such research will not only shed light on the cognitive limitations of individuals in different contexts, but should also aid social judgment theorists in knowing when verbal protocols can be used effectively in social judgment research.
Postdecision Dissonance

Research on dissonance theory has suggested that individuals, after choosing between alternatives, will seek out additional information that is consistent with the chosen alternative (e.g., Frey, 1981). Perspectives on this issue can be gained using the following BP paradigm: An individual is provided titles and brief descriptions of three books and asked to choose which one he would most like to read. After making a choice, he can be provided the opportunity to obtain more information about each book (perhaps so as to revise his choice) via a BP task. Each book is an option, and underneath each option is two columns, one labeled “positive reviews” and the other labeled “negative reviews.” Five to ten rows of information in each column would then be available. If the subject wanted to search out information contained in “positive reviews” of a given book, he would select information from the appropriate column. Analyses would provide insights into subjects’ tendencies to seek out positive versus negative information for the chosen alternative as well as the unchosen alternatives. The effects of task manipulations (e.g., reversibility of initial choice, importance of the decision topic) and individual differences (e.g., locus of control) on postdecision information search could also be explored.

Attraction

Research on attraction in opposite sex individuals has explored factors that influence dating choices. Several methodological paradigms have been used. One approach uses self-reports of factors that influence attraction. Another approach uses a functional measurement paradigm (e.g., Shanteau & Nagy, 1979). Other investigators have used complex, correlational procedures in field settings (e.g., Walster, Aronson, Abrahams, & Rottman, 1966). BP methodology can also be adapted to this area of inquiry. Subjects are presented a BP matrix using prospective dates as options and selected attributes as properties (e.g., physical attractiveness, which could be conveyed either with pictures or in words, intelligence, extroversion). The subject is given the task of choosing the individual he or she would most like to date. Analyses would indicate what information people seek out in making dating choices and could suggest choice rules used in eliminating prospective dates. The BP approach is different from the functional measurement strategies, which have been limited to a small number of informational dimensions imposed by the experimenter. In addition, the approach does not rely on correlational data, as typified by some research in this area.

Another area of interest has been the relationship between attraction and belief similarity. Although the relationship between attraction and belief similarity is well established, the traditional experimental paradigm
involves manipulation of similarity/dissimilarity using descriptions of hypothetical others. Research has explored the relative weights given to similar versus dissimilar beliefs in making judgments of attractiveness. The major strategy for assessing weights has been regression analysis (see Schönenmann, Byrne, and Bell, 1977). BP methodology can also be used to explore this issue. The subject is given the task of deciding how attracted he would be to an individual. The BP matrix is structured as two columns, one labeled “similar attitudes” and the other labeled “dissimilar attitudes.” No labels appear in the rows; there are simply 10 potential pieces of information about similar attitudes and 10 potential pieces of information about dissimilar attitudes. Analyses of the order of search and number of items searched in each column could provide insights into individuals’ preferences for information focused on dissimilarities as opposed to similarities with others.

Another possibility would be to construct a matrix with belief dimensions as rows and a set of hypothetical persons as columns. The information within the cells would be such that the hypothetical individuals varied in their similarity to the subject. The subject is given the task of ordering the people in terms of their attractiveness (using a variant of Byrne’s IJS scale). A “tracking” methodology could then be used to study how attraction “unfolds” with each piece of acquired information. BP analyses would also reveal which belief dimensions are sought out most for making attractiveness judgments, and choice rules that are used for categorizing relatively attractive and unattractive individuals.

**Predicting Choice**

Some approaches used for predicting choice involve having the subject evaluate each of the available options on a common and fixed set of properties. Component ratings are then used as a basis for predicting choice via some form of “cognitive algebra” (Jaccard and Becker, 1985). By implication, such a procedure assumes that the decision maker actually considers all the available options and properties. To the extent that this assumption is invalid, such procedures could be introducing error variance (Svenson, 1979). This possibility can be studied by comparing the “all-inclusive” procedure with a “screening” approach, in which the utilities of characteristics that failed to be accessed in a BPT task were eliminated from consideration. The evidence to date suggests that such screening can substantially improve prediction (cf. Sheluga, Jaccard, & Jacoby, 1979).

**Time Constraints**

“Time is money” according to Ben Franklin, and social psychologists have recently become interested in how individuals spend this fixed resource. A relatively neglected area of research has been the impact of
time resources on information-seeking behavior. A negative relationship between information “cost” and the extent of information search has been observed. Lanzetta (1971) reviewed research on information cost and concluded that “the lower the cost of information search in effort, time, or money, the greater the amount of information seeking” (p. 141).

How do time constraints affect information search in the context of judgmental and decision processes? Shugan (1980) has discussed several “simplifying” strategies that an individual might use. One possibility is that a subset of the available options will be arbitrarily ignored. The options that are not ignored are probed thoroughly on all properties relevant to the individual. A second possibility is that all options will be considered, but that a reduced number of properties will be examined across options. A third possibility is a mixture of the above two, with complete option evaluation occurring on one property, and a corresponding elimination of options from consideration as property search continues. This is analogous to Tversky’s (1972) elimination-by-aspects concept. Wright (1974) has suggested that individuals under time constraints will not only search fewer properties, but will also tend to accentuate (give greater weight to) negative pieces of information in making a choice. Another possibility is that the amount of search will be unaffected, but the amount of time spent inspecting or evaluating each individual piece of information will be reduced.

Each of the above reactions could have implications for the judgment or choice ultimately made in a situation. Each is also directly measurable in the BP framework. It should therefore be possible to map rather precisely the effects of time constraints on search and choice behavior in different judgment situations. It is also possible to impose different types of time constraints through experimental manipulations. For example, one could vary the amount of time a subject is allowed to inspect an individual item of information. Or one could vary the attractiveness of a post-BPT activity, such that individuals attracted to the post-BPT task would be less desirous of spending time on the decision at hand. Or a subject could be given a fixed time interval in which to complete different BP tasks, where \( k \) was varied experimentally in a between-subject design (cf. Chestnut, 1975). How the subject allocates time to each of the \( k \) tasks and how search and choice behavior is thereby affected could be studied as a function of topic, situational, and individual difference variables.

**Gender Stereotypes**

Social scientists have studied the content of gender stereotypes. A typical paradigm is to have subjects rate hypothetical individuals on a series of trait descriptors (e.g., aggressive, independent, gentle, tactful) given only information about their gender. BP methodology could be
used in this context by constructing a matrix with trait descriptors as rows and hypothetical individuals as columns. The subject is given the task of guessing the gender of each hypothetical person. Of interest is what trait information is accessed (and correspondingly, what information is not accessed) and the order in which the trait information is searched.

To assess the impact of gender information on information search in a judgment task, the following strategy might be used. The subject is given a BP task in which he/she is to choose the most competent person for a job. The properties are job-relevant characteristics of the individuals and the options are different applicants. For one group of subjects, no gender information is provided. For another group of subjects, the gender of each applicant appears beneath the label for the applicant. Differences in search patterns between the two groups would suggest how gender information qualifies information search on job relevant characteristics.

**Agenda Effects**

Tversky and Sattath (1979) have explored the effects on choice of placing constraints on the order in which options are considered by an individual. For example, given four options, A, B, C, and D, how might the choice be affected if individuals are first required to choose between A and B, then between C and D, and then between the two “winners” of each subset. This is contrasted with a choice between A, B, C, and D with no agenda constraints.

The effects of agenda constraints on information acquisition can be studied in the BP context. Tversky and Sattath (1979) focused exclusively on how agenda constraints affect the nature of the option chosen. Using BP methods, agenda constraints can be imposed not only on options, but also on properties. The BP framework can reveal how such constraints impact on the judgment process leading up to that choice.

**Task Feedback Effects**

Social psychologists and social judgment theorists have studied how individuals revise judgments based upon task feedback (e.g., Hammond et al., 1980). The BP framework allows one to isolate the effects of task feedback on information search strategies. Subjects might be provided a BP matrix describing different hypothetical people (although the subject does not know they are hypothetical) on various task-relevant dimensions. The subject is to order the people on their probable performance on a task. After making his or her predictions, the subject can be given feedback as to how each person actually performed. The BP procedure would then be repeated with a new set of hypothetical people and changes in search behavior as a function of feedback measured. This strategy can be used to explore numerous issues on performance attributions and reactions to feedback.
Applied Areas

In addition to the above substantive areas, BP methodology can be used to evaluate preferences in numerous applied areas that have received attention by social psychologists. Examples include choice of physicians, choice of contraceptive methods, choice of political candidates, choice of roommates, and choice of television shows for children to view.

CONCLUDING REMARKS

Behavioral process approaches have been emerging in the area of judgment and decision making. The approaches have been shown to be quite useful in understanding a number of decision-based phenomena, but have been relatively unused in the social psychology literature. Social psychologists have recently become interested in information acquisition (e.g., Snyder & Gangestad, 1982), but have tended to limit the study of such processes to person perception research using elaborate deceptions in the context of the laboratory (e.g., Snyder & Swan, 1978). In contrast, BP methodology is potentially applicable to a wide range of social psychological phenomena. The present paper described recent trends in the use of this methodology, as well as several new approaches that have evolved in the context of our research programs. We believe that BP methods can be used to strengthen many areas of inquiry in social psychology, and it is hoped that the present paper will stimulate applications of this promising methodology.

REFERENCES


