

PAROLE DECISION-MAKING

SUPPLEMENTAL
REPORT FIVE

INFORMATION SELECTION AND USE IN PAROLE DECISION-MAKING

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In Collaboration with The United States Board of Parole

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SUMMARY

Different decision-makers go about their task in different ways. Decisions are made with reference to information about offenders, and decision-makers have preferences for kinds of information and for methods of presentation. Decision outcomes may be associated with the methods of presentation as well as with the qualities of the information itself. Further, the decision outcomes may be associated with the ways in which the information is "processed" by decision-makers.

Decision-makers may be of several "types"; and possibly differences among them, as they relate to information search strategies, are of importance in relation to the planning of computer-assisted decision analysis.

A series of experiments was conducted in order to further identify ways in which information is selected and used in parole decision-making; in part, they may be seen as "simulating" operations performed by means of computer assistance. A first study employed an "information board" previously used; the second extended this procedure to the use of a random access slide projector for the computer retrieval simulation.

From these experiments several general results can be derived. Persons paroling, compared with persons not paroling, sought different information. Different items of information were generally considered important for different cases. The same decision often was made on entirely different bases; that is, different information was used by different people to arrive at the same conclusion. Information may reduce confidence in the decision as well as increase it. There is no unanimity among decision-makers as to the relative importance of information available to the decision, and procedures for improvement of information as aids to the decision may have to be based upon an improved understanding of differing "styles" of decision-making.

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INFORMATION SELECTION AND USE IN PAROLE DECISION-MAKING

Introduction

Observation of the parole decision-making task suggests that different decision-makers go about the process of their decision-making in different ways. For example, the pattern of search for information appears to differ among members as attempts are made to "digest" the case file, identifying aspects of the life history thought significant. In a given case or in general, a specific bit of information may be regarded as highly significant by one member but thought to be unimportant by another. Some members may prefer a reliance upon the objective features of the case file, while others may place more emphasis upon a subjective assessment. Some may approach the task with a prominent set toward evaluation of the offender in terms of the risk of new offenses or parole violation; others may emphasize concerns for equity in time served by persons in comparable circumstances, for issues of deterrence, for institutional adjustment, or for the potential impact of the decision upon the correctional system as a whole.

If these observations are correct, then it may be possible to describe the different processes used and to indicate that there may be very significant consequences which derive from these differing processes.

Our task in the Parole Decision-Making project is to "improve" parole decision-making. The term "improve" is a difficult one to translate into specific methodologies; it seems clear, however, that a greater clarity and awareness of issues, procedures, decision outcomes, and consequences is relevant to the general task.

In attempts to "improve" decisions, it has become a common practice to utilize methods of information feedback. However, if the decision processes used differ among decision-makers, the feedback of information derived from one form of decision processing to a group or persons who utilize a different form may not be helpful.

Decisions are made with reference to information about offenders; and there are, of course, varying qualities, types, and quantities of information to be explored. But it is now clear to us (from discussion with parole board members, from the questionnaire data obtained, and from the exercises described elsewhere in this report series) that decision-makers have preferences for kinds of information and for methods of presentation and that their decision outcomes are not independent of the methods of presentation, as well as being associated with the qualities of the information itself--and, further, with the ways in which the information is "processed" by decision-makers.

The experiments will be described in two parts. The first section, subtitled "Information Use in Parole Decision-Making" describes the development of the materials for the simulation and results of some explorations with three groups of subjects: research clerks, graduate students in criminology, and hearing examiners and staff of the United States Board of Parole. The second section, which is subtitled "Information Selection in Parole Decision-Making" describes the results of an effort to employ the simulation procedures in small groups of parole decision-makers and others concerned with parole. The first study employed an "information board" similar to that developed by Wilkins and formerly applied to examine probation officers' presentence recommendations.^{1, 2} The second study extended this procedure to the use of a random access slide projector simulating computer retrieval. Some decision-makers appear to work along the lines which have been suggested by exponents of statistical decision theory; others apparently do not.

¹Wilkins, L. T., and Chandler, Ann, "Confidence and Competence in Decision-Making," British Journal of Criminology, 5(1), January, 1965.

²Lohman, J. D., Wall, A., Carter, R. M., "Decision-Making and the Probation Officer," San Francisco Project Research Report No. 7, Berkeley: School of Criminology, University of California, June, 1966.

Decisions and Information Use

We do not know exactly what constitutes a "decision." In retrospect we can say whether we have decided, or whether we have not yet decided, but we are usually unaware of the exact point at which the decision was made. In some cases we may add to our information in a sequential input and with each item of information adjust our assessment of a probability, or our beliefs; in other cases we may seek out a pattern by acceptance of information which "fits" and rejection of items which do not. In some cases we may regard items of information as interchangeable, such that one piece of information which indicates a positive decision may, when it is not present, be substituted by another and different item, but one having the same influences upon our "decision-making."

It does not seem that these considerations may be dismissed as trivial nor as irrelevant to the parole decision-making of parole board members, nor indeed of other decision-makers in the criminal justice system. If we are to discover ways whereby decisions may be assisted by computer processes, obviously the "software" is the critical problem. The appropriate design of "software" clearly depends upon the requirements of the user of the terminals, and the manner in which they (the terminals) deliver information will become critical. In order to discuss the

appropriate form of "delivery" of information to the decision-makers, we need to know how they want the information delivered. However, the user is not able to tell us this directly, since it is now clear that people do not know that they use different mental processes of information retrieval and storage. Moreover, once the intake of information is in process, it is related to other concepts in different ways by different people.

Various experiments were, therefore, conducted; and some are reported here. The purpose of these experiments is, in the end, to indicate ways in which the parole decision may be "improved." There are several stages on the road to this goal, which, we conclude, cannot be arrived at by any more direct means. Part of the experiments may be seen as "simulating" the computer of the future--the sort of presentations which it would be feasible to make available to parole board members and other decision-makers in this area when the software has been developed. We saw no point in rushing into the preparation of complex software which might prove useless. Hence, we proposed to "simulate" by the use of random access slide projectors the cathode ray tube displays which could become "real time" operations.

A Typology of Decision-Makers?

A Theoretical and Speculative Contribution³

Apart from differences in personality factors as usually considered in terms of attitudes and abilities, it seems likely that there are important differences in modalities of problem-solving behavior. It is possible that these differences, as they relate to information search strategies, are of importance in relation to the planning of computer-assisted decision analysis.

Everybody makes decisions. Everybody can say about any specific matter about which he may be questioned, whether he has at that time made a decision or not. We are aware of having made or of not having made a decision, but we can say very little about our process of making decisions. It is as though the decision process were a one-way screen--when we are looking towards it we know without any doubt that we have not passed through it; but when we look backwards, while we know we have passed through, the time, method, or occasion of "passing through" usually avoids us. Once we have made a decision, we are sure of this fact; but we cannot say which item "swung" our vote in one direction or another. The information piles up, as it were; the gradual process of coming to a decision suddenly reaches a critical level; and we "decide." Our awareness of some aspects of this process is much clearer than of

³This section was prepared by Leslie T. Wilkins.

others. The process may differ in respect of different kinds of decisions, but most people would have considerable difficulty in saying what kinds of processes were associated with which kinds of decisions. Indeed, most people would find the idea of classification along these lines an unrealistic suggestion.

The linguistic conventions by which we describe the decision-making processes reveal much of the nature of our thinking about this human activity. We have many ways in which we can describe the uncertainty we have before "deciding"--"I have not yet made up my mind" (a "construction" analogy); "I am still in doubt" (a locational analogy); "I do not have sufficient facts" (perhaps an analogy with weighing as in scales); "I do not know which side to come down on" (perhaps a different analogy of scales); and, of course, many more similar phrases using different metaphors.

There is, perhaps, as rich a selection of phrases in which we can indicate that we have decided--"I have made up my mind," "On balance I would say...", and so on, with "weighing" and "constructional" analogies dominant. But consider the process of the act of deciding. We have no such phrases which refer to the

decision-making operation as in the present. Diplomatic communiques often say that "documents are being studied" or similar phrases, but the frank statement that "we have not yet made up our minds," or, "we are in the process of making up our minds" would be a refreshingly unusual news release. It seems that to maintain the image of competence the delay in coming to a decision must be blamed upon the lack of information or some uncertainty regarding the information, as distinct from the process time of making a decision. "Why," the public seems to be assumed to ask, "should the process of decision-making take any time?" Getting the facts: that takes time. Getting the facts into order: that takes time. In fact, any acts which are external to the actual act of making the decision can, with respectability, be claimed to take time. But once the preliminaries are disposed of, the act of making the decision should not take time: at least this seems to be a reasonable inference from the balance of available conventions for describing these different sectors of decision behavior.

The Importance of Decision-Making Strategies of Search

The question of what characterizes a "rational decision" where there is a total lack of information has engaged some mathematicians and philosophers, but this case is trivial. It is difficult to imagine a decision situation where at least some small quantity of information

is not available. The decision-making process and the information search and sorting activity are closely related. However, it is interesting and useful to ask some questions regarding the relationship between information and decision.

Does the decision-making process run concurrently with the information search? Is the process continuous, smoothly increasing towards a point where, on one side we say we have not decided, but on the other side and only one very small step later, we say that we have decided? Do we, as our intake of information increases, use the information to destroy our uncertainty about the choice, or is there a "gap" between our state prior to and after making the decision which is of a different order from a change in a continuous variable? If there is a continuous variation, could this be described as a continuum of "degrees of certainty"? What is the relationship between "degrees of certainty" or "degrees of belief" and our assessment of probabilities? Can we relate uncertainty to the concept of "risk," and, if so, is the relationship a direct one? And, if we can do this, can we relate the concept of "risk" to the concept of "probability"? Can all uncertainty in relation to human decision-making be seen as a matter of probabilities, even if we have also to add that we may be uncertain as

to the probabilities? Perhaps some of these questions are irrelevant to any design of computer-assisted decision analysis which could be of use to any parole board. It does, however, seem necessary to ask how information is used in the parole decision process. If decision-makers are, as a continuous function, modifying their uncertainty (whether to grant parole, or probability of an outcome), then the computer systems should, presumably, fit in with this human preference pattern. If uncertainty assessment is continuously modified, does the step from uncertainty to decision take place quickly? If not, how can the interim state be described? If uncertainty can be taken in terms of probability, at what level of probability do we usually regard the balance as sufficiently weighted to state that we have moved from being undecided to being decided? How is the dichotomy (decided/undecided) related to the continuous variable of changing estimates of probability, or our reducing level of uncertainty?

If we are to work towards computer-assisted decision-making in any sophisticated form, it is critical that we obtain some understanding of the preferences decision-makers (members of parole boards) have for certain possible forms of information search and processing. It is, of course, possible to approach these problems from a

purely theoretical angle. Much has been written about "statistical decision theory." If we can accept certain basic concepts as relevant, and the idea of probability as central, we can fit together a large body of mathematical ideas. Whether these ideas and the related models are of use to any particular decision-maker may depend both upon the preferences (perhaps we could say, the humanity) of the decision-maker and the kinds of decisions with which he is concerned.

If we are concerned with preferences for forms of presentation of information, then it might be thought that we could find out what to do merely by asking decision-makers how they go about their task. It would certainly be simpler if it were reasonable to assume that this approach would suffice. It is, perhaps, because all persons are decision-makers at various levels of complexity, continuously and all their lives, that introspection is unsuccessful in uncovering the nature of the process. We find it impossible to give an account of how we breathe. Decision-making at certain levels is a learned process which becomes automatic. If one person should ask another, "How do you think about that?" the respondent will express his opinion about the content area under discussion; he will not describe his thought processes. Obviously, if somebody thinks "in the same

way," we mean that his opinions are similar, not that his methods for deriving his opinions are similar to ours. Thus the ways in which we talk about decision-making do not seem satisfactory from the viewpoint of understanding the process in sufficient detail to be able to talk about the provision of "assistance" through technology. Some other methods must be worked out and put into effect.

The theoretical approach on its own will not suffice. But let us return for a moment to the issue which was raised when the idea of theoretical "decision theory" was introduced, namely, the relationship between "uncertainty," "risk," and "probability." Suppose we were to ask those readers who are married, "Exactly when did you decide to marry your wife?" Leaving aside the reply, "I did not decide; she did!" we might try to follow up by asking "What was the most important piece of information which led you to this decision?" The decision to marry is clearly an important decision of relatively low frequency, and hence one about which we might expect good recollection. However, even the unmarried who may miss some of the significance of the example, will appreciate that these kinds of questions about this decision are really rather silly. But in the example, the decision had been made, and we have previously argued a major

distinction between the before and after in the decision process. Let us then suppose that we asked the unmarried, "Have you decided to get married, not to get married, or are you in the process of coming to a decision about marriage?" This kind of logical format is used frequently by the Gallup Polls, and we might expect people to respond in such ways that interviewers could fit their replies into the categories provided. We should certainly be able to give percentage figures cross-analyzed by other data such as age, religion, type of home, income, occupation, and the like. We might consider it reasonably safe to use these data to work out the characteristics of an insurance policy which we could sell to cover the "risks" of getting married or other attendant risks, or the risk of not getting married. We would be poor businessmen if we could not make a profit out of treating the decision to get married as a "risk" and calculating probabilities associated with it. Thus, we can say that for the observer of the decision process, the idea of probability in relation to the idea of uncertainty makes sense--if only because it can be used to make a profit. But does the same model make sense also to the decision-maker himself?

Viewed from different perspectives, a phenomenon may appear in different forms, as is well-illustrated by the familiar story of the three blind men and the elephant.

But if a particular explanation of a decision process makes sense for the observer, then it might be argued that a model based on this form of explanation should also provide a rational model for the observer. In other words, the observer should be able to utilize the model he has of the situation to make further deductions as to the decision-making process which he can check by observation. If this is not the case, then we would expect that there was some fault in the model or the explanation which the observer considered from his viewpoint to be satisfactory. But perhaps the critical issue is that there are different kinds of decisions and different kinds of decision processes. The ways in which the decision-maker searches for information may depend upon how he sees the decision he is required to make. Or, alternatively (or, in addition), different decision-makers may utilize different processes of information search for a common decision. If rational decisions refer to experience, then clearly--since the backgrounds of decision-makers will vary--we must expect variation in the "rational" decision processes. But will this variation in relation to background be as great as the differences in experience or of personality? Is a process of classification likely to be possible? Perhaps a classification may be possible if the kinds of decisions are restricted. In this research

our concern is with the decision regarding parole. This is a decision of the same kind, no matter who is the decision-maker or the situation in which the decision is made.

In the parole decision much of the information is formalized, and each decision-maker has potential access to almost exactly, if not exactly, the same information. He may not be able to examine all of the material which may appear in the files and other sources. If the individual to be decided about should appear in person, then the decision-maker may ask questions; and while in theory he might ask an infinity of questions, he will not in practice do so. Thus there are boundary conditions with respect to the information. Further, all decision-makers except those who are newly appointed to boards will have considerable experience of making many decisions within the same kinds of boundary conditions. In many cases there is an added complexity in that the parole decision is a shared decision in which the views of colleagues may be solicited or required according to rule or precedent. The added complexity may assist in the examination of the problems because the sharing of the process requires communication between the participants. Thus what could be unexpressed and even vaguely formulated in the personal decision case must, in so far as it is

considered to be relevant, be overtly expressed in a shared decision situation.

The research worker may take up a position similar to that of the colleague of the decision-maker. It is also possible to observe the information search strategy which decision-makers prefer, because the information is external and in the form of files.

The files do not provide an easy base for observation because many kinds of information may be displayed together on the same page and the observer would find it difficult without interference with the process to ascertain which items were being sought by the decision-maker. Any change from the usual procedure is, of course, likely to introduce new variables, and inferences which might be made in the changed environment of decision-making may not apply to the original setting. However, it was considered that the separation of items of information by a means which provided easy access, but to only one item at a time, would not do too much violence to the usual setting of parole decisions. Two methods have been used to try to see how parole board members prefer to search for information about the offender. One used small index cards, an item on each, set out in similar form to that of the files with which board members were familiar. The other used slides (35mm) and a random

access projector. The results of these experiments in so far as they relate to data search are reported in later sections of this report.

In this section we are concerned with more general speculation and our basis of data does not come from the operations requested or performed by board members, but by an analysis of the comments made during the experiment. With which kinds of data were board members most satisfied? Was there any general strategy which would indicate ways in which computers should be programmed in order to facilitate the decision-making process.

In the experiment using the random access slide projector, decision-makers could request any item of data about the subject upon whom they were expected to make a decision, but only one item at a time. They had before them an indication of the contents of the "file" (i.e., the slides and the content) in terms of the topic, but without any information specific to the offender. In the case of the index card design, individual members were able to select according to their own preferences, whereas in the case of the slides, a group of members selected the information required after discussion. These discussions led to the setting up of the theory set forth later (see pp. 19-24).

It was clear that the types of information most strong-

ly desired, the search strategy, and the weights given to items of information differed very considerably. As a part of the experiment, decision-makers were asked to make an interim decision after searching for only a small number of items. The first major suggestion of a typology of decision-makers begins to appear in this area. Some considered the request to make an interim decision a quite realistic question and, since they were permitted to indicate a low degree of confidence in any early decisions, they found the procedure acceptable. Others did not consider the making of a decision as a possibility until they had "sufficient" information. The majority of parole board members were in the first category.

Similar computer retrieval methods could satisfy the many different search strategies found within the first category of decision-maker, and various "statistical decision theory" models might provide real assistance to them. With the other kinds of search strategy it is by no means as clear how the computer might be utilized. This is because the major group (who can make interim decisions and see the quantity of information as associated with a degree of confidence) fit closely with the theoretical models proposed by statisticians. (Perhaps statisticians tend to think in this form too!) But let us describe the notional

taxonomy which is held only as an interim classification and at this stage with a low degree of confidence!

An Initial Suggestion for a Taxonomy of Decision-Makers
In the Parole Decision Process

Report Three of this series, The Problem of Overlap in Experience Table Construction, describes a method of obtaining prediction tables, termed "step-wise regression." This method, it will be remembered, first finds the most powerful predictor and then searches for others, adding information and increasing the power of prediction as a sequential process. It seems that many decision-makers work along similar lines when they are presented with the need to make a decision and a body of data to assist them in arriving at a rational conclusion. The individual does not have any prior knowledge of which item has the greater power to discriminate in relation to factors of his decision, but he has experience and a personal viewpoint which leads him to prefer a particular order in which the information is to be presented to him. He does not want to be cluttered up with items he would consider irrelevancies at the first stage: quite the contrary. His order of search may be related to some recent experience or to a more general experience. But, by whatever means the information priorities are determined, a priority exists.

The particular priority tends to be characteristic of the decision-maker. (For this result we have to rely upon collateral research, since in this particular parole decision study we had only one case.) The important thing about this type of decision-maker is that he fits a model which starts with a probability (a degree of uncertainty), which is modified as further data emerge. Each item may make a change in the assessment until the time when there is considered to be no point in further search--the series has "tailed off" as in the calculation of the value of (e) , if a mathematical analogy may be used. It is not surprising that these decision-makers can, at any time during their search, give an interim estimate; this reflects their own procedure. We may call these kinds of decision-makers "sequentialists."

Another type has been named the "ah, yes!" type of decision-maker. Quite often these persons will terminate their information search by exclaiming, "Ah, yes, this is the typical..." It is as though these decision-makers are searching for patterns in the data, and until they have fitted a pattern, they do not feel that they have any real information at all. Although, of course, they

have to look at information in a sequence, they do not appear to handle it internally in a sequential manner, but rather place it in store until it "clicks." There are statistical and other methods which deal with pattern recognition problems, but computers are not very good at handling these tasks, unless the pattern is a simple one.

Persons who use one type of strategy cannot, it seems, understand how the others operate. This seems to be similar to the differences between "visualizers" and "verbalizers" which used to be discussed in some areas of psychology. The differences do not seem to be derived from the same kind of function, and it is quite probable that there are "sequentialists" who are "verbalizers" and there are doubtless some who are "visualizers." It is not known whether this particular taxonomy makes sense only in regard to parole decisions (and perhaps to similar decisions meeting similar conditions of data, environment, and the like) nor whether this is a learned behavior in the parole decision-making situation. Experienced parole board members do acquire a large repertoire of "typical cases," and there have been many published "offender typologies" which could provide the template against which the information, as obtained, can be matched. Similarly, other board members may

store information regarding single items of information which relates to performance on parole and hence to their decisions. Some persons, in order to deal mentally with an abstract situation will visualize a stage, fill it with actors, imagine their speeches and acts, and "play through" the dramatic representation of the problem. Others, instead of a stage, may use a geometric space as a vehicle to project an abstract problem. There are many analogies, and perhaps as many preferences.

Another type of decision-maker is the "simplifier." He may be typified on the one extreme as a person who starts his observations from the viewpoint, "Anything known against this man?" At the other extreme is the person who searches for mitigating factors: "Anything known in favor of this man?" The attempt here is to reduce the complex problem to the simplest form, preferably the one most important item, and this item may be chosen in a large variety of ways. This is the kind of decision-making which might be termed prejudiced. The initial set, whether strongly punitive or strongly sympathetic, or, say, extremely "tough minded" or extremely "tender minded," tends to dominate the strategy. These two, albeit apparently contrasting viewpoints, tend to show the same logical and informational search strategies. Often this approach represents a search

for the "real cause" of the man's trouble.

The last of the four types is really a nondecision-maker: he is the "ratifier," or, as he has been termed colloquially, the "I'll go along" decision-maker. His search strategy is to try to find what has been said by some person with whose views he can associate--the psychiatrist, warden, or the probation officer. (There is considerable empirical evidence that judges in the sentencing decision tend to be "ratifiers" and that the probation officers, in operational terms, perform much of the sentencing function.) All decision-makers find themselves from time to time in the "ratifier" role, because of the decision-making environment, usually in the form of administrative procedures. Ratification is also often a safe procedure in delicate situations. Nonetheless, and without gainsaying that this may be a rational procedure, the frequency with which it is employed seems to vary from person to person, as well as from situation to situation. The central idea here is the appeal to an "authority."

Implications of Suggested Taxonomy

It seems probable that if a model can be established which is inherently satisfying to the "sequentialists," the "pattern searchers" will find it unsatisfactory to interact with it. Thus the dialogue between the decision-maker and the computer to which he looks for assistance

may not be a standard form. To provide the facilities which are sufficiently differentiated that the varieties of decision-makers' preferences can be met is a challenge which we now face. There are further implications of this theory in terms of training for decision-making. Feedback methods are used extensively in institutes for judges and many other decision-makers in the criminal justice area. It might appear that feedback of models which imply the "sequential" method of problem solving will not be effective except in regard to those persons who intrapsychically use this method of information search and assessment; and, of course, similarly there will be difficulties for "sequentialists" in appreciating the meaning of any "pattern searching" model.

In the next sections of this report, two studies of information search and decision analysis are described. These were prepared before the idea that different categories of decision-makers may be useful in describing decision-making behavior. Some of the difficulties in interpretations of the results may be resolved in the future when it is possible to consider the differences in the preferred strategies of information retrieval and problem solving of participants.

Information Use in Parole Decision-Making⁴

A primary problem in the determination of that type of information manipulation which would be most helpful to parole decision-makers is determining the types of information most important to the parole decision. The question of which factors about the offender constitute the core of information relevant to the parole decision has rarely been objectively researched.

In an effort to ascertain the use and importance of information in the parole decision, an information board, or partial decision simulator, of items used in the decision process was constructed and decisions based upon data from the board were made by research clerks in the correctional field, graduate students in criminology, and staff of the United States Board of Parole. This section discusses some of the results of that experimentation.

In reading this, it is well to remember that the research device itself was not tested. While there was no noticeable difference between the pattern of decisions of a parole board based on the actual case folders and those of the research subjects based on the simulated information items, this similarity was not tested with the

⁴This section was prepared by Mrs. Ann Sadowsky.

subjects themselves. In addition, the experimentation was rather "free form." There was no attempt to develop hypotheses and then test them. Rather, it was decided to see what hypotheses developed as a result of constant use of the simulation device.

The one deliberate manipulation was the abstraction of cases in both narrative and coded format. For example, in narrative format the item entitled "age" would read "Subject is 24 years old"; whereas in coded format the same item would state simply "24." Results of the format differentiation are given in the body of this section.

Method

A sample of 26 cases, typical in age of offender, offense, and type of admission to the system of those seen by the United States Board of Parole, was abstracted from actual case files. The narrative abstracts consisted of 50 items of information chosen from those frequently appearing in case files and noted by parole board members as useful in the parole decision. The 38 items in the coded abstracts were codifications of those 50 narrative items which also appeared on the code sheet for the NCCD Parole Decision-Making project. For purposes of the simulation, these 50, or 38, items of information constituted a case file. Items concerned the offender's general background, criminal history,

instant offense, institutional progress, and parole plan.

Two changes occurred in the items of information during the four-and-one-half months of experimentation. Since the simulation equipment described below was limited to 50 items, changes had to be made in the form of substitutions. Two of the least used original items were replaced by items which had been requested in earlier testing. These substitutions have been noted in the descriptions of information use.

The simulation equipment consisted of a portable card file containing space for 50 cards. The bottom line of each card was visible, serving as an index to the information on the card itself. If the decision-maker wanted to see information on a particular subject, he placed his finger on the subject title desired and flipped over the cards above it so that he had access to the body of the subject card.

Each file of 50 cards constituted one case. The decision-maker was asked to examine the items of information in their order of importance in the decision to parole the offender in that particular case. Starting with the fifth piece of information and after examining each further piece of information, the participant recorded his decision on paroling the individual and

the ease with which he made the decision. The participant could stop considering information at any point where he felt that he had made a decision and no further piece of information was liable to change it. In some cases, the decision-maker was also asked to record the weight of the individual item in his decision. The weights and ease levels were used in determining the importance of various items of information.

The cases were taken by three groups of individuals-- research clerks who code files from the United States Board of Parole for the NCCD Parole Decision-Making project, graduate students in criminology at the State University of New York at Albany, and hearing examiners and staff members for the United States Board of Parole. No person took only one case. The fewest taken was three, the most 39. It was felt that the best results-- in terms of accurate use of the data--were achieved by those who had worked long enough with the simulation equipment to feel relatively relaxed with it and to know the definition of all subject titles.

Information Use in Narrative Cases

The research clerks examined more items of information in the decision process than either of the other groups. The average number of items considered was 22

for the research clerks, 17 for the hearing examiners and board staff, and 14 for the criminology students.

As shown by Table I, the criminology students were closer in orientation to the board staff except for the import of institutional items, such as escape history and homosexuality. The most noticeable difference between the board staff⁵ and other participants was the staff's overwhelming use of the official description of the offense without corresponding examination of the inmate's description. Another interesting and possibly significant variation is the high emphasis placed by the board staff on alcohol use. The board staff not only examined both alcohol and drug use more often than either of the other groups, but also appeared to consider alcohol use as of greater import. The board staff also showed less interest in the parole plan. Despite these differences, it may be concluded that experimentation done with groups other than parole board members can show fairly high correlation to research on important factors done with board members.

Another important distinction is that between those who tend to decide for or against parole. If such a distinction could be shown to be significant, the lack

⁵"Board staff" as used throughout the body of this paper refers to both hearing examiners and staff members.

Table I

PERCENTAGE OF INFORMATION ITEM USAGE BY PARTICIPANT GROUP

	Research Clerks (N=85)	Students (N=22)	Parole Board Staff (N=41)
OFFENDER BACKGROUND			
Age	82	45	63
Ethnic Group	4	5	--
Education Level and Adjustment	39	32	28
Marital Status	55	23	25
Homosexuality	2	5	15
Mental Problems	16	45	15
IQ Score	14	9	20
SAT Score	6	--	15
Drug Use	45	27	54
Alcohol Use	32	23	63
Indications of "Nomadism"	48	23	51
Susceptibility to Influence	41	36	25
Early Home Environment	48	18	25
Prior Living Arrangement	40	5	25
Contact with Family	46	23	17
EMPLOYMENT HISTORY			
Job Skill	73	27	25
Recent Employment History	65	45	35
CRIMINAL BACKGROUND			
Age at First Arrest	21	--	15
Age at First Conviction	13	5	8
Longest Prior Incarceration	61	--	7
Longest Time in the Community	53	14	5
Number of Prior Convictions	42	68	59
Type of Prior Convictions	89	41	27
Prior Parole and Probation Revocations	56	23	32
Escape History	22	9	32
Reason for First Arrest	18	14	27
Reason for First Conviction	7	14	13
Number of Prior Arrests*			100
Number of Prior Incarcerations*			62

(continued on next page)

Table I (continued)

	Research Clerks (N=85)	Students (N=22)	Parole Board Staff (N=41)
INSTANT OFFENSE			
Instant Offense--Official Description	86	95	100
Instant Offense--Inmate's Description	74	82	47
Use of Weapons	15	18	17
Codefendants	13	27	3
Previous Convictions for This Offense	53	18	29
Mitigating Factors	31	27	22
Time Served Prior to Present Hearing	99	41	76
Time to Full Expiration of Term	16	23	39
Time to Mandatory Release	81	50	69
Parole Eligibility	14	9	42
Detainers	22	27	29
Type of Admission to the System	28	--	30
INSTITUTIONAL PROGRESS			
Academic Progress in Institution	54	23	39
Vocational Training in Institution	78	23	32
Institutional Work Experience	51	23	42
Disciplinary Infractions	69	50	54
Leisure Time Activity**	14	27	
Changes in Attitude Noted	56	55	47
Letters and Visits from Family	44	23	29
PAROLE PLAN			
Release Living Arrangements	87	59	40
Release Job Prospects	93	82	45
Financial Resources	38	36	5

*Used for Parole Board staff only.

**Not used for Parole Board staff.

of some data in a case file might determine whether that inmate was paroled. Dividing all research subjects into those who paroled more than 60 percent of the cases and those who paroled less than 40 percent, a difference was found in items considered by the two groups. Table II lists those items of information where the difference between the two groups in percentage of times the item was considered was found to be significant.⁶ The plus or minus following the significance level indicates whether the item was considered more often by those more liable to parole the offender (+) or those more liable to retain him in the institution (-).

Table II
DIFFERENCE OF INFORMATION CONSIDERED BY
THOSE FAVORABLE AND UNFAVORABLE TO PAROLE

Item	Significance Level
Instant Offense--Official Description	.0001 -
Time Served Prior to Present Hearing	.0001 -
Academic Progress in Institution	.002 +
Indications of "Nomadism"	.012 +
Instant Offense--Inmate's Description	.014 +
Detainers	.020 +
Age	.023 -
Prior Parole or Probation Revocations	.023 -
Number of Prior Convictions	.026 +
Alcohol Use	.031 +
Time to Mandatory Release	.039 -
IQ Score	.047 -

⁶The significance of the difference between proportions was tested, using a two-tailed test and a five percent level of confidence.

Although the experience with the testing device is still small, the information presented in Table II appears to support the thesis that those who tend to oppose parole base their decisions on the retributive or deterrent effects of imprisonment, whereas those who tend to favor parole are more interested in the offender's ability to "make it" in the streets.

Other Measures of the Importance of Narrative Information Items

The apparatus and recording device allowed other measures of the importance of information items to the decision. One such measure is the weight or value in the parole decision of those items considered by a majority of those making the decision. The weight of items was measured on a five centimeter line on which the decision-maker was asked to record by drawing a vertical line at the point at which he felt the item was for or against parole. A line through the midpoint showed that the item had no significance in the parole decision. The intersection of the lines was measured on a 100-point scale; the more points given an item, the more it favored parole.

Tables III and IV show the difference in value accorded information items in two cases. Each item listed was considered by over 60 percent of the research

Table III
 VALUE OF ITEMS CONSIDERED BY 60 PERCENT OF DECISION-MAKERS IN CASE 019

Item	Decision to Parole		Decision Not to Parole	
	Value Range	Mean	Value Range	Mean
Drug Use	4 - 54	29	0 - 18	6
Number of Prior Convictions	12 - 94	69	12 - 92	62
Instant Offense--Official Description	2 - 72	28	0 - 30	16
Instant Offense--Inmate's Description	4 - 82	35	2 - 32	17
Time Served Prior to Hearing	20 - 70	47	0 - 50	23
Time to Mandatory Release	2 - 98	41	0 - 50	31
Disciplinary Infractions	50 - 84	71	50 - 92	73
Release Job Prospects	36 - 100	80	46 - 90	73

Table IV
 VALUE OF ITEMS CONSIDERED BY 60 PERCENT OF DECISION-MAKERS IN CASE 010

Item	Decision to Parole		Decision Not to Parole	
	Value Range	Mean	Value Range	Mean
Age	30 - 38	34	6 - 58	26
Recent Employment	60 - 64	62	8 - 60	33
Type of Prior Convictions	10 - 32	25	0 - 40	20
Prior Revocations	30 - 72	54	6 - 40	26
Instant Offense--Official Description	6 - 48	31	0 - 60	30
Instant Offense--Inmate's Description	8 - 50	31	12 - 40	33
Time Served Prior to Hearing	40 - 70	60	20 - 80	49
Time to Mandatory Release	50 - 90	63	20 - 64	40
Disciplinary Infractions	10 - 26	19	4 - 20	16
Release Living Arrangements	10 - 30	20	10 - 60	27
Release Job Prospects	20 - 38	29	0 - 36	14

subjects deciding on the case. The case in Table III concerned a 27-year-old college student convicted of selling LSD. He had no prior convictions and only one arrest. This case was decided by 18 participants, of whom eleven decided to parole. The case in Table IV concerned a 24-year-old male parole violator for auto theft. He had five prior convictions and two prior incarcerations. The case was decided by 14 participants, of whom five decided to parole.

These two tables show that different items of information become important in different cases. In case 019, the difference in decisions was based on a different opinion of the severity of the offense and the time which should be served for that offense. (It is assumed that the different values given the drug use item are closely correlated with the different values given the offense, since the offender both sold and used LSD.) In case 010, the offense is considered equally severe by both those in favor and those opposed to parole; however, there is again a disagreement about the time which should be served for the offense. In this case, however, there was also more consideration and disagreement concerning the offender's ability to return to a productive role in the outside world without violating his reparole. This is evidenced by the disparity of means on the items

concerning "recent employment history," "release job prospects," and "prior parole and probation revocations."

Other measures of the importance of the information items to the parole decision are (1) the changes in decision made after considering an item and (2) significant changes in the ease of making a decision following consideration of an item. The ease of making the decision was recorded in the same manner as the weight or value of an item. In 155 case recording forms examined, 66 changes of decision and 61 changes of ease over 25 scalar points were recorded. Of 52 information items, 40 were related to these changes. However, 20 of the 40 were selected only one or two times. Table V shows the eleven most important items in changing the decision or the ease with which it was made.

Table V

MOST IMPORTANT INFORMATION ITEMS
BY DECISION AND EASE CHANGES

Item	Number of Changes
Release Job Prospects	10
Time Served Prior to Present Hearing	9
Number and Type of Discliplinary Infractions	7
Drug Use	6
Indications of "Nomadism"	6
Type of Prior Convictions	6
Changes in Attitude Noted	6
Susceptibility to Influence	5
Job Skill	5
Vocational Training in Institution	5
Financial Resources	5

In considering Table V, the fact that no recording was done until after five items of information had been considered biases the importance of the listed information items. If the first five items are considered as most important to the decision and each item given one point for each time it appears in the first five and one point for each time which it changes a decision after that, the result is the most important 20 information items listed in Table VI.

Table VI
INFORMATION ITEMS LISTED BY IMPORTANCE
IN PAROLE DECISION-MAKING

Item	Importance Points
Instant Offense--Official Description	133
Instant Offense--Inmate's Description	92
Time Served Prior to Present Hearing	67
Type of Prior Convictions	58
Age	55
Number of Prior Convictions	45
Time to Mandatory Release	38
Previous Convictions for Instant Offense	35
Release Job Prospects	30
Number of Prior Arrests*	30
Release Living Arrangements	24
Parole Eligibility	17
Type of Admission to System	16
Prior Parole and Probation Revocations	15
Mitigating Factors	15
Changes in Attitude Noted	15
Vocational Training in Institution	14
Time to Full Term Expiration	13
Drug Use	12
Academic Progress in Institution	12
Number of Prior Incarcerations*	10

*Used only for Parole Board staff.

This list is biased by the differing number of cases taken by each group and the different items considered by those tending to favor or not favor parole, as mentioned above. Since these "important points" came from 148 recorded decisions, the tremendous disparity of items influencing the decision can be noted. Only the first two items were considered important more than 50 percent of the time.

Narrative Versus Coded Data Items

Experiments were done with the research subjects deciding the same cases using different information formats. No participant was told that the cases were the same, and more than 24 hours elapsed between the two decisions in most cases.

The 50 narrative items were reduced to 40 in coded format. Omissions were due to the need to correlate this section of research with the items coded for the Parole Decision-Making project. The codifications were brief and not always self-explanatory. Participants were given lists of the possible codes for each item for purposes of comparison. Familiarity with the codes, however, did not make the decision process easier when using coded information. As seen from Table VII, the research clerks, who worked daily with the codification of this material, found the decision more difficult with

coded data than did either of the other groups! The parole board staff was the only group which did not find decision-making with coded data considerably more difficult. This may be a function of their constant need to make decisions of this sort. The coded data, which is a type of shorthand, may approximate their own method of categorizing case data.

Table VII

SUMMARY OF NARRATIVE VERSUS CODED DATA BY GROUPS

	Narrative	Coded
RESEARCH CLERKS (16 cases taken by five subjects)		
Average Number of Items	22	16
Average Level of Ease	26	42
Percent "Yes" Decisions	46	45
CRIMINOLOGY STUDENTS (four cases taken by five subjects)		
Average Number of Items	9	13
Average Level of Ease	4	30
Percent "Yes" Decisions	100	67
PAROLE BOARD STAFF (three cases taken by six subjects)		
Average Number of Items	18	17
Average Level of Ease	18	16
Percent "Yes" Decisions	47	35

As Table VII shows, in the case of each group the decisions made differed by type of data. In each case, the decisions made with coded data differed in that they were collectively more negative. To enable a better perception of the possible causes of these decision changes with coded data, the experimental results were

regrouped by decision-makers tending to favor parole with narrative data cases and those tending to reject parole with narrative data cases and by case decided. The results of regrouping are shown in Tables VIII and IX where it becomes apparent that those who tend to grant parole in narrative cases have the greatest difficulty in decision-making with coded data. In addition, those who tend to grant parole in narrative cases make more negative decisions with coded data, although the amount and type of decision change appears to be case-related.

Table VIII
CODED VERSUS NARRATIVE DATA CASES BY
PAROLING TENDENCY OF THE DECISION-MAKER

	Narrative	Coded
IN FAVOR OF PAROLE (three cases by four participants)		
Average Number of Items Considered	22	17
Average Level of Ease	29	40
Percent "Yes" Decisions	83	33
NOT IN FAVOR OF PAROLE (three cases by seven participants)		
Average Number of Items Considered	20	17
Average Level of Ease	19	21
Percent of "Yes" Decisions	43	43

Further experimentation and manipulation of decision changes by information format may lead to a greater understanding of information uses in the parole decision process.

Table IX

CODED VERSUS NARRATIVE DATA BY CASE

	Narrative	Coded
<u>Case 010</u> (nine participants took both formats)		
Average Number of Items Considered	21	20
Average Level of Ease	16	30
Percent "Yes" Decisions	11	55
<u>Case 013</u> (17 participants)		
Average Number of Items Considered	13	14
Average Level of Ease	12	26
Percent "Yes" Decisions	100	70
<u>Case 019</u> (17 participants)		
Average Number of Items Considered	18	13
Average Level of Ease	21	25
Percent "Yes" Decisions	65	18

Reliability

Two types of reliability exercises were tried; however, these were done only with the research clerks and may not have been applicable to other groups. In the first exercise, five cases were decided a second time, three weeks after the first decision had been made. The results are recorded in Table X.

It is apparent that the decision-making process became easier during the three-week period. Fewer, and often different, items were considered. Four of the five participants changed their minds at least once in the five cases considered. However, the decision results by case remained generally stable, showing a reliability

Table X

RESULTS OF DUPLICATE CASE DECISIONS
(FIVE CASES, FIVE PARTICIPANTS)

	Decision	
	First	Second
<u>Case 010</u>		
Average Number of Items Considered	21	15
Average Level of Ease	25	31
Number of "Yes" Decisions	2	2
<u>Case 012</u>		
Average Number of Items Considered	25	16
Average Level of Ease	31	12
Number of "Yes" Decisions	0	0
<u>Case 014</u>		
Average Number of Items Considered	23	13
Average Level of Ease	50	0
Number of "Yes" Decisions	3	0
<u>Case 015</u>		
Average Number of Items Considered	21	13
Average Level of Ease	27	19
Number of "Yes" Decisions	4	4
<u>Case 018</u>		
Average Number of Items Considered	29	16
Average Level of Ease	32	6
Number of "Yes" Decisions	0	0

in this group's decision-making of approximately 80 percent.

The other type of reliability exercise was made in an attempt to discover whether it was the use of coded data or the type of codes which made the decision change with coded data. In an attempt to determine to what extent the decision change was due to the omission of data items in the coded format, a new set of more self-explanatory codes was developed. The five research clerks made decisions on six cases, each in three

information formats: narrative, coded for the Parole Decision-Making project DIALOG system, and coded in a more self-explanatory code. Each format was given for a three-day interval so that at least three days elapsed before seeing the same case in a different format. A summary of the results appears in Table XI. It shows that for this set of cases, the narrative format made the decision process more difficult and more negative.

Table XI

RESULTS OF CODED DATA EXPERIMENTS

	Narrative	DIALOG Code	Other Code
Average Number of Items Considered	16	15	17
Average Level of Ease	41	36	30
Percent of "Yes" Decisions	43	57	37

The results of regrouping the results according to those research clerks who tend to favor parole and those who tend to reject it is shown in Table XII. Although the results cannot be considered conclusive, they tend to support the hypothesis that the decision-makers who tend to decide against parole are less liable to do so with coded data.

Table XII

RESULTS OF CODED DATA EXPERIMENTS GROUPED BY THOSE
TENDING TO FAVOR PAROLE AND THOSE NOT
TENDING TO FAVOR PAROLE

	Narrative	DIALOG Code	Other Code
<u>Tend to Favor Parole</u>			
Average Number of Items Considered	15	15	17
Average Level of Ease	67	65	54
Percent "Yes" Decisions	75	75	42
<u>Tend Not to Favor Parole</u>			
Average Number of Items Considered	17	15	17
Average Level of Ease	24	17	15
Percent "Yes" Decisions	33	44	28

Summary and Conclusions

The results of this study of information use in parole decision-making are a good base for further study, but cannot of themselves be considered conclusive. It is important to remember that none of the research subjects used in the decision-making experiments was a parole board member. Although the hearing examiners and staff members who served as subjects make recommendations on parole, theirs is not the final decision. Thus, while the decisions made and the disparity of items considered important replicated throughout the three groups of research subjects, there would undoubtedly be some differences between these results and any obtained by similar experiments with parole board members.

No detailed core of information generally thought relevant to the parole decision can be culled from the data on hand. The disparity of information items considered demonstrates that the same decision is made on entirely different bases, that different information is used by different people to arrive at the same conclusion. Further experiments with varying information formats and with use over time may shed more light on the effect of words and phrases on the concepts held by different decision-makers.

On the other hand, the results generated in these experiments can be considered a base for further testing of the hypothesis that the main element in the parole decision is the individual's view of "making the punishment fit the crime" or, perhaps, making the punishment fit the decision-maker's estimate of the offender's "criminality" or his propensity to again offend the laws of society. Assuming this hypothesis is true, studies such as the Parole Decision-Making project should place greater emphasis on the value of the parole board in eliminating sentencing disparities through comparative studies of time served for offenses in different systems and time served by prior offenses or other recidivism measures. One problem of experience tables is that they tend to be rather static--that is, the information is

the same when the offender enters prison as when he appears before the parole board some time later. (This circumstance does not necessarily obtain, but most parole prediction studies have not found much improvement in prediction by using information available later during confinement.) If this is the case, they give the board no estimate of any deterrent effect of the time served, nor of its equity in view of other prisoners. Since the amount of time served seemed to be of regular importance in the parole decision, manipulation of that figure with experience tables might prove more helpful to parole boards.

Information Selection in Parole Decision-Making⁷

This investigation was designed to elicit material about decision-makers' patterns of search for information to assist them at the prison release decision, the rationale employed by these decision-makers for acquiring particular types of information at various stages in the search sequence, and the relationships between given sets of information, choice of disposition (grant or denial of release), and confidence in the appropriateness or correctness of the choice.

⁷This section was prepared by Don M. Gottfredson and James O. Robison.

The technique employed by the investigators was adapted from the "information board" approach described above, using a random access slide projector for information retrieval rather than cards. Thus, an offender's case report was content-analyzed, and the information transferred to a set of slides with information from each content area assigned to a separate slide. Decision-makers were provided with a list of content headings (e.g., "age," "offense," "job skill"), and could be permitted to acquire the information from each category (e.g., age: "21 years") in whatever sequence they preferred. At various points in their cumulative acquisition of information (i.e., after a given number of items), they were required to make a case decision on the basis of available information, and to indicate the confidence in their decision (on a scale ranging from "very easy" to "very difficult"). As further information was supplied, the decision-makers revised their decision and their confidence estimates.

In the present study, the technique was modified for the purpose of yielding more information about the process of decision-makers' search for information, their reasons for requesting a particular item, and the meaning or manner of influence of the information upon their interpretation and judgment of the case. This was

accomplished by small groups discussing and agreeing about which information to acquire. Once agreement was reached, the experimenter presented the requested data, using the slide projector, called for a case decision, and encouraged discussion to select the next item.

While the sequence of information acquisition was consequently identical for all members of a group, each member made private notations of his own decisions and confidence levels. The group sessions were tape recorded for later review by the decision-makers and research workers.

Results

A total of 41 decision-makers participated in the experiment. They were assembled in six separate groups containing from five to nine members each. The sample contained 23 state parole board members, three federal parole board members, and one hearing examiner--persons whose routine duties include responsibility for prison release decisions. The remainder of the sample included three corrections administrators, two corrections research professionals, one chief of parole services, two attorneys (a professor of law and a representative from an American Bar Association committee), a corrections executive secretary, an "academic" (presumably another university professor), a "layman," and three

persons who did not indicate their status. For purposes of some comparative analyses, the sample was divided into two subsamples--27 persons whose jobs were directly relevant to the experimental decision task, and 14 with more peripheral jobs. In each of the six groups, parole board members outnumbered other members of the group.

Only one case was presented in each group, and the same case was utilized for all six groups. This case was abstracted to yield 51 separate categories of information. The details of the case are presented below, arranged in sets which show how often the items were requested among the six groups, and how early they were selected. The arrangement provides some perspective on the popularity and priority of given information elements in case decision-making.

Because of limitations on the duration of the group sessions, and because of the different levels of discussion between items among the six groups, no group employed the full set of 50⁸ items, and the number of items used ranged from 13 to 36 among groups.

Each group was allowed to acquire four items of information before its members made their first decisions, and opportunity was then provided to revise

⁸The experimenter revealed beforehand to each group that the case was eligible for parole, and there was thus no reason for a group to request that item.

decisions after each subsequent piece of information was acquired. Seven of the items (see Table XIII, section VII) were never requested by a group, and may thus be considered relatively unimportant to these decision-makers. It is possible either that the information itself was thought to be unimportant, or that other information already requested provided implicit answers about the contents of these cards. There were only three items (offense, age, and alcohol history) that were requested by every group. Offense and age were typically requested at an early point, presumably to establish some initial bearing about the amount of time the case should serve and, therefore, whether--unless later facts dictated otherwise--it was time to release the prisoner. Alcohol history, in contrast, was typically employed later (from ninth to twentieth in the search sequence) and was probably used for the purpose of corroborating or modifying a decision that was already essentially made.

It is interesting that only two of the six groups requested "time served prior to present hearing" among the first four items on which their initial decision would be made, and that two other groups never requested this item. These findings suggest that the penalty element of the release decision was being discounted by

Table XIII:

POPULARITY AND PRIORITY OF CASE INFORMATION AMONG DECISION-MAKERS

Class	Number of Groups	Earliest Use	Information Category and Content
I Early and Often (Requested by at least four out of six groups, and selected among the first four items by at least one group)	6	1	Instant Offense--Official Description: "The subject voluntarily appeared at an FBI office and told them that he had stolen checks from a former employer and had negotiated several of them." (Item 30)
	6	1	Age: "Subject is 21 years old." (Item 1)
	5	2	Type of Prior Convictions: "Subject has been convicted for theft of over \$50 and possession of forged instrument." (Item 25)
	5	2	Mitigating Factors: "The subject both turned himself in and pleaded guilty." (Item 35)
	5	3	Number of Prior Arrests: "Subject has been arrested twice prior to present offense." (Item 14)

(continued on next page)

Table XIII (continued)

Class	Number of Groups	Earliest Use	Information Category and Content
I (continued)	5	4	Release Plan Living Arrangement: "Subject plans to return to his parents' home in rural Ohio." (Item 48)
	4	1	Base Expectancy: "Subject's base expectancy based on a two-year follow-up is 61%." (Item 51)
	4	3	Time Served Prior to Present Hearing: "Subject has been incarcerated nine months for the instant offense." (Item 36)
	4	4	Time Remaining to Mandatory Release: "Three years, three months remain until subject's mandatory release." (Item 38)
	6	9	Alcohol Use: "There is no history of alcohol use." (Item 11)
II Often, But Not Early (requested by at least four groups, and by one or more groups among the first ten items, but never among the first four items)	5	5	Prior Parole and Probation Revocations: "There have been no prior parole or probation revocations." (Item 26)

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Table XIII (continued)

Class	Number of Groups	Earliest Use	Information Category and Content
II (continued)	5	7	<u>Release Job Prospects:</u> "Subject hopes to attend college, taking business administration." (Item 49)
	5	7	<u>Educational Level and Adjustment:</u> "Subject is a high school graduate considered an average student." (Item 4)
	5	9	<u>Living Arrangement Prior to Incarceration:</u> "Subject was living with his parents and younger brother in a seven-room, two-story frame house in rural Ohio." (Item 16)
	5	10	<u>Drug Use:</u> "There is no history of drug use." (Item 10)
	4	6	<u>Recent Employment History:</u> "Subject has held a number of short-term jobs, mainly unskilled or clerical in nature. He seems able to secure employment without much difficulty and most of his employers like him." (Item 19)

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Table XIII (continued)

Class	Number of Groups	Earliest Use	Information Category and Content
II (continued)	4	8	Number and Type of Disciplinary Infractions: "Subject has clear conduct record." (Item 44)
	4	9	Academic Progress in Institution: "Subject is not enrolled in the education program." (Item 41)
	4	10	IQ Score: "Subject has an IQ of 119." (Item 8)
III Often, But Late (requested by at least four groups, but never among first ten items)	5	12	Early Home Environment: "Subject is the seventh of eight children raised by an intact family in a rural environment. Both parents worked on occasion, but they maintained a well supervised and controlled home. They enjoy a good reputation in the community." (Item 15)
	4	11	Financial Resources: "Subject has no known financial resources." (Item 50)
	4	15	Changes in Attitude Noted: "No changes in attitude have been noted." (Item 46)

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Table XIII (continued)

Class	Number of Groups	Earliest Use	Information Category and Content
III (continued)	4	15	<u>Homosexuality:</u> "Subject is a homosexual." (Item 6)
	4	17	<u>Susceptibility to Influence:</u> "There is no susceptibility to influence cited." (Item 13)
IV <u>Early, But Not Often</u> (requested by three or fewer groups, but by at least one group among first four items selected)	3	3	<u>Number of Prior Convictions:</u> "Subject has had one prior conviction." (Item 24)
	3	3	<u>Instant Offense--Inmate's Description:</u> "The subject stated that he had a long history of involvement with bad checks from his employer and some credit cards from his brother-in-law." (Item 31)
	1	4	<u>Number of Prior Incarcerations:</u> "Subject has been incarcerated once before." (Item 45)
V <u>Not Early and Not Often</u> (requested by three or fewer groups, and selected by one or more groups among first ten items, but never among first four items)	3	7	<u>Indications of "Nomadism":</u> "Subject has moved often from Ohio to Texas, but he has relatives in both areas." (Item 12)

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Table XIII (continued)

Class	Number of Groups	Earliest Use	Information Category and Content
V (continued)	3	10	Vocational Training in Institution: "Subject has had no vocational training." (Item 42)
	2	8	Institutional Work Experience: "Subject is assigned to industries as a clerk and has performed well." (Item 43)
	2	9	Job Skill: "Subject has no job skill." (Item 18)
	2	10	Contact with Family Members: "Subject's case history implies that he has frequent contact with his family." (Item 17)
	1	5	Time Remaining to Full Term Expiration: "Subject has five years, three months to serve until full term expiration." (Item 37)
	1	6	Longest Prior Incarceration: "Subject was once incarcerated for 18 months." (Item 22)

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Table XIII (continued)

Class	Number of Groups	Earliest Use	Information Category and Content
V (continued)	1	9	Reason for First Arrest: "Subject was first arrested for defrauding an innkeeper in a national park." (Item 28)
VI Late and Not Often (requested by three or fewer groups, and never among first ten items selected)	3	15	History of Mental Problems: "There is no history of mental commitment or psychiatric treatment." (Item 7)
	3	18	Detainers: "Subject has no detainers." (Item 40)
	3	20	Marital Status and Relationship: "Subject is single." (Item 5)
	3	14	Ethnic Group: "Subject is white." (Item 2)
	2	19	SAT Score: "Subject has an SAT score of 11.7." (Item 9)
	2	21	Longest Time in Community: "Subject has remained in the community for five months." (Item 23)

(continued on next page)

Table XIII (continued)

Class	Number of Groups	Earliest Use	Information Category and Content
VI (continued)	1	13	Reason for First Conviction: "Subject was first convicted for theft over \$50 and possession of a forged instrument." (Item 29)
	1	21	Codefendants: "There were no codefendants." (Item 33)
	1	28	Letters and Visits from Family: "No letters or visits are noted." (Item 47)
VII Never Requested	0	--	Type of Admission to System: "Subject is a new court commitment." (Item 3)
	0	--	Number of Previous Convictions for Instant Offense: "Subject had one previous conviction for the same offense as the instant offense." (Item 34)
	0	--	Use of Weapons: "There were no weapons used in the instant offense." (Item 32)
	0	--	Escape History: "Subject has had no history of escapes." (Item 27)

(continued on next page)

Table XIII (continued)

Class	Number of Earliest Groups	Use	Information Category and Content
VII (continued)	0	--	Age at First Conviction: "Subject was first convicted at age 19." (Item 21)
	0	--	Age at First Arrest: "Subject was 19 at first arrest." (Item 20)
	0	--	Parole Eligibility: "Subject is eligible for parole at the Board's discretion." (Item 39)

these decision-makers (i.e., the matter of whether the offender has yet been incarcerated for six months, or for three years) in favor of items they believed were prognostic of future adjustment. From this perspective, it would seem likely that two other items chosen early and often by the groups (Table XIII, section I)--"type of prior convictions" and "number of prior arrests"--were obtained more for their prognostic implications than their penalty implications (i.e., as an indication of what sort of behaviors to expect, rather than as an element for determining how much incarceration penalty the offender "deserved"). This interpretation is further supported by the fact that "type of admission" (i.e., information about whether the offender was serving the initial part of the sentence for his instant commitment offense, or whether he had completed this and been returned for a subsequent portion of the sentence because of a parole infraction) was never requested--a fact quite relevant to the issue of appropriate penalty and the decision to release. Decision-makers did, however, display an interest in the general area of "prior parole and probation revocations" (requested by five groups, at points ranging from fifth to twelfth in the search sequence). In the particular case utilized, since the person had no revocations,

the nature of the admission status could be derived from the revocation information.

In general, it might be expected that the type of information desired at any stage in the information search will be conditioned by the set of information already required, and that no rigid or consistent search sequence would be found over different cases processed by the same decision-maker or the same case processed by different decision-makers. Participants in the present study expressed dissatisfaction with the "one-piece-at-a-time" conditions of the experiment, and voiced a preference for a starting array of material, such as is found on a case summary sheet, from which to initiate their review. To some extent these conditions were satisfied by the conventions that four items could be accumulated before an initial decision was requested, but the similarity of this provision to the conditions of everyday practice is still remote. (See Table XIV.)

While there was some overlap among groups in the set of items employed for the initial decision, it seems less than one might expect. One item was called for by all six groups, and one by four groups, but of the remainder there were six items used by only one group each, and four items used by only two groups. As a consequence, the highest number of items shared by any pair

Table XIV

FOUR-ITEM INFORMATION FRAME FOR INITIAL DECISION

	Group I	Group II	Group III	Group IV	Group V	Group VI
1	Age	B.E. Score	Offense	Offense	Offense	Offense
2	Offense	Offense	Type Prior	Mitigating Factor	Type Prior	Inmate Version
3	Type Prior	Age	No. Prior Arrests	No. Prior Arrests	No. Prior Convictions	Time Served
4	B.E. Score	Release Living	Time Served	Type Prior	No. Prior Incarcerations	Time to Mandatory

Number of Items Shared by Pairs of Groups

Number Groups Using Item

	I	II	III	IV	V	VI
Offense						
Type Prior						
NO. Prior Arrests		3	2	2	2	1
Age			1	1	1	1
Time Served				3	2	2
Base Expectancy					2	1
Release Living						
Mitigating Factor						
No. Prior Convictions						
No. Prior Incarcerations						
Inmate Version						
Time to Mandatory						

of groups was three, and this extent of commonality was present in only two of the 16 relationships. Actual similarity in search patterns is somewhat higher because roughly equivalent forms of information could appear under different content headings (e.g., "number of prior arrests" and "number of prior convictions").

(See Table XV.)

The findings in Table XV indicate that members of any given group tended to arrive at an identical decision on the basis of the first four items they acquired-- Group I members were unanimously in favor of release; Group II, with exception of one member, favored release; Groups III, IV, and VI favored denial, with one member dissenting in each group; Group V was the most "divided" with five members for denial and two for release. The two groups predominantly in favor of release (Groups I and II) shared two items of information not yet acquired by the remaining groups which favored denial--the fact that the offender was 21 years old, and the fact that his probability of success on parole was 61 percent. While we may speculate that youthfulness inclined these groups to leniency, and that the base expectancy inclined them to optimism, it is difficult to account for the initial decision difference between Groups I and II (release) versus Groups III and VI (denial). One means

Table XV
INITIAL DECISION AND CONFIDENCE LEVEL

Member Number	Group I		Group II		Group III		Group IV		Group V		Group VI	
	Decision	Difficulty	Decision	Difficulty	Decision	Difficulty	Decision	Difficulty	Decision	Difficulty	Decision	Difficulty
1	Release	8	Release	6	Release	8	Deny	5	Deny	1	Deny	8
2	Release	4	Deny	3	Deny	1	Deny	2	Deny	1	Deny	3
3	Release	5	Release	2	Deny	3	Release	5	Deny	7	Deny	6
4	Release	3	Release	2	Deny	7	Deny	4	Deny	1	Deny	8
5	Release	6	Release	2	Deny	4	Deny	6	Release	8	Deny	8
6	Release	2	Release	6	Deny	1			Release	1	Deny	6
7	Release	5	Release	1	Deny	1			Deny	3	Release	7
8			Release	1								
9			Release	2								
Percent Release	100%		89%		17%		20%		29%		14%	

of checking on the influence of these two information factors is to determine the frequency of "mind changes" among members of Groups III and VI when they later acquired these items. Twenty-five members of these groups were exposed to the age factor, and 15 of these members were favoring denial at the point of acquisition. Only three of these 15 respondents shifted from "deny" to "release" upon acquisition of the age information,⁹ despite the fact that its exposure occurred relatively early (positions seven and eleven) in the search sequence. This finding suggests either that age was not a critical information factor, or that its impact was weakened by the prior receipt of other information elements. Base expectancy score was subsequently acquired by the 13 members of Groups III and VI, though at a late point (positions twenty and 37) in the search sequence. Seven of these members were in a state favoring denial at the point of base expectancy acquisition, and two of these shifted to "release" upon learning recidivism likelihood. Given the supposition that decision preference was likely to be fairly well stabilized at a late point in the search, base expectancy would appear to possess moderate power for changing minds (i.e., two shifts out of five possible).

⁹One other member shifted from "release" to "deny" upon learning the offender's age.

Twenty-one of the 41 decision-makers, or about one-half, were in a state favoring denial of parole after their receipt of the first four items of information. They indicated their level of confidence in decisions made at this point on a two-inch scale with the polar extremes labeled "easy" and "difficult." Confidence scores are shown in Table XV, based on a division of the scale into eight quarter-inch intervals, with "8" representing greatest difficulty and "1" greatest ease. Confidence scores in each group were quite variable and, across all groups, ranged from one to eight for decision-makers recommending either denial or release. Overall, the average level of confidence for 21 members in a "release" state was identical (4.2) to that for the 20 members in a "deny" state.

The initial decisions were compared with decisions at the close of the experiment, when all information acquired by each group was available (Table XVI).

Table XVI
Decisions at the Start and Finish of
the Experiment

S t a r t		Finish		All
		Deny	Release	
	Release	0	20	20
	Deny	5	16	21
	All	5	36	41

Shift in Decisions After Further Information

Fifty-one percent of the decision-makers favored denial at the point of initial decision. By the close of the experiment, upon receipt of subsequent information, the balance had shifted to 88 percent favoring release. These findings indicate that initial decision biases were susceptible to modification, and that the bulk of case information was interpreted as neutral or favorable. Subdivision of the sample into 27 parole board members and 14 other professionals revealed that the former were more inclined to make risk-aversive decisions.

	<u>Decision to Deny Parole</u>	
	<u>Start</u>	<u>Finish</u>
Parole Board Members (N=27)	59%	19%
Other Professionals (N=14)	36%	7%
Total Decisions	51%	12%

Inquiry was made into the relationship between confidence in their initial decision on the case, and tendency to change of mind upon presentation of subsequent information. Twenty of the members maintained the same decision throughout the course of the experiment. Twenty-one changed their minds at least one time, and one shifted his decision twelve times in response to further acquisition of information.

<u>Number of Decision Changes</u>	<u>Initial Decision</u>	
	<u>Deny</u>	<u>Release</u>
None	5	15
One	12	0
Two	0	3
Three	1	0
Six	0	1
Seven	1	0
Nine	1	0
Eleven	1	0
Twelve	0	1

All six of the decision-makers who reversed their decision three or more times were parole board members, and three of these were participants in the same group (Group IV). The total sample was split at the median on the initial confidence and decision shift variables, and comparison revealed a trend: those who were more confident in their initial decision were less likely to reverse that decision as further information was acquired.

<u>Initial Confidence</u>	<u>Decision Shifts</u>	
	<u>None</u>	<u>Any</u>
More Difficult than Easy (Scores 5-8)	7	12
More Easy than Difficult (Scores 1-4)	13	9

Information categories were next examined to determine which items were associated with decision reversals. While findings from this inquiry might have some bearing on the issue of the amount of influence or impact a particular item held, one must keep in mind that such impact may occur without producing decision reversal--the decision-maker may be in a preference state that the new

item serves to strengthen, rather than overthrow. One indication of this latter type of influence would be an abrupt shift upward in the rated confidence level. (See Table XVII.)

Items were included in Table XVII if either of two conditions were met: three or more decision-makers changed their decision after the item was presented, or five or more persons' confidence was affected by at least 15 points (on an 80-point scale) upon presentation of the item. The purpose of these conventions was to sift for "influential" items and determine the contribution to the decision process. The results yielded by this procedure are somewhat confusing. Eight decision-makers felt more confident of their decision to release upon learning that the offender had no disciplinary infractions, and three changed their decision from deny to release upon receipt of this information. Favorable information about institution work experience and former jobs in the community also served to change decisions but had no clear impact on confidence levels. Knowledge of the offender's above-average IQ increased decision-maker confidence and changed some decisions. The facts that the offender had received no institutional vocational training and had shown no change in attitude affected decisions unfavorably despite absence of

Table XVII
 INFORMATION IMPACT ON DECISIONS AND CONFIDENCE

Changed Decision		Item	Changed Confidence By at Least 15 Points	
Deny + Release	Deny + Release		Upward	Downward
			Release Deny	Release Deny
2		38--39 months until mandatory release	5	1
	4	26--no prior parole or probation revocations	5	1
3		46--no change in attitude	1	1
		43--performed well as clerk in institution	1	
3		44--no disciplinary infractions	8	
	3	42--no vocational training	1	1
	2	50--no financial resources	2	1
1		49--hopes to attend college	3	2
3	1	48--will live with parents in rural Ohio	3	1
3	1	1--21 years old		3

(continued on next page)

Table XVII (continued)

Changed Decision		Item	Changed Confidence by at Least 15 Points	
Deny + Release	Release + Deny		Upward	
			Release Deny	Release Deny
	1	15--from large family and well supervised home	2	1
	2	4--high school graduate, average student	1	3
2	2	6--homosexual	1	5
	2	12--moved often to relatives in Ohio, Texas	3	2
4		8--IQ of 119	3	1
1	1	16--lived with parents	3	2
3		19--short-term clerical jobs obtained easily--liked by employers	2	3
2		51--61% likelihood of success on parole	3	1

knowledge about whether his original attitude was unacceptable or whether vocational training could be made available to him. Upon learning that the subject was a homosexual, five decision-makers favoring release lowered their confidence in this decision, and two others changed their decisions from release to deny; another two members switched from deny to release in response to the same information. The fact of no prior revocations had no effect on changing decisions, but served to increase confidence in the decision to release. Strangely, however, this information led one decision-maker to reduce his confidence in the release decision.

In general, the findings indicate an impact of the specified information factors on decision process, but these impacts are without particular focus, and the nature and direction of their influence are neither regular nor clear. It is evident from the findings that, as new pieces of information are acquired by decision-makers, they may have the effect of reducing certainty rather than increasing it--there is no steady increase in decision confidence as a function of increasing quantity of available information.

Discussion

The results of these experiments do not define any specific set of information as perceived by decision-

makers to be critical to the decision, although certain items are regularly thought to be important. Neither do they show that any particular sequence of information is regularly preferred by those whose task is decision-making. Rather, they illustrate the complexity of the process, the individual differences in preferences and beliefs concerning information relevance, and perhaps different "styles" of decision-making.

The behavior of participants during the sessions was similarly revealing of this complexity and of these individual differences. In the group sessions, for example, heated discussion ensued as one participant argued for selection of the item "offense" (meaning the description of the legal offense for which the person was sent to prison) and another urged that the inmate's version of the offense was equally or more important. In various groups, a general frustration with the piecemeal mode of information presentation was evident as group members appeared to struggle to obtain enough information to give them a feeling of some satisfaction that they "understood" the person--who he was, how he came to prison, and his probable behavior if paroled. Different general sets toward the decision-making task seemed evident, too. For example, one participant marked a high degree of confidence in his decision--to

deny parole--after only four items of information and exclaimed "I don't have enough information to parole him"; whereupon another participant remarked "I don't have enough information to keep him in prison."

From the simulations considered together, several general results stand out. Persons paroling, compared with persons not paroling, sought different information. Different items of information were generally considered important for different cases. The same decision often was made on entirely different bases; that is, different information was used by different people to arrive at the same conclusion. Information may reduce confidence in the decision as well as increase it. There is no unanimity among decision-makers as to the relative importance of information available to the decision; and procedures for improvement of information as aids to the decision may have to be based upon an improved understanding of differing "styles" of decision-making.