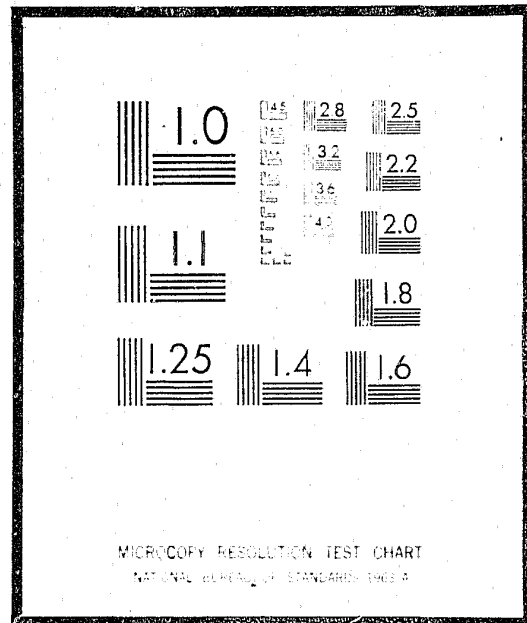


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CRIME AND DELINQUENCY ISSUES: A Monograph Series

Decision-making in the Criminal Justice System: Reviews and Essays

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FOREWORD

This monograph is one of a series on current issues and directions in the area of crime and delinquency. The series is being sponsored by the Center for Studies of Crime and Delinquency, National Institute of Mental Health, to encourage the exchange of views on issues and to promote indepth analyses and development of insights and recommendations pertaining to them.

This monograph was written under contract number HSM 42-73-246 from the National Institute of Mental Health. The opinions expressed herein are the views of the authors and do not necessarily reflect the official position of the National Institute of Mental Health or the Department of Health, Education, and Welfare.

This document presents and analyzes the basic nature of decision-making in the criminal justice system. The editor, Dr. Don M. Gottfredson, and his fellow contributors focus their discussion on specific junctures within the decision-making process: the police, prosecution, courts, and corrections. Writing within the context of the often conflicting goals to which decision-making is directed, the authors have gone well beyond an analysis of the process. A variety of procedures and information contribute to and influence decisions within the criminal justice system. The authors consider each of these as well as the often conflicting societal demands for retribution, punishment, deterrence, rehabilitation, and reintegration, and the impact of all of these on decision-making.

Dr. Gottfredson and his colleagues recognize the critical need for research designed to systematize and increase the rationality underlying this complex process. A keystone of this fertile research field might be considered to be the need for improved definition and measurement of the various objectives in criminal justice. A sharpened appreciation of these factors would enable more complete specification of alternatives, the accumulation of evidence—not now available—on the consequences of the potpourri of methods now used in dealing with offenders and an improved ability to classify offenders.

The reviews and essays in this volume achieve a unique balance in presenting an overview of a diverse, multidisciplinary area of concern. Abstract concepts are used with discretion to clarify concrete phenomena. This characteristic should make the material attractive and directly useful to an audience of policymakers, practitioners, and researchers.

In order to provide the author full freedom to develop the various facets of this monograph, no outline or detailed specifications for its preparation were set in advance, nor were substantive changes or editorial revisions made during the publication process. Thus, the views expressed are those of the editor and contributors. The Center for Studies of Crime and Delinquency is pleased to make this monograph widely available to facilitate much needed and informed discussion of this topic.

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PREFACE

A study of decisions—what they are, who makes them, how they are made, and with what consequences—provides a useful focal point for examination of many aspects of criminal justice. The system of criminal justice may be portrayed schematically quite well, depicting the interrelated nature of its parts, by a flow diagram showing the series of points at which decisions may be triggered by a report of a crime.

The report to police of a bicycle theft, a rape, or a robbery may, for example, be the stimulus to decisions such as:

Should a police car be dispatched?

Did the offense actually occur?

Should an arrest be made?

Should an alleged offender be held or released?

Should an alleged offender be prosecuted?

Is the offender guilty?

If guilty, what should be the sentence?

If sentenced to confinement, where?

To what programs should the person be assigned?

Should the offender be paroled?

Should parole be revoked?

Should the offender be discharged?

These are but a few of the decisions made at every step in the criminal justice process. Many are obviously important to the individuals affected, dealing as they do with loss of liberty and other serious interventions in individual lives. They are obviously critical to the efficient, effective, and humane functioning of the criminal justice system. If that system is to serve society well, such decisions should be made rationally, ensuring the efficient, effective, and humane system sought for the control and reduction of delinquency and crime.

Although some general agreement might be found with the statements just preceding, that degree of consensus might diminish with serious efforts to define their central concepts. What, indeed, is a

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“decision”? When may decisions be said to be “effective,” and in what sense?

If we are to discuss decisions in a system of criminal justice, must we not consider also what is meant by the term “system,” the process of definition of persons or events as “criminal,” and the meaning of “justice”? Does the latter term include (necessarily?) a concept of fairness (equity?) and is there a consensus on that definition?

Although it is not to be expected that the definitive answers to these fundamental questions, which are sure to be with us for a long time, will be found in these pages, these and other issues of decision-making in criminal justice are addressed. Decisions made in major areas of the criminal justice system are considered, such as arrest, prosecution, sentencing, and corrections. The decisions discussed are those made about persons, that is, *individual* decisions rather than agency or institutional decisions (Cronbach and Gleser 1957). (More precisely, these are decisions about information about persons. See Wilkins' discussion, pp. 68-70.)

The Nature of a Decision

It may be argued that any decision has three main components. There is first a *goal* (or a set of goals) the decision-maker would like to achieve. It is reasonable, and hopefully will be fruitful, to assume that the decision-maker has some objective or objectives which may be specified. If there is a decision problem the decision-maker wishes to bring about some change in the state of affairs or has a desire to optimize some result.

Second, there are some *alternatives*. If there is no choice, there is no decision problem!

Third, the decision-maker has some *information* to guide the selection among alternatives. In order to qualify as information in this sense, the data available about alternatives must be related to the goals of the decision; that is, the data must be relevant. The definition of relevance in this context is that the data must *reduce uncertainty* about the consequences of the decision (see Burnham's discussion, p. 94).

It is clear that decisions may not be evaluated or assessed unless the goals of the decisions are known. Similarly, it is difficult to see how decisions might be improved in the absence of clear and explicit specification of those goals, since no means for assessing the information value of data about alternatives would be available. The information value of a datum is determined by the relation of that datum to

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the consequences of the alternative choices; if there is no relation, then there is no information.

Rational Decisions

In one of his *Unpopular Essays*, Bertrand Russell (1950, p. 71) said:

Man is a rational animal—so at least I have been told. Throughout a long life, I have looked diligently for evidence in favor of this statement, but so far I have not had the good fortune to come across it, though I have searched in many countries spread over three continents.

Citing Aristotle as perhaps the first to proclaim man as a rational animal, Russell (1950, p. 72) did not find Aristotle's reason for this view very impressive. "... it was that some people can do sums."

Rationality in decision-making about persons caught up in the criminal justice system may be assumed to be a requirement to improved, more efficient, or more effective decisions. If this is accepted, then there will be further requirements, including at least some agreed-upon objectives for the decisions, information about the person, alternatives, and knowledge of probable outcomes. In the criminal justice system, however, clear agreement on objectives is not found easily, and the decision-maker may have much data but little information. Evidence on the likely consequences of alternatives often is entirely lacking. Given these difficulties, it may not be expected that Russell's observation will be refuted easily or that we will readily find much better support for Aristotle's claim of man's rationality than his own.

Don M. Gottfredson

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CHAPTER I

Diagnosis, Classification, and Prediction

DON M. GOTTFREDSON

The three concepts, "diagnosis," "classification," and "prediction," often are used in discussions of decision-making in criminal justice agencies. They are related but not identical.

DIAGNOSIS

The word "diagnosis," which originally meant a distinguishing or a discrimination, refers in medicine to a decision concerning the nature of a diseased condition. It initially carried a similar meaning in psychiatry, clinical psychology, and social work. By analogy with physical illness, patients were sorted into categories of mental disorder. Later, the application of the word was extended so that a diagnosis was said to refer not only to the identification of an appropriate nosological category but also to a full understanding of the patient. This paralleled other developments in clinical psychology and social work which resulted in emphasis upon both individual uniqueness and the need to treat the whole person.

Some disenchantment with the idea of diagnosis as applied to offenders and thought relevant to decisions concerning their placement or disposition now may be discerned in criminal justice agencies and among their critics. The diagnosis-treatment model carried over from medicine was instrumental to the rehabilitation philosophy which became increasingly popular in corrections (less often called prisons!) in the last half century. The concept of the indeterminate sentence would allow the offender's diagnosis, appropriate treatment, and release "when ready." There has been, however, a repeated and frustrating failure to demonstrate the effectiveness, in reducing recidivism—i.e., repeated offending—by application of this model (Robison and Smith 1971). There has been also an increasing rejection of the "medical model" as an inappropriate guide to interventions applied to

all who are defined as delinquent or criminal (Sarbin 1967; Sharma 1970; Szasz 1961, 1965, 1970).

The terms "delinquent" or "criminal" do not necessarily refer aptly to any state of the person, as would be expected to be the case with diagnosis of physical or mental disorder. Rather, they refer also to the state of the social system with which the person is involved as a result of his or her acts. That is, a "crime" refers to a combination of person(s) and event(s). A "criminal" may be defined operationally as an act of the person and a societal response—e.g., offense and conviction—but such definition is not limited to the description of the person and his or her acts. If such labelling is commonly a result of a person's act plus system response, it does not seem reasonable that it defines a need for treatment of the person. It is more reasonable to assume that there are social, medical, and psychological states that may be ascribed to individuals and that some of the states may be associated with a higher probability of criminal acts. We might seek to modify these states by appropriate treatments. Clearly, however, such states cannot be defined adequately by identification of a stage in the criminal justice process.

A "diagnosis" thus refers to some state of the person which may or may not be related to present or future events defined as delinquent or criminal. Since we may group together, for purposes of analysis, persons with similar diagnoses, or may use the datum of a diagnosis together with other data about the person, diagnoses may (or may not) be useful in classifications of persons. Such classifications may (or may not) be relevant to decision problems in criminal justice. They may (or may not) be useful for prediction of the outcomes to these decisions.

CLASSIFICATION

The concept, classification, refers to the allocation of entities to initially undefined classes in such a way that individuals in a class are in some sense similar or close to each other (Cormack 1971). It is to be distinguished from "identification" or "assignment," which refer to the process of choosing, for a new entity, which of a number of already defined classes should be selected for the allocation. There recently has been a growing literature in statistics, ecology, and biology concerning methods sometimes referred to as "numerical taxonomy," related to this general problem, some of which have found application in criminal justice (Babst, Gottfredson, and Ballard 1968; Fildes and Gottfredson 1972; Glaser 1962; Gottfredson, Ballard, and Lane

1963; MacNaughton-Smith 1963, 1965; Wilkins and MacNaughton-Smith 1964).

Generally, however, the concept, "classification," has been used in criminal justice agencies to refer to "assignment" or else to refer to various methods of categorization or typing (Grant 1961; Warren 1971; Sparks 1968). The latter methods may be clumped under the headings of "empirical" and "theoretical" approaches (Sparks 1968). The empirical approaches include the taxonomic methods mentioned but also any method which proceeds by grouping together individuals so that each group contains members which are as similar as possible to each other and as different as possible from all other groups, with the selection of features to be considered not dictated by any particular theory. The approach is atheoretical, but this does not mean it is necessarily antitheoretical or that variables derived from theoretical constructions might not be used. The theoretical approach, however, begins with theory, from which the bases for classification are deduced. Examples might include typologies derived from psychiatric (Aichorn 1935; Bloch and Flynn 1956; Cormier et al. 1959; Erikson 1950; Jenkins and Hewitt 1944; Redl 1956), sociological (Miller 1959; Schrag 1944; Sykes 1958), and psychological theory (Argyle 1961; Gough and Peterson 1952; Peterson, Quay, and Cameron 1959; Sullivan, Grant and Grant 1956; Venezia 1968).

PREDICTION

The concept, prediction, refers in criminology to an assessment of a person's expected future behavior or an expected future state of the criminal justice system. Some criterion of future performance (such as delinquent or criminal acts or parole violation behavior) must be defined. This definition must be independent of any steps performed in arriving at the prediction; and thus prediction involves two independent assessments of persons, separated over time. On the basis of a first assessment, predictors may be established by any means whatever—including any data from diagnostic procedures, any classification scheme, or, indeed, any attribute or measure related to the individual. Commonly, items pertaining to the person's life history, successes and failures, psychological test scores, or family situation are employed as candidates to become predictors. Thus, any data thought to constitute information (to reduce uncertainty with respect to the expected behavior) may provide the predictors. The second assessment establishes the classifications of performance to be predicted. The predictions provide estimates of the expected values for

these criterion categories, and these estimates should be determined from earlier empirical investigations of the relations between the predictors and the criterion. Those predictor candidates found not to be useful in improving prediction are discarded. Thus, on the basis of previously observed relations between predictor and criterion classifications, one seeks to determine, for each category of persons, the most probable outcome in terms of the criterion.

The predictor categories may, as already asserted, represent any attribute or measure concerning the individual. They may be defined by what the person says about himself or others, ink blots, or other stimuli—the variety of which is limited only by investigators' imaginations. They may be established by what others say—i.e., by the observations or judgments of others, singly or in groups—and this may include assessments of the person's abilities, interests, or perceptions. They may be defined by what the person has done previously, whether these be laudable achievements or criminal acts. They may be defined by what is done to or with the person, including exposure to specific treatment programs—that is, by placement decisions at any stage of the criminal justice process.

INTERRELATIONS OF THE CONCEPTS, DIAGNOSIS, CLASSIFICATION, AND PREDICTION

The relations among these concepts as used here may now be identified. One may, by many methods, make an assessment of an individual in order to help describe some state of that person. Such diagnoses may be relevant to his or her health or well-being. They may provide information useful for classifications for a variety of purposes. Persons may be classified in various ways to serve any number of objectives. One common aim is that of prediction. Thus, data from diagnostic procedures and from classification efforts may or may not provide information useful for prediction of some single criterion or of various criteria. If they do not, this does not imply that such data are useless for other purposes; but the nature of criminal justice decisions is such that a predictive value of the information used for decision-making often is implied. Thus, it is seen that diagnostic and classification data may or may not constitute information for decision-making. The same is true for data with predictive utility, depending upon the decision problem.

The concepts, *reliability* and *validity*, are central to critical assessments of diagnostic, classification, or prediction procedures. Reliability refers to consistency or stability of repeated observations, scores, or classifications. A procedure is said to be reliable to the extent that repetitions of the procedure lead to similar observations or classifications. The concept of validity has reference to the purposes of the procedures; the question of validity asks how well the method works in achieving those purposes. In the case of diagnoses, validity refers to the aptness of description of the state of the person when that may be assessed by some external, independent standard. Classifications, too, are by themselves, merely descriptive; so that the same may be said with respect to groups of persons. When it comes to prediction, validity refers to the degree to which earlier assessments are related demonstrably to later criterion classifications in new samples.

The criminology literature includes many reports of "prediction" studies in which the crucial step of cross-validation, testing the methods developed by application to new samples, is missing. Such studies must be viewed very critically. They may provide useful preliminary work helpful to later prediction studies more worthy of that name; but even the cautious interpretations of validity often made in this circumstance may be quite unwarranted. The studies may even be completely unreliable and invalid (Cureton 1967).

If no estimate of future behavior can be made with certainty, then statements of degree of probability are appropriate. Predictions properly are applied not to individuals but to groups of persons similar with respect to some set of characteristics. Thus, persons are classified; and then statements are made about the expected performance of members of the classes. The performance outcomes to be expected for specific classes of persons are those which provide the most probable values for the population as a whole.

Any prediction method may be regarded as having, or lacking, not one but many validities of varying degrees. Since validity refers to the relation between a specific criterion measure and some earlier assessment, it is dependent upon the particular criterion used. Thus, a prediction method has as many validities as there are criterion measures to be predicted. Just as a test of scholastic achievement taken after high school might provide valid predictions of grade-point average in college but could be invalid for estimating marital stability, a delinquency prediction method might have some validity for judging the likelihood of, say, adjudication as a delinquent before age 18 but might provide no information concerning the probability of adult crime, high school completion, or conviction for car theft. And it must be recognized that the issue of validity is one of degree; pre-

diction methods are not sufficiently described merely as valid or invalid. Rather, statistical statements of the relative validity—e.g., in terms of accuracy of predictions in test samples—are in order.

When there is a predictive purpose, all diagnostic and classification procedures, whether they be interview assessments, results of projective testing, expert judgments, or codifications of life history variables, are bound together by the concept of validity. The predictive value is shown by the degree to which the method is valid with respect to specific criterion classifications; and individual stylistic preferences of research workers, clinicians, judges, administrators, or others cannot logically enter the argument.

CRIMINAL JUSTICE DECISIONS

The concepts, diagnosis, classification, and prediction, may be reviewed briefly with respect to decisions made during each of the four major aspects of the criminal justice system discussed in subsequent chapters. These are decisions by police, prosecutors, judges, and correctional functionaries. Some persons pass through all these sets of decisions in their careers from arrest to final discharge; and many, unfortunately, repeat the process.

It should be noted that in discussing these decisions we certainly are not talking about the entire delinquency and crime problem. The criminal justice system may be irrelevant to most acts which, if known, would be defined as delinquent or criminal. In a national United States sample of 13- to 16-year-olds, 88 percent reported committing at least one chargeable offense in the prior 3 years. Only 9 percent were detected by the police, only 4 percent received police records, fewer than 2 percent were referred to court, and a little more than 1 percent were adjudicated delinquent. The acts of the 3 percent caught by police represented less than 3 percent of their total chargeable acts (Williams and Gold 1972).

Similarly, in discussing police, prosecution, sentencing, and correctional decisions, various additional critical decision points are left out. Before moving to the consideration of those four general areas, therefore, some aspects of decisions related to delinquency prevention, juvenile detention, and pre-trial release are mentioned.

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CHAPTER II

Uncommon Decisions—Common Problems

DON M. GOTTFREDSON

DELINQUENCY

The problem of prediction of delinquency among children has received much attention; and the voluminous literature on it is varied with respect to the kinds of predictors used, methods for combining them, and validation evidence. A number of reviews are available (Argyle 1961; Blum 1957; Gottfredson 1967; Gough 1962; Mannheim and Wilkins 1955; Rose 1967; Savitz 1965; Schuessler and Cressey 1950; Venezia 1971). Despite this attention, resulting in many promising efforts, all extant prediction methods are in need of further validation, probable revision, and subsequent revalidation in specific jurisdictions before any attempt to use them in prevention applications would be warranted. (Craig and Glick 1963; Cureton 1957; Gottfredson 1967; Gough, Wenk, and Rozyanko 1965; Gough 1962; Grygier 1964; Hanley 1961; Kvaraceus 1966; Meehl and Rosen 1955; Reiss 1951; Saline 1958; Shaplin and Tiedman 1951; Trevitt 1965; Venezia 1971; and Walters 1956.) Relatively low validity, problems of generalization from samples studied to other populations—perhaps with different proportions falling into the criterion categories—and inadequate or absent cross-validation evidence are common problems. Another is a lack of information on, or attention to, the relative costs and utilities of identifying and seeking to forestall delinquency in a predicted delinquent in relation to the possible costs of misclassifying an individual who will not become delinquent (Cronbach and Gleser 1957). This issue is related to concern with the "self-fulfilling prophecy"—that is, to apprehension with respect to the possible negative effects of a classification procedure itself upon the persons classified through labelling them undesirably (Toby 1965; United States President's Commission on Crime in the District of Columbia 1966, p. 59; Wellford 1967). Predictions thus may have the potential of enhancing their own accuracy.

The concept of the "self-fulfilling prophecy" calls attention in addition to the probability that the two types of error resulting from any prediction procedure—errors to be expected (since perfection is not)—may not have equal consequences. It may be much more damaging to treat as delinquents those persons misclassified as expected delinquents than to treat actual predelinquents as if they were not expected to be delinquent.

DETENTION

Juvenile detention is the preadjudication confinement of allegedly delinquent children. Its use, in terms of the proportions of referred children who are held, varies markedly in the United States (Sumner 1968; National Council of Crime and Delinquency 1967). Its purpose generally is held to be the temporary containment of children who, if released, would be likely to run away or harm themselves or the community.

Typically, children referred to probation departments (as arms of the juvenile courts) are screened by probation officers who decide whether or not the child shall be detained pending further study and disposition—which may or may not involve adjudication by the juvenile courts. Criteria used in arriving at this decision are poorly articulated or wholly absent, and evidence showing any relation of such criteria to the purposes of the decision is nonexistent since appropriate validation studies have not been done. In one study of detention (Sumner 1968, p. 162) about one-fifth of the variance in decision outcomes (detain or release) was attributed to variation in characteristics of the children studied—more specifically, to their prior records (of offense, court referrals, detention, and probation).

Another aspect of the same study showed that differences in attitudes (of the decision-makers) concerning the use of detention were associated with differing detention rates (Gottfredson and Gottfredson 1969).

In fairness to accused children, the juvenile courts, and the community, the problem of deciding which children must be detained pending an ultimate resolution of the allegation demands much more empirical study than ever has been attempted. A systematic study of experience with these decisions, identifying the criteria used and assessing the relation of these to the consequences of the decision outcomes in terms of the later behavior and life experiences of the children involved, could provide the information needed for a more rational, less arbitrary, more humane, less damaging handling of children in this circumstance.

JUVENILE PROBATION

A comprehensive, 4-year project conducted in seven California counties by McEachern and Newman (1969) resulted in development of a computerized aid to juvenile probation decision-making. The research had three phases: First, a conceptual model of the process was developed, specifying the major treatment and disposition points. Second, a followup study of 2,290 youths referred to the probation departments was completed, from which a conditional probability model—to predict outcome criteria from background and personal characteristics—was developed and tested. (Criteria were "recidivism," defined as the number of repeat offenses, and a "behavior improvement-deterioration" measure.) Finally, an experimental "on-line" computer system was developed with the aim of aiding probation officers to make decisions based on a Bayesian decision model.

PRETRIAL RELEASE

In the case of accused adults in the United States, the last decade has seen an expansion of interest in extending release, while trial is awaited, to larger numbers of persons while maintaining assurance of the defendant's availability for trial. (Freed and Wald 1964; United States Department of Justice 1964; United States Department of Justice and Vera Foundation, Inc. 1965; Vera Institute of Justice 1972). Traditionally, release on money bail has been the principal, and often the sole, method for avoiding confinement of the accused while awaiting trial (despite its obvious discrimination against the poor). In many parts of the United States programs of release on the person's own recognizance now have been added. The classification and prediction problems posed in this area are similar to those found at many other points of decisions in the criminal justice process; thus, their discussion serves to illustrate issues common throughout the system.

The necessity for more careful and thorough study in this important, complex area was aptly defined by Herman Goldstein (United States Department of Justice and Vera Foundation, Inc., 1965, p. 151-160). He commented that the traditional American presumption of innocence before trial, together with a concern for community security, places this problem within the same context as so many of the other critical issues surrounding criminal justice decisions. The issue is joined by the need for striking a balance between the concern for the

protection of society and the desire to guarantee maximum freedom for the person. The desire to prevent future crimes opposes the desire to allow the suspect to be free prior to trial. Not only the need for further study but also the form it should take was suggested by Goldstein:

Like so many issues in criminal justice administration, the issue of preventive detention is complicated by the fact that we do not really know, in quantitative terms, what the social costs are of the several alternatives. We have only fragments of information on how many crimes are committed by individuals while on bail. And where such figures are available, we have no indication of the extent to which these figures are influenced by the prevalent practice of detaining those who would be the most serious risks. We do not know whether those crimes which are committed are similar to those with which the individual has already been charged. We do not know how many of these crimes could have been prevented. And we have little quantitative knowledge of the inconvenience or damage which prevalent practice in the use of bail causes the individual (United States Department of Justice and Vera Foundation, Inc. 1965, pp. 158-159).

Discussing the purposes of bail, he pointed to the necessarily predictive purpose of the judicial decisions concerned. He asserted:

... Since the only purpose of bail which is set forth in existing Federal or State law is that of assuring the reappearance of the defendant for trial, it would appear that the question of whether bail is excessive must be determined on the basis of the criteria which predict the likelihood of reappearance.

Similarly stressing the central importance of the problem of prediction to issues of bail, preventive detention, and release on recognizance, Freed and Wald stated:

Bail, devised as a system to enable the release of accused persons pending trial, has to a large extent developed into a system to detain them. The basic defect in the system is its lack of facts. Unless the committing magistrate has information shedding light on the question of the accused's likelihood to return for trial, the amount of bail he sets bears only a chance relation to the sole lawful purpose for setting it at all. So it is that virtually every experiment and every proposal for improving the bail system in the United States has sought to tailor the bail decision to information bearing on that central question. For many, release on their personal promise to return will suffice. For others, the word of a personal surety, the supervision of a probation officer or the threat of loss of money or property may be necessary. For

some, determined to flee, no control at all may prove adequate (Freed and Wald 1964, p. 56).

A number of programs have been initiated as a means of improving the information upon which recommendations for release of defendants on their own recognizance may be made when this information suggests that there is no substantial risk of the defendant's failure to appear at the specified time and place. These programs for improved fact finding, described by Freed and Wald in the report cited, are underway in State or Federal courts throughout the United States.

The pioneer in this effort was the Vera Foundation's Manhattan Bail Project, started in the fall of 1961, which provided a model for other jurisdictions. The evaluation of risk was based upon data concerning residential stability, employment history, family contacts nearby, and prior criminal record. A point system was used in order to weight the various items considered, and, if the defendant scored a sufficient number of points (and if he could provide an address at which he could be reached), then verification of the information was attempted. The project staff then reviewed the case and decided whether to recommend release.

Freed and Wald reported results since found in many jurisdictions:

... The Manhattan Bail Project and its progeny have demonstrated that a defendant with roots in the community is not likely to flee, irrespective of his lack of prominence or ability to pay a bondsman. To date, these projects have produced remarkable results, with vast numbers of releases, few defaulters and scarcely any commissions of crime by parolees in the interim between release and trial (Freed and Wald 1964, p. 62).

These authors pointed out that projects such as these serve two purposes:

1. They free numerous defendants who would otherwise be jailed for the entire period between arraignment and trial, and
2. They provide comprehensive statistical data, never before obtainable, on such vital questions as what criteria are meaningful in deciding to release the defendant, how many defendants paroled on particular criteria will show up for trial, and how much better are a defendant's chances for acquittal or a suspended sentence if he is paroled (Freed and Wald 1964, p. 62).

The general problem of prediction is thus a central issue in recognizance release decisions; and the specific prediction problem of greatest interest may be stated quite simply. We wish to know who reasonably can be expected to appear for trial and who cannot. How-

ever, there is considerable interest as well in the problem of prediction of offenses by arrestees who are released on their own recognizance. Finally, there is interest in a number of related further possible outcomes of the decision. These other outcomes, which also require empirical study, include a variety of other aspects of the administration of justice, where the consequences of release on recognizance are, at present, unknown.

Stressing the importance of this area of study are the results of an experimental project within the New York study. As summarized by Freed and Wald,

... of all defendants believed by the project to be qualified for release, half were in fact recommended to the court, while the other half were placed in a control group, and their recommendations withheld. In the project's first year, 59% of its parole recommendations were followed by the court, compared to only 16% paroled in the control group. In short, recommendations based on facts nearly quadrupled the rate of releases (Freed and Wald 1964, p. 63).

This shows that the proportions released increased through the program; but what of other consequences of the release on recognizance decision—for example, consequences of acquittal or confinement. The report continues,

The subsequent case histories of defendants in both groups were thereafter analyzed. They showed that 60% of the recommended parolees had either been acquitted or had their cases dismissed, compared with only 23% of the control group. Moreover, of the 40% who were found guilty out of the parole group, only one out of six was sentenced to prison. In contrast, 96% of those convicted in the control group were sentenced to serve a jail term (Freed and Wald 1964, p. 63).

What is needed is a thorough-going objective study of not only the procedures by which recommendations for (and against) release on recognizance are made and of not only the subsequent decision (for release or against it) but also of the relations between the information available for use in arriving at the recommendations and the decisions and the various consequences of the decisions. Such consequences may include not only changes in the probabilities of acquittal or conviction or of differing sentencing alternatives but also of later offenses. The comprehensive assessment of the prediction issues given by the nature of the decision problem thus could provide an evaluation of the effects of the procedures employed at this stage of the criminal justice system. It is the same in many others.

The Vera Foundation criteria, developed in the Manhattan Bail Project, work in one restricted sense. That is, experience reported thus far supports the view that persons released as a result of recommendations based upon the interview schedule rarely fail to appear for trial. However, there has been no demonstration that the items used actually are predictive. In order to be useful as predictors, it must be demonstrated that the items help to discriminate between the groups of persons who appear for trial and those who do not. A logical case may be made easily for the relevance of items presumably reflecting roots in the community or employment stability. That is, it is reasonable to hypothesize that these items have some predictive relation to appearance for trial or other outcomes of interest in the decision process. Until these items are studied systematically in relation to the various consequences of the decision, however, we must assume that actually they may be unrelated to these consequences. Such study is required also to answer a number of related questions. What is the degree of validity of the individual items, for example, in terms of correlation with appearance or nonappearance for trial? Are the items equally valid with respect to conviction for new offenses during the period of release? How are the items correlated with one another; and how should they be weighted in order to provide, in some specific sense, an optimal predictive guide to the court?

A recent study clearly demonstrated the needs for such investigations (Michael Gottfredson 1974). It had two objectives. The first was to assess the predictive validity of the Vera Institute's instrument and of its individual items. The second was to improve prediction from a variety of background characteristics of defendants. The design of the study, through a special arrangement with the courts, allowed comparisons of subjectively chosen good and bad risks. That is, not only were persons recommended by the O.R. (own recognizance) project staff and approved by a judge released on O.R., but also 328 defendants *not* deemed eligible by usual procedures were released. The latter group was compared with a randomly selected 201 defendants released normally. Although there were differences in the failure to appear for trial rates for the two groups, a striking result was that about 85 percent of the O.R. sample and about 73 percent of the experimental sample either appeared for trial or voluntarily returned. Similarly, about three-fourths of the O.R. sample and slightly more than half of the experimental sample had no arrests during the 90 days just after release. None of the individual items which make up the Vera instrument was substantially related to the criteria studied (appearance or arrests), and the total score accounted

for only 2 or 3 percent of the variance in these criteria. Although a variety of additional items were studied, the resulting prediction equations, when applied to a validation sample, failed to achieve better prediction than the Vera instrument.

Another recent project sought the safe pretrial release of defendants jailed as a result of inability either to post money bail or to meet Vera-type criteria for release on recognizance (Venezia 1971, 1972, 1973). During the project's first 8 months of operation, 81 of 141 defendants interviewed were released to a community treatment program. The cases of 61 defendants reached the court disposition stage, and all appeared for trial. The program was reported as "... showing that defendants, who have been considered poor risks for pretrial release, can be released with no greater danger to the community than that presented by persons on money bail," (Venezia 1971, p. viii). The released defendants, compared to members of a nonreleased control group, were less likely to be incarcerated after conviction.

PREVENTIVE DETENTION

The intertwining of issues of law with those of diagnosis, classification, and prediction is well illustrated by problems surrounding the concept of pretrial detention aimed at the prevention of possibly further crimes by an accused but not convicted person. A now former Attorney General of the United States argued in 1969 against challenges that a Federal proposal providing for preventive detention violates the Eighth Amendment, the presumption of innocence, and the due process clause of the Fifth Amendment (Mitchell 1969). Discussing these constitutional issues, he argued that there is no alternative to detention of persons who will commit additional serious crimes if released pending trial, if the community is to be protected. (See Hruska 1969, for a similar argument.)

Setting aside the legal issues, one must ask how such (additional?) offenses are to be predicted, by what classification schemes, with what degrees of reliability and validity, and at what costs (of correct and incorrect predictions). Among others arguing the presumed merits of preventive detention, Lindau supported the detention of the "most dangerous" defendants on the basis of the insight and experience of trial judges (Lindau, 1969-1970). It apparently is not needless to say that the validity of such predictions by trial judges is a question to be answered empirically and that evidence to date with such prediction problems must raise considerable skepticism. Others (e.g., Dershowitz, 1969-1970) noted the difficulties in predic-

tion (i.e., the inadequacy of presently available knowledge), pointed out the problem of ever knowing how many defendants were erroneously confined, and concluded that the cost in unnecessary confinement would in any case be too high to justify preventive detention. (See also, Allington 1970; National Council on Crime and Delinquency 1971; Hickey 1969; Tribe 1970; Borman 1971; Miller 1970; and Von Hirsch 1972.) For a discouraging present-day prognosis for violence prediction, see "Can Violence Be Predicted?" (Wenk and Emrich 1972).

COMPETENCY

Confusion concerning the concepts, diagnosis, classification, and prediction, also reigns notably around the issue of competency to stand trial, an issue which similarly illustrates the mixture of legal and scientific problems common to criminal justice decision-making. (See, e.g., Hess and Thomas 1963; Matthews 1970; McGarry et al. 1972.) Competency in this case is a legal concept referring to a person's ability to appreciate the nature of the proceedings against him and to participate adequately in his own defense. The concept thus concerns a *state of the person*, i.e., a diagnosis. The diagnosis, however, must address the issues of pretrial competency which are essentially legal, not psychiatric, concerns (McGarry et al. 1972). The criteria of competency focus essentially upon the protection of due process rights of the accused to a fair trial: The person must understand the nature of the proceedings and their consequences and must be able to cooperate with counsel. Otherwise, proceedings are suspended until the person is seen as able to participate in the defense. Diagnoses of physical or mental illness which often are provided the court ostensibly to assist in the competency determination are thus not necessarily relevant to the legal questions asked. Descriptions of states of persons involved or assignments to traditional psychiatric categories of mental illness may have little or no bearing on competency as legally defined. As a remedy, McGarry and his colleagues have developed more objective procedures for measurement of competency, seeking more adequate assessment of the specific areas of psychological functioning which are pertinent to the specific diagnosis required by the legal issues. Evidence from this study suggests that such procedures can help avoid costly, often lengthy, unnecessary confinement due to hospitalization for competency determinations.

POLICE DECISIONS

It is the police who first decide, in any person/event allegedly, apparently, or actually a crime, whether or not to invoke the law. Thus, police officers "... have, in effect, a greater degree of discretionary freedom in proceeding against offenders than any other public official" (Bittner 1970, p. 107). They decide, for example, whether or not an offense has occurred, whether to arrest, whether to issue a citation, whether to hold persons in custody, whether to refer persons to other social agencies; they decide whether to press for the invoking of the criminal law or to forget it.

If the judge decides to dismiss the case or acquit the client, there is a record. If the prosecutor decides not to prosecute, there is a record. But an officer's decision not to make an arrest is not a matter of record (Bittner 1970, p. 107). The police do not merely apply and enforce the law; rather, and to a great extent, they use discretion in invoking the law (Goldstein 1960; Packer 1964; Kadish 1962; LeFave 1962).

In chapter III, Professor Pepinsky discusses the police decision-makers and their decisions. He presents a theoretical analysis of police decisions in terms of objectives of legitimate and respectable control and he proposes a strategy for increased citizen participation and, hence, rationality in these decisions.

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CHAPTER III

Police Decision-Making

HAROLD E. PEPINSKY

There is a widely held stereotype that the police officer works solely to develop evidence of crimes and to apprehend offenders. The popularity of this stereotype is not at all remarkable. The occupation of the policeman is known as law enforcement. His oath centers on upholding the laws of the jurisdiction he serves.

Indeed, many policemen are wedded to this conception of their job. When a policeman helps someone find a lost child, the policeman is apt to be heard to complain that he is not doing what he is supposed to be doing. This albeit the common report that 80 percent of the incidents handled by a typical police patrolman fall into the category of "service" rather than of "crime" (or perhaps only 70 percent as in Kansas City, see President's Commission on Law Enforcement and Administration of Justice 1967, p. 121).

Most police administrators recognize that the role of their officers includes a considerable amount of service. A few administrators conclude that their officers should be trained to specialize in offering a variety of options to their citizen-clientele in such situations. Most administrators regard this service call (with the possible exception of those for emergency services) as a nuisance and a burden either to be reduced, ignored, or to be passively endured.

Small wonder, then, that practically all research on police decision-making focuses on aspects of how police decide to enforce or whether to enforce the law. Even in the rare instance of research reports on police service, like Bittner's (1967a) report on police decisions as to how to respond to apparent mental illness, police decisions are at least very nearly characterized as law enforcement decisions—such as whether an involuntary mental commitment shall be made. There is a valid and important question to be explored as to whether the police decisions only partially involve law enforcement. However, given the predominant state of thinking among police and the practically exclusive perspective of social scientists, there are almost no data by which to describe police decisions without a law enforcement

referent. Hence, this discussion of police decision-making will be limited to how police decide to enforce or whether to enforce the law, questionable though the restriction might be.

Within the boundaries of this restriction, there is another issue that need not be resolved stereotypically. The issue is one of whether discretion to enforce the law is viewed as a matter of deciding whether to treat an actual violation of the law as such, or as a matter of deciding whether to regard a case as a violation of the law.

Goldstein (1963b), for example, stands on the first side of the issue. To him the question of discretion is one of why the police do not fully enforce the law. From this point of view, violations of the law are real or actual. The job of the police is to discover the violations, apprehend the perpetrators, and develop evidence of the offenses sufficient to convict the perpetrators. Full enforcement is an assumed and yet unattained goal of police work. The goal of full enforcement is held not to be attained because of police reticence to do their duty and because of difficulties in obtaining sufficient information about offenses. These impediments to full enforcement are the objects of investigation in this approach to police decision-making research and are the stereotypic concern of the police themselves.

The other side of the issue is adopted here. According to this view, the matter of whether a violation of the law has occurred is one of social definition. There are, to be sure, degrees of social consensus as to what the operational definition of a given crime should be. Given a complaint of a robbery with a film of a man with a gun taking a bag of cash from a bank, few would be expected not to agree that a robbery had in fact occurred. But a decision as to whether a welfare check had indeed been stolen from a welfare mother's purse would be expected to be more equivocal. The decision would be even more problematic if the report to a victim surveyor alleged the theft to have taken place 9 months previously. Or what is to be made of a man's statement that his wife has just slapped him without justification? The matter is not one of adequate evidence alone, but also of what conduct is to be regarded as an offense. Even if the slap occurred, perhaps it is not included in that which should be treated as an assault. If a man takes some stationery home from the office to write letters to friends, perhaps it should not be considered a theft, or should it? As lawyers soon learn, the boundary between what they term "questions of fact" and "questions of law" is often ambiguous, let alone the difficulties inherent in resolving each of these questions. To the policeman, this means that he is apt to be drawn beyond the questions of whether he can make an arrest or provide sufficient evidence for a successful prosecution to the confrontation of the issue

of whether he should treat an incident as an offense at all, not merely on ethical grounds but on epistemological ones as well. Thus the central research question on police decision-making is one of how the police decide whether to respond to information as though an offense has occurred, given legitimate ambiguity on the point. From this perspective, the exercise of police discretion is fundamentally a matter of deciding how to treat ambiguous information, not one of ignoring what are already known to be offenses or of failing to find unknown ones. As is shown below, the data on police decision-making are fully compatible with this premise.

The decisions of police supervisors and administrators concerning their subordinates are not covered in this chapter for three reasons. First, police management carries theoretical foundations and practices which are quite distinct from those of police interaction with private citizens. As McNamara (1967) reports, administrators and supervisors typically are more concerned with running a quasi-military organization, such as by making certain officers are properly dressed, than with the day-to-day decisions line policemen must make. Even administrative decisions concerning deployment of police forces tend to be so global that they scarcely cover the decisions line policemen routinely must make. While police management decisions are well worth investigation and description, they constitute a digression from consideration of other police decision-making.

Second, there are few data available on police management. Most of the police management literature is exhortative rather than descriptive. There is therefore little material available to us to report on police management decision-making.

Third, most police decisions are hardly subject to supervision anyway. Whether on the street or in an office, a police officer typically operates with a high degree of autonomy. The potential for effective administrative control of the police, as in dealing with police corruption (see, e.g., President's Commission on Law Enforcement and Criminal Justice 1967, pp. 208-215), or violence (Toch 1970, or most comprehensively, in the National Advisory Commission on Criminal Justice Standards and Goals 1973), has only begun to be explored. As matters now stand, most line police decisions must be made by the officers themselves without the guidance of their supervisors or administrators.

By way of example, this author observed the traffic enforcement patterns of a group of urban patrolmen for more than 600 hours (Pepinsky 1972). Even while supervisors were speaking of the need for strict enforcement to cut accident rates, particularly at specified intersections, enforcement patterns varied considerably among patrol-

men. Some patrolmen were notorious for "tagging" a number of motorists. Others habitually warned motorists, and some rarely even looked for violators. This variation occurred even as formal note was made of the number of traffic citations given by each patrolman from month to month. In other words the gap between management decision-making and patrol decision-making was considerable.

Nevertheless, a considerable range of police decisions is discussed here. Given the focus on police decisions as to whether and how to treat information received as that of crimes or delinquent acts, a variety of decision-makers remain to be covered. These include uniformed patrolmen, detectives, and members of specialized units, such as those dealing with juveniles, morals, narcotics, and organized crime. Decision-making for some categories of offenses, such as traffic offenses, differs from that for others. The next section of this chapter describes the various categories of police decision-makers in some detail.

THE POLICE DECISION-MAKERS

Policemen can receive a variety of assignments and the decisions policemen are called upon to make vary accordingly. Since this chapter does not deal with police management, no attempt will be made to describe patterns of administrative hierarchy, from sergeants to chiefs or commissioners. Nor will special assignments relating primarily to administrative issues, such as those in community relations, in internal investigation, or in research and planning be covered.

The basic distinction in police assignments is between those wearing uniforms and those in "plainclothes." Uniforms are intended to be highly visible to the public, plainclothes to be inconspicuous. Not surprisingly, therefore, most of the literature on police decision-making has focused on decisions by the conspicuous police—the uniformed patrolmen.

Incidentally, it has been found (Cizankas 1973) that the public tends to offer greater deference to officers dressed in suits than to officers dressed in traditional uniform. In some communities, this has led to dressing patrolmen in blazers. Effectively, blazers are still uniforms. All of one color, with a crest on the breast pocket, the blazers still serve to make the police wearing them readily identifiable by the public.

Uniformed or not, the police decision-makers generally have a good deal in common. Practically all have the same job qualifications and

have undergone the same formal training; practically all have begun their police careers in uniform; practically all work an 8-hour shift each day 4 or 5 days a week (though some departments have experimented with 10-hour shifts); practically all are subject to working overtime on special assignments or for court appearances; and in any assignment except community relations (or planning and research, an aspect of police management not here considered), some will be working or on call any time of the day or night. These commonalities function as constraints to lend some similarity to police decision-making regardless of assignment.

On the other hand, there are also structural features of the various assignments which dictate differences in patterns of decision-making. These features will now be described.

Uniformed Patrolmen

Most uniformed patrolmen in any department are generalists. Some may walk beats, but most are assigned districts to patrol in squad cars—most in marked squad cars. In large enough cities, patrolmen work out of precinct stations, each comprised of several districts. Though no data are available on the point, in this author's experience a "large enough" city will have a population of nearly 200,000 or more.

In some departments, patrolmen ride two in a squad car, in others, one. Those on routine patrol are responsible for answering calls for assistance relayed to them by the dispatcher. Though in some areas of large cities police can be overloaded with responding to calls (see, e.g., Reiss 1971, pp. 78-79), a more common problem for patrolmen is compensating for the paucity of calls they receive.

For example, this author gathered data on observations of 70 patrols in the busiest precinct in Minneapolis (Pepinsky 1972). The patrolmen received an average of six calls in each 8-hour patrol and spent an average of about 10 minutes for each response (in a range of a couple of minutes on such calls as those to "check kids disturbing" to an hour-and-a-half for a response in which an arrest was made). Typically, then, the patrolmen spent about an hour of their 8-hour shift responding to calls and took off another half hour for meals. This left 6½ hours in which the patrolmen had to make work for themselves.

Adam 12 notwithstanding, patrolmen are not in the habit of discovering offenses in progress as they ride through the streets. During the 70 patrols of data collection and the 10 patrols of pretest

in Minneapolis, this observer only once was witness to catching offenders in the act (except for traffic violations)—catching a group of burglars when the observer was in a squad car that had been called to back up the arrest. The myth of patrolmen constantly fighting crime is far removed from the daily routine of most police.

Traffic enforcement is often a relief from the boredom of routine patrol. Tickets can be written for a streetful of parking violators (though in cities with meter maids, this task is largely preempted). The patrolmen can sit at a street corner and wait for someone to go through a red light, though often at such times drivers can be frustratingly law-abiding. Conveniently, a speeder or someone driving a car with a broken muffler may pass by. As a last resort, cars can be stopped for license, registration, and traffic arrest warrant checks. Or the patrolmen can scan license plates of parked cars to see whether they might be listed on the "stolen sheet."

Occasionally, a suspicious character may be spotted running across a lawn or parked in a back alley. A stop for a cup of coffee may relieve the monotony. But all too often, patrolmen are left to suffer the frustration of riding around aimlessly for hours at a time.

There are some special assignments for uniformed patrolmen. Walking the beat has been mentioned. Here, at least, the patrolman is apt to find more opportunity for conversation than in the car. Some cities have special traffic details, including those directing traffic, those concentrating on traffic enforcement, and those investigating accidents.

Some departments have tactical squads or special units. Men receiving this assignment are apt to receive training in crowd control. They are also assigned to ride unmarked patrols in high crime areas literally to look for trouble. Indeed, if they do not make arrests, they are apt to be sent back to regular assignments (Rubinstein 1973, p. 363). As expected, they find trouble and make arrests more than other patrolmen, but sometimes they practically have to drive across a city at high speeds to "back up" a call in order to do so.

There is a good deal more tedium in police patrol than has been popularly and scholarly recognized. This is not to deny that many other jobs are more tedious, nor to suggest that there is not a fair amount of variety in the situations to which patrolmen are called to respond. At one moment a patrolman may be helping someone into a locked house or car, at another trying to calm down a raging husband and wife, at another picking up a drunk off the street, and at another taking a report on an alleged burglary. The demands of the job are as various as one can imagine but commonly not nearly so frequent as one might suppose. The lack of activity for uniformed

patrolmen, and their relatively low status in most police departments, lead many of them to seek other assignments.

Detectives

In some very small departments uniformed patrolmen do criminal investigation themselves or call on aid from other departments or agencies. Generally, however, even small departments have full-time detectives. Larger departments have divisions of detectives, subdivided into units specializing in investigation of particular kinds of crimes. The subdivisions range from broad categories in medium-sized departments (e.g., property offenses) to those covering specific offenses in large departments (e.g., burglary). "Detective" may also be a rank above patrolman, equivalent in some departments to that of sergeant and in others to that of lieutenant. In these cases one usually becomes a detective by civil service examination.

In a few departments, team policing has been instituted. The most widely discussed and adopted plan originated in Syracuse. Under the plan, a team is made up for each district, including not only patrolmen, but a detective and members of specialized units as well. There are no reports on patterns of decision-making that have in fact emerged under such a plan, but in theory coordination among the various types of officers is much closer than under conventional police organization. In theory, too, detectives would be on the street a good deal, but data on the point are unavailable.

Detectives are distinct from members of specialized units, such as narcotics, discussed below. Detectives generally do not initiate investigations but proceed on the basis of offense reports and sometimes arrest reports received from uniformed patrolmen. They try to find offenders, locate missing property, and prepare evidence to present cases to prosecutors.

Dragnet has presented another misleading image about the police. Most offenses known to the police are not cleared by arrest (see, Federal Bureau of Investigation, annual). Most detectives spend the bulk of their time at their desks, going through papers and using the telephone.

Regrettably, empirical studies of detectives are nowhere to be found. As with most of the specialized units, hypotheses about decision-making are made in this chapter, but with very little evidence in the literature as foundation.

Specialized Units: Juvenile or Youth Aid Officers

The movement to treat wrongdoers under 18 years of age as wards of the State to be helped rather than as criminals to be punished began in the United States around the turn of the century. Separate courts were established for juvenile delinquent offenders. The definition of "delinquency" was extended to include not only those acts which if committed by adults would be crimes. Children were also termed "delinquent" (or "persons in need of supervision") if they were truant from school, "incorrigible," "stubborn," or in a plethora of ways demonstrated the need for State supervision *in loco parentis*. However, it is a moot point whether adjudicated delinquents came to be treated any less harshly than convicted criminals (Kittrie 1971).

In conformity with the spirit and demands of the juvenile court movement, police departments developed juvenile or youth aid divisions. Members of these divisions were specially assigned to investigate and to some extent manage the cases of problem children. Cases involving children were to be referred to these officers by other police, by other agencies, especially including schools, by parents who sought assistance in dealing with their own children, by other involved or concerned citizens, and in some cases by the courts or court services themselves.

Some juvenile policemen (or women) are assigned directly to schools as liaison officers. It is generally well understood (e.g. Goldman 1963) that juvenile officers have a considerable amount of discretion as to whether to make use of informal disposition of cases or of formal referral of cases to juvenile court and of whether formally to take juveniles which will be discussed here. Remarkably, patterns of police decision-making with reference to juveniles appear to be practically the same as those by patrolmen concerning adults. In fact, all of the findings on police decision-making can be subsumed under a single theoretical framework, as they are later in this chapter.

Specialized Units: Morals Squad Officers, Narcotics Officers, and Organized Crime Officers

These units usually are found only in large departments. Officers in these units specialize in laying the foundation for prosecution of what Stinchcombe (1963) has referred to as "private offenses." These

are offenses characteristically committed out of the public view in which even those who might be considered victims will not or cannot complain to the police. For instance, it would be rare to find a citizen complaint in cases of gambling, prostitution, or sale of narcotics. Thus, officers in these units rely primarily on three techniques to gain evidence of offenses for arrest and prosecution.

One technique for obtaining information is to pay or cajole those already involved in illicit activities. The paid informant and/or the informant who is asked to cooperate in return for some form of immunity from arrest or prosecution may in some cases be induced to serve as a prosecution witness. More often, however, his or her information is used as a prelude to the use of one of the other two techniques.

A second technique is covert surveillance or examination of suspects. An informant's statement, for instance, may provide sufficient basis for authority to use a wiretap to gather incriminatory evidence. Or a search warrant may be issued permitting officers to come upon suspects unawares to find evidence such as narcotics.

The third technique, again commonly based on informants' statements, is for an officer to gain the confidence of a suspect and get the suspect to commit an offense in the officer's presence. This technique is commonly used as a basis for arrests for drug sales.

The literature on how members of these units decide whom to treat as suspects and which activities to treat as illicit (e.g., those of a pimp versus those of a prostitute) is practically nonexistent. One academic and yet basic reason for the paucity of data on this topic is no doubt the difficulty of constructing a controlled research design for locating patterns of decision-making in this type of activity. This difficulty is explained in the following section of the chapter.

GENERAL APPROACHES TO POLICE DECISION-MAKING: REACTIVE AND PROACTIVE

The distinction between proactive and reactive law enforcement has been brought into common use by Reiss (see, e.g., 1971). He uses the terms specifically to refer to activities of uniformed patrolmen. If the patrolmen respond to a call from the dispatcher, their action is called reactive. If the patrolmen find incidents without the dispatcher's aid, their action is called proactive. It is theoretically useful to generalize these categories to consideration of all decision-making

ing. Not so obviously, perhaps, there is more reason for the categories to be salient to the researcher than to the patrolman or other decision-makers. For the researcher, proactive decisions form a null category, a category definable only as a residuum of decisions not known to be reactive. What defines reactive action is a practically certain signal to the researcher that an occasion for a decision is at hand. For instance, when a patrolman receives a call from the dispatcher, the observer is practically certain the patrolman must decide which kind of official response to make, including the option of having found an offense to have occurred. For other patrol decisions, the observer does not have this certainty. The patrolman may be equally nearly certain of what he is called upon to report in other situations, but the observer does not share this awareness, if such awareness exists at all.

The question of shared awareness is irrelevant to the observer in an important sense. If he is to study the substance of decisions as a dependent variable, he needs to induce the independent variable from which to begin his process of explanation. For instance, if the observer seeks to isolate variables explanatory of patrolmen's decisions to arrest, a control group of decisions not to arrest is required. More specifically, if more blacks than whites are arrested by patrolmen, the observer needs to be able to show that the patrolmen decided proportionally *not* to arrest a lower proportion of blacks than whites to prove that blacks are more likely than whites to be arrested. Decisions to treat cases as warranting law enforcement can be controlled against those not so to treat cases only in instances of reactive police decision-making. Most of the literature on police decision-making focuses on these instances.

Which, then, are to be dealt with as reactive police decisions? First, obviously, patrolmen's responses to calls from the dispatcher are included. Recall that decisions of concern here are those of police as to whether matters are to be treated as involving the commission of crimes or delinquent acts. Police are asked to make a formal response to each call, in which they must decide whether to report the offenses they are sworn to uncover.

There is no way to enumerate the incidents patrolmen consider proactively. Does one include all suspicious glances of the patrolmen in a squad car? One can enumerate the proactive and reactive decisions by patrolmen that law enforcement activity is warranted. Black 1970, however, found only 24 percent of such decisions to be proactive. This author, Pepinsky 1972, found 1 percent of such decisions to be proactive. By accounting for patrolmen's reactive decisions to treat matters as in the jurisdiction of law enforcement, one accounts for

the vast majority of *all* patrolmen's decisions to treat matters thusly.

Traffic enforcement by patrolmen is predominantly proactive. The dispatcher can scarcely be expected to direct the patrolmen to find moving violators, and patrolmen are seldom dispatched to write parking tickets.

As Black and Reiss (1970) point out, juvenile officers get most of their cases by referral—from patrolmen, from schools and other agencies and citizens. Their decisions are therefore treated as typically reactive. The decision-making literature uniformly proceeds on this premise, assuming that juvenile officers are called upon to treat every case as though it might be referred to juvenile court.

Detectives practically always base their activity on offense reports. Hence, their activity is also treated as reactive. No signal is discernible for action by members of other special police units adequate to treatment of their decisions as reactive. The paucity of decision-making data on activities of special units is consistent with this premise as is the generally private nature of these categories of offenses. Thus, the activities are treated as proactive for purposes of this report.

Based on an understanding of the roles assigned to police decision-makers and of the basic approaches to decision-making taken by policemen, the decisions themselves can be explained.

Reactive Decisions—Manifesting Legitimate and Respectable Control

The findings on reactive discretion by patrolmen and juvenile officers fall into a tradition of research and writing on police discretion, represented in a general way by Aaron (1966), Abernathy (1962), Adler (1964), Banton (1963, 1964), Barker (1966), Cressey (1957), Herman Goldstein (1963 a, 1963 b), Kadish (1962), Parker (1965), Toch (1963, 1968) and Whitaker (1964), in addition to those whose work is cited below. The findings on how the discretion is used are all consistent with the imputation of a rather simple motivation to the police in their work. That motivation is to try to make manifest to themselves and to others that they are in control of police-citizen interactions, and that this control is legitimate and identifies the police as occupying a respectable status within society. Reiss has described this effort by the patrolman as an attempt to meet "the problem of establishing legitimacy of authority" (1971, p. 3).

Universalistic vs. Particularistic Devices for Manifesting Legitimate and Respectable Control

The way in which the literature has indicated the police might manifest legitimate and respectable control in reactive situations can be divided into four categories: (1) meeting what they perceive to be expected of them; (2) anticipating what kinds of situations will warrant offense reports and then fulfilling their own prophecies; (3) asserting their control by making decisions opposite to those they believe any parties who challenge their control would want them to make; and (4) making decisions as to whether to report offenses in such a way as to show that they identify with respectable people of apparently attractive social status and to show they identify against the unrespectable. The first two of these devices are, in Parsons' (1951) terms, universalistic. That is, they suggest that the features of situations significant for these purposes do not depend on the nature of the relationships developed between the patrolmen and the citizens they meet. The latter pair of the devices is particularistic—that is, they depend on the nature of particular police-citizen relationships.

The universalistic devices should take a while to internalize. Hence, it is to be expected that their use becomes more salient as the seniority of the policeman increases (though the decision-making literature does not explicitly touch this issue).

The learning of the universalistic devices might be a part of the socialization of the policeman described by Niederhoffer (1967) and Westley (1970). Socialization is probably a slow process, however, since it is not uncommon to hear policemen comment that it takes from 1 to 5 years to become "streetwise." Conversely, the particularistic devices are to be expected to be more salient for the more junior officers. Besides not being as sensitive to universalistic cues as their senior brethren, the junior officers can be expected to have to use particularistic devices more often to bolster their identities as good policemen (McNamara 1967, pp. 163-252).

The particularistic standards are likely more salient overall for those with the lesser social distance from the citizens they meet in a reactive situation. Goffman's (1963) concept of role distance suggests that those more apt to be identified as members of the low-status community are likely to make manifest that they are unrelated or only negatively related to the undesirables. The same may be hypothesized to apply to other measures of social distance, such as place of residence and race. This is consistent with Wilson's (1964) no-

tion that ethnic differences of policemen can make a difference in the ways they do their job.

Universalistic Devices: Meeting Perceived Expectations

There should be some cues the patrolmen get that treatment of a situation as warranting formal law enforcement activity is or is not the socially expected response for them to make. As several authors (including Bittner 1967a, 1967b, Cumming, et al. 1965, Stoddard 1967, and Wilson 1963) have suggested, the policemen look for external instruction as to whether they are presented with a situation that calls for formal law enforcement action—as by an offense report or an arrest. The first clue the patrolmen receive as to what is expected of them is in the dispatcher's call. This author (Pepinsky 1972) found in fact that patrolmen he observed based their decisions on whether to report most offenses practically entirely on whether the dispatcher mentioned an offense in his call, provided only that the patrolman talked to someone who corroborated the call. This is consistent with Skolnick's (1966) and Wilson's (1968) observations that police feel impelled to demonstrate to those in a position to hear that they give priority to law enforcement activity.

The expectation most commonly referred to in the literature is the explicit request or demand by a complainant that the police take specified action. Black (1970) found that police rely on complainants' expressed wishes in deciding whether to report offenses. Black and Reiss (1970) and Hohenstein (1969) report the same reliance on complainants' wishes in police decisions as to whether to take juveniles into custody.

The Minneapolis study (Pepinsky 1972) also provided a small number of cases that suggest other normative expectations are operative in patrolmen's reactive decision-making. Where the complainant knows an alleged suspect, the patrolmen believe they can settle such matters as thefts informally. Elderly complainants can safely be regarded as senile. Their complaints are apt to be ignored. Women are to be protected, and the patrolmen treat their complaints of assault more seriously than those of males.

Since the patrolman knows that official action against more serious offenses connotes more effective enforcement to his superiors, he (or now occasionally she) shapes his (or her) decisions to this expectation. Black (1970) found patrolmen more likely to report felonies than misdemeanors. Rubinstein (1973) reports misdemeanors resulting in arrest more often than violations.

The reactive decisions of detectives fall overwhelmingly into the category of meeting expectations. The detectives react to offense reports, most of them received from patrolmen. The Federal Bureau of Investigation annually reports that, nationally, detectives "unfound," or decide to treat as not stating offenses, only 4 percent of the reports they receive. The only meaningful prediction to make about detectives' reactive decisions as to whether to treat cases as involving violations of the law is that every case will be so treated. Detectives apparently see it as their duty to treat all cases they receive as involving offenses, and they practically always meet this expectation.

In meeting expectations in reactive decision-making, policemen are subscribing to a lesson they have learned in their training. They are instructed that there are professional traditions as to how legitimate and respectable control through law enforcement is to be accomplished. Insofar as no other guidelines present themselves as to what constitutes the accomplishment of legitimate and respectable control, the police are left to rely on cues from others as to how decisions are to be made. As can be seen, a variety of such cases or expectations have been found by observers of police decision-making, and the expectations are often reflected in the decisions that follow.

Universalistic Devices: Fulfilling Prophecies

The other universalistic device, suggested by the writing of Merton (1968, pp. 475-490), is the self-fulfilling prophecy. As these conceptions become learned and internalized, the police have been found to use them as a basis for deciding whether an allegation of harm to which they are called to react should be treated as an offense. In turn, conformity by citizens to these stereotypes of offense behavior is reinforced and fulfills the prophecy, as the work of Lemert (1972) suggests.

One of the most interesting and best documented of these stereotypes is that when a black assaults another black (particularly with a knife), the conflict will turn out to have been an ordinary family quarrel; whereas when both parties are white, the matter will be regarded as highly unusual and serious (La Fave 1962, cited in Skolnick 1967, p. 171). While Black's (1970, pp. 744-746) data do not show support for the role of race in offense-reporting, his findings might have been different had he analyzed harms involving the person separately from those involving only property. A basis for the stereotype that some groups ordinarily do more serious violence to one another than do others has been provided by the work of Wolfgang and Ferracuti

(1967). There is good reason to believe that patrolmen reinforce citizens to act out the stereotype by treating violent offenses among minority group members as commonplace and tolerable, and among whites as exceptional and intolerable.

In apparent contradiction to this prophecy, there are findings (e.g., by Thornberry 1973, in police decisions relating to juveniles, though not supported by such findings as those of Terry 1967) that police in reactive situations are more apt to treat cases (including those of violence) involving minority group suspects as warranting formal law enforcement than those involving whites. The best evidence is that the higher rate of formal action against minority group members in cases involving alleged violence is attributable to behavior of citizen-suspects toward the police, not toward other citizens.

Bayley and Mendelsohn (1968, pp. 122-137) found in Denver that more minority group members reported mistreatment by the police and complained about police than did whites. Biderman et al. (1967, p. 137) found in Washington, D.C., that whites are consistently and generally substantially more "pro-police" than are blacks. It is therefore to be expected that minority group citizens are more likely to be antagonistic toward the police than are whites, as indeed this author observed in Minneapolis. Since citizen demeanor toward police rather than the operation of a self-fulfilling prophecy seems to account for reactive police decisions disproportionately to treat situations of alleged violence involving minority group members as demanding law enforcement, the findings on this decision-making factor are covered in a later section. As to higher rates of arrests for blacks in cases of alleged property offenses, racial stereotypes have been shown to operate in police decision-making. This bias is addressed in the section below on status identification.

Pollak (1950) has argued that a great deal of hidden female criminality exists, which he attributed in large measure to females being treated as offenders by police much less readily than men. Here again a self-fulfilling prophecy apparently operates. Given the stereotype that women commit fewer crimes than men, patrolmen less often reactively treat women as offenders than they do men; and thus fewer women than men turn out to be offenders in official eyes.

The research by Terry (1967) suggests the operation of another self-fulfilling prophecy in the reactive decisions of juvenile officers to treat problem cases as officially recognized instances of delinquency. A prior record of juvenile delinquency indicates that a case should be formally disposed of, thereby increasing the relative proportion of known recidivists among those regarded as delinquent of juveniles seen. The criterion used by juvenile officers for their decisions

becomes the basis for the rationale that more delinquents, "after all" (Garfinkel 1956), have that characteristic.

One way of posing the question of whether legitimate and respectable control has been accomplished is to ask whether control through treatment of cases as demanding law enforcement is needed. Stereotypes are learned by policemen in the course of their careers. As Rubinstein (1973, pp. 150-151) notes, the stereotypes become clearer to policemen as their experience increases. Together, the stereotypes constitute street wisdom. Certain categories of people clearly need to be treated as offenders. Why? Because they have tended to be those found likely to be offenders in the past. The reasoning is circular but powerful to the policeman who has no independent way of testing the power or of knowing the origin of the stereotypes. The stereotypes are therefore definitive of when and where the respectable and legitimate approach to control of a situation is officially to treat it as an occasion for law enforcement activity.

Particularistic Devices: Responses to Demeanor

It has been found repeatedly that those juvenile suspects whose demeanor toward the police is cooperative (see Black and Reiss 1970; Chambliss and Nagasawa 1969; and Piliavin and Briar 1964) earn more lenience from the police than do those whose demeanor shows a lack of respect (Goldman 1963; LaFave 1962; and LaFave 1965). Black (1970) found that the more cooperative complainants were with the police, the more likely were the police to report offenses. Reiss (1970, p. 51) found that patrolmen were more hostile or authoritarian and more likely to ridicule citizens of two races when "the citizens were agitated" than when they were "calm and detached." Though not all directly on point, this literature lends considerable support to citizen demeanor as a major criterion of reactive decisions by patrolmen and juvenile officers as to whether to treat situations as instances of violation of law. One New York City Police Captain who has given training to patrolmen on the handling of domestic disputes confirms that, in the case of alleged family assaults at least, patrolmen generally arrest only when they receive abuse, regardless of possible injury to other citizens.

A chain of reasoning leads to a connection between accomplishment of legitimate and respectable control on the one hand, and the demeanor of citizens toward the police on the other. The police commonly hold the plausible assumption that citizens who respect the

authority of the law are those more likely to behave in adherence to the dictates of the law. In the typical view of the policeman, he does not act as an individual, but as an agent sworn to uphold the majesty of the law before the public. If a citizen behaves disrespectfully toward the officer, the citizen is not seen by the officer as merely showing disregard to the officer as an individual. The citizen is seen as disregarding the larger authority the officer believes he represents. Thus, disrespect to the officer represents the best evidence the officer is apt to have of disrespect for the law itself—hence, of a citizen's determination not to adhere to the dictates of the law in the future.

In a few moments of contact, there is little an officer can do for long-term effect on a citizen's disposition to obey the law. Minimally, the officer can reward any manifestation of respect for him and punish any manifestation of disrespect as elementary learning theory would appear to dictate. To take a complainant seriously and thus to reward him is to treat his complaint as deserving of law enforcement activity, and vice versa. To punish a suspect is to invoke the weight of the criminal justice system against him as by arrest, and vice versa. Hence, in reactive decision-making by the police, citizen demeanor toward them is a rational criterion for choice of action most likely to accomplish legitimate and respectable control.

Particularistic Devices: Status Identification

The principle of the use of status identification as a criterion for decision-making is divisible into two parts. If the decision-maker perceives the status of a subject of his decision to be desirable, the decision-maker will act to carry out the subject's wishes as the decision-maker perceives them. If the decision-maker perceives the status of a subject to be undesirable, the decision will be to act against the perceived wishes of the subject.

Status identification does not appear to be an important factor in reactive police decisions concerning possible offenses against the person. As noted above, these decisions seem to be a function of the combined effects of reliance on self-fulfilling prophecies and citizen demeanor. Nevertheless, status identification appears to operate as a principle of decision-making in matters involving possible property offenses and juvenile status offenses. Nearly 30 years ago, Robison (1936, pp. 27-29) observed that a disproportionate share of delinquents turned out to be from poverty backgrounds because the police were more apt to ascribe wrongdoing to those from "the wrong

side of the tracks." Shortly thereafter, Johnson (1941) made similar observations about police treatment of adults, as in arrest decisions. Police discrimination against minority groups or low socioeconomic status persons in reactive police decisions has since been corroborated in a number of studies, including those by Black (1970), Bordua (1960), Cochran (1971), Goldman (1963), Kephart (1957), Skolnick (1966), and Thornberry (1973).

Some have discounted the role of racial or socioeconomic status discrimination in law enforcement. Green (1970) has taken this position, finding no racial discrimination in police arrest decisions concerning adults. He attributes the appearance of racial discrimination to "the wider distribution among Negroes of lower social class characteristics associated with crimes" (p. 488). The common association of race and socioeconomic status makes this distinction tenuous at best.

Terry (1967) found from time series data that severity and number of recorded offenses rather than race explained juvenile officers' decisions as to disposition of cases, though Thornberry (1973) found an independent effect of race or socioeconomic status on such decisions using cohort data. Terry's findings cannot stand in any event provided race and socioeconomic status determine police decisions as to whether to record offenses and as to how severe the recorded offenses are to be.

Race as associated with socioeconomic status thus appears to be a substantial factor in police decision-making. The higher the socioeconomic status of a potential suspect, the greater the probability that police at any stage of reactive decision-making will opt out of treating cases as appropriate for formal law enforcement activity. Where the racial or status identity of a potential suspect is unknown, Black's (1970) findings suggest that higher socioeconomic status complainants have the higher probability of getting the police to opt for formal law enforcement activity.

Status identification is a variant of Goffman's (1963) concept of "role distance." By setting himself in the position of adversary to those he perceives to be of low socioeconomic status, the policeman hopes not to be identified as "one of them." This author (Pepinsky 1970) has suggested that the police aspire to accomplishing such status distance by eliciting confessions from suspects. Conversely, if the policeman follows the perceived wishes of a citizen, he can hope to share an identity with the citizen that includes the citizen's perceived status. Thus, the policeman has an interest in cooperating with those citizens who appear to have a status which the policeman is satisfied with having ascribed to himself, as Black (1970) found.

In one sense, control means for the policeman working for or against those he meets. The policeman's action gains respectability from its conformity to the expectations of respectable citizens as opposed to those of the unrespectable. The action is given legitimacy by the tautology expressed by Quinney (1970). The legal order tends to express the interests of the dominant stratum (or strata) of the society. This dominant group also consists of people at the top of the socioeconomic hierarchy. Therefore, what those at the top of the order want is by definition officially legitimate, in contrast to that which is desired by those at the bottom of the hierarchy.

The Interrelationship of the Criteria of Reactive Decision-making

The development of the use of these four criteria for reactive police decision-making has not been historically traced. Deductive reasoning, however, suggests that reliance on particularistic criteria preceded that on universalistic criteria. Reactions based on demeanor and on status identification can, over a period of years, institutionalize notions of what is to be expected of a decision-maker on the one hand and institutionalize self-fulfilling prophecies on the other. As he becomes socialized into the job, the policeman learns the traditions or conventional wisdom about how the job is to be done or about who is more likely to be the real offender. The policeman's skill is demonstrated by picking up cues as to which decision is correct with less and less reliance on experiencing interaction with particular citizens. This skill or street wisdom does much to give the policeman a professional identity, just as possession of conventional wisdom gives the lawyer or the doctor a professional identity. Thus, the demand for professionalism leads the decision-maker to place credence in such universalistic criteria as expectations and self-fulfilling prophecies, and to rely on such particularistic paths to those criteria as demeanor and status identification.

Proactive Decisions: Manifesting Legitimate and Respectable Control in a Different Pattern

As far as can be seen, the police subsume proactive decisions to the same goal as that for reactive decisions. The main difference between reactive and proactive decision-making is that reliance on status

identification is not apparent in the latter case and that demeanor is used for proactive decision-making only after initial decisions to treat cases as meriting law enforcement activity. Hence, when an initial proactive decision is made for treating a situation as appropriate for law enforcement activity, the decision characteristically will be based on a universalistic criterion. The demeanor of a suspect is used only to modify such a decision in cases of traffic enforcement.

The reason for the preeminence of universalistic criteria in proactive decision-making is rather obvious. Citizens tend to resent proactive police intrusion into their lives, which restrains the policeman's proactive activity (Rubinstein 1973, p. 155). The policeman typically requires some justification for proactive law enforcement activity, and the justification must therefore precede contact with potential suspects. Since justification must come before the policeman develops particularistic relationships with potential suspects, only universalistic criteria are available for use in decision-making. The use of these criteria will be considered first in the realm of traffic enforcement and then in the realms of enforcement against what Schur (1965) has called "crimes without victims"—narcotics, morals, and organized crime offenses.

In Traffic Enforcement

Most traffic stops are a matter of meeting expectations. Quite simply, unless a patrolman is on the way to an emergency call (Rubinstein 1973, p. 93), he is expected to stop anyone seen to commit a moving violation.

There are a couple of exceptions to this rule. If the violating driver will be too hard to catch, he is to be left alone. For example, if a car is going at high speed in the opposite direction of a patrolman on a heavily traveled street, the danger of a high speed chase with little chance of catching the offending driver is apt to lead to a decision not to pursue.

Second, there are some established conventions in various departments about tolerable violations of traffic laws (Gardiner 1969). It is unusual to stop a driver for exceeding the speed limit by a mere 5 miles-per-hour. In some areas, rolling slowly through a stop sign at a quiet intersection will be tolerated.

Thus, uniformed policemen are expected to stop traffic violators unless (a) their presence is immediately required elsewhere, (b) catching the offending driver is impracticable, or (c) the traffic offense is within tolerable limits. Nonuniformed officers seldom make traffic stops at all.

Once a stop has taken place, demeanor plays an important role in whether the policeman will "write a tag" (Gardiner 1969). This motivation is exemplified by the police handling of some traffic matters. From informal observation in the Minneapolis study (Pepinsky 1972, pp. 47-49) this is what happened during a typical interaction between a patrolman and a motorist. The motorist argued the allegation that he had violated a traffic ordinance; he was given a ticket. Even asking what he had done improved his chances of receiving a "tag." If he tried to excuse the violation (e.g., "I was having engine trouble and wanted to get to a garage without stopping"), he was more apt than not to get a ticket. If he got angry at the officer, he was very likely to get a ticket. If he asked the officer why he had not stopped the person who had run the light before him, his probability of receiving a ticket was high. If he asked the officer for his badge number he had likely earned a ticket. If he talked about his friends on the police department or in politics, he was apt to get a ticket (see also Rubinstein 1973, p. 159). If, on the other hand, he both readily admitted running the light and indicated to the officer that the officer had done the right thing in stopping him, his chances were excellent of being let off with a warning. By this conduct the motorist had signaled to the officer that the officer was in control of the situation and could legitimately do as he wished with the motorist. Similarly, if the motorist used a term of respect for the patrolman in addressing him, such as "sir" or "officer," showing a recognition of the worth of the patrolman's status, he stood a better chance of escaping the notice of violation.

One particular incident illustrated the likely fate of the deferential, respectful motorist. One of the two officers in a marked squad car saw someone enter an intersection just as the light turned red. His partner could not corroborate this, and he himself thought there was some uncertainty as to whether the motorist had actually committed a violation. The motorist pulled over. The officer who had seen the car go through the intersection got out, saying, "If he gives me any trouble, I'll tag him." The motorist got out of his car and met the officer as he approached. They talked for about a minute and then the officer waved at the motorist and returned to the squad car. He seemed a little nonplussed as he reported to his partner, "I asked the guy if he knew what he'd done and he told me, 'Yes sir, I ran the red light.' He was so honest I couldn't bring myself to write him a tag." To this observer he added, "I'll go out of my way for someone who tells me the truth, but if there's one thing I can't stand it's a guy who lies to me." This appears to have been a common attitude among the policemen observed. As a rule, then, traffic enforcement

as the product of meeting expectations turns out to be used primarily to teach apparently recalcitrant drivers a lesson in respect for the law. Perhaps this would not be the case where ticket quotas or bribery are the practice, but at present these practices seem to be limited to isolated areas.

Uniformed patrolmen assigned the responsibility of traffic enforcement are also asked to find drivers who are not driving under proper authorization from the State. This includes drivers who are driving under suspended or revoked licenses, those driving without proper car registration, and, in some jurisdictions, those driving without proof of insurance. The patrolmen may also be asked to locate drivers with warrants outstanding against them for failure to pay traffic fines, as is the case in Minneapolis.

Under these circumstances, the patrolmen need criteria for stopping some drivers who have not just been seen violating the law. For this purpose, patrolmen in Minneapolis (Pepinsky 1972) were found to rely on a self-fulfilling prophecy that seemingly had grown out of status identification. The prophecy is that minority group members driving relatively dilapidated cars are those most likely to be improperly authorized to drive or to have outstanding warrants. It may be, for instance, that white drivers of expensive new cars are as likely to be driving under suspended licenses as their counterparts, but this hypothesis remains untested. Since violators are found only among the group stopped by the police, the patrolmen can honestly say that the data "show" that minority group drivers of dilapidated automobiles are those most likely to be driving under arrest warrants or without proper authorization.

As has been mentioned, patrolmen generally abhor writing parking tickets. They will, therefore, do so only if a strong demand is made, as by (a) a sergeant, (b) a private citizen under personal duress (e.g., whose driveway is blocked), or (c) by the owner of a commercial establishment (Rubinstein 1973, pp. 46, 156-157).

In Narcotics, Morals, and Organized Crime Enforcement

Though hard data on the point are unavailable, officers in these units apparently base their decisions to enter into law enforcement activity on self-fulfilling prophecies initiated by citizen informants. The officers receive information as to identities, locations, and alleged conduct of suspects from the informants. The informants may be motivated to provide intelligence for personal power, material gain, lenience from the police, revenge, or, in rare instances, moral indignance.

Once the suspect is identified, if his alleged conduct meets departmental expectations as to which conduct is worthy of police attention, it is practically foreordained that the officers of the specialized unit will do their best to gather evidence for his or her arrest and prosecution. Bribery or further intelligence from the suspect may alter this course of action, but there are insufficient data to analyze decision-making in these contingencies.

Otherwise, rumor has it that there is but one other exception to this pattern of police activity. In some areas, morals squad officers are said to work out "understandings" with known prostitutes. Periodically, at the convenience of the prostitute, she will submit to arrest and plead guilty to a minor charge provided she is left free to ply her trade in the meantime. In this way, the morals squad officers meet a more or less formal quota of arrests of prostitutes with the prostitutes' full cooperation. This exception to the use of the self-fulfilling prophecy criterion by narcotics, morals, and organized crime officers appears to be isolated, however.

SIGNIFICANCE OF POLICE DECISION-MAKING PATTERNS

The goal now directing police decision-making is beyond reproach. If the police, charged as they are with an aspect of formal social control, succeed in convincing the citizenry and their superiors that the control is being exercised legitimately and respectably, there is no room for quarrel with their performance of their duties.

On the other hand, the bases the police use to make their decisions in pursuit of this goal remain problematic. The explicit statement of these bases makes their arbitrariness manifest. Arbitrariness in itself is no condemnation of the bases, but it begs the question: Are these bases the optimal ones for the police to use?

As stated in the introduction of this chapter, the dictates of the law are not an adequate basis for police decision-making. It is small wonder that none of the major criteria revealed in research on police decision-making is the terms of the law. The law may impose limits on police decisions, but it surely does not determine the decisions. The frames of reference of legislators and legal scholars are simply too abstract to indicate to policemen how day-to-day decisions are to be made.

Nor has any basis other than those now used by policemen presented itself for adoption by the police. Therefore, as matters now

stand, the choice of bases for decision-making must be among the four already being used.

The use of particularistic bases is difficult to defend, probably too difficult to defend. If the policeman is to represent a higher authority than himself, then his decision to enter into law enforcement activity must transcend the state of his personal relationship to a citizen or citizens. The idea that the policeman represents a higher authority stands against his basing a decision to invoke the authority of the criminal justice system on personal feelings.

This implies that demeanor and status identification are unsatisfactory bases for police decision-making. Is a person to be deemed eligible for criminal justice penalty because he does not get along with a particular policeman? Certainly not. Is a person to be deemed eligible for criminal justice penalty because he belongs to a socioeconomic status to which the policeman does not aspire? Certainly not.

Thus, the use of universalistic devices in police decision-making is to be preferred. There is little room for agreement that it is undesirable for the police to act to meet the expectations of the citizens they serve. There is good argument that the use of self-fulfilling prophecies is unsatisfactory.

The reasoning supporting the use of self-fulfilling prophecies must be circular. The proof that matters must be treated as deserving of law enforcement activity is based on their having been so treated in the past. The reasoning leads to such police statements as, "When a black hits a black, it is not a crime because we have not previously regarded it as a crime." Minimally, an adequate basis for police decision-making must be independent of prior police decision-making. The decision may coincide with prior decisions, but it may not be founded upon them. Otherwise, one is led ultimately to subscribe to the principle that the police can act as they will without regard to others' concerns.

By process of elimination, we are led to the meeting of expectations as a criterion of police decision-making. As a result of this limitation, many police decisions to treat matters as appropriate to law enforcement activity can be characterized as illegitimate. These include practically all such decisions by members of narcotics, morals, and organized crime offenders. Among others, Morris and Hawkins (1970) concur with this conclusion. There may be a legitimate role for police to play in enforcement against these "crimes without victims," but the role remains to be demarcated.

The use of some expectations by the police is as indefensible as the use of self-fulfilling prophecies. For instance, why should a patrolman report an offense? Simply because the dispatcher expects it of him?

Because this is how things are done? Once again, the reasoning approaches circularity.

There is no dearth of abstract expectations communicated to patrolmen to guide their work. If not circular, though, the abstract expectations become ambiguous, unrealistic, or mutually contradictory when applied to concrete cases. For instance, as alluded to above, while the Minneapolis study (Pepinsky 1972) was being conducted, a team of psychologists was carrying out a program to train patrolmen as to how to respond to calls to domestic disputes. When the psychologists began to learn the details of actual cases the patrolmen faced, the psychologists quickly came to despair of meeting the challenge of goal definition. Their solution was to tell the patrolmen there was practically nothing worthwhile they could accomplish and therefore that the patrolmen had best seek to leave the domestic disputants as soon after arriving as possible. The message to the patrolmen was that they could do harm but no good, and that they had better do nothing but watch out for their personal safety and extricate themselves as quickly as they could from an untenable situation.

A lesson of experience in working with police is that instead of attempting to define expectations for patrolmen and their citizen-clients, the police and their clients will have to be equipped to define expectations for themselves. The task before the social scientist-consultant is not that of defining the substance of policemen's expectations but of defining a procedure by which expectations can be articulated and revised by those who must meet them. Thus a procedure for articulation of expectations will be discussed in the following section of the chapter.

Recommended Procedure for Articulation of Expectations of the Police

Patrolmen

There are three important considerations to bear in mind in establishing a procedure for articulation of expectations for patrolmen. First, what citizen-clients do is as important to the meeting of an expectation as is what the patrolmen do themselves. This is generally expressed by patrolmen in terms of a need for citizen cooperation. For example, if one expectation is that patrolmen catch burglars in a neighborhood, they can hardly do so without citizens watching out for burglars and calling for assistance. Or if another ex-

pectation is one of helping spouses not to fight, the spouses have to want the help for it to be given.

Second, even within one precinct, the needs and therefore the expectations for patrol service vary considerably from one district to the next, and even among parts of one district. For example, there might be a number of drunks on the sidewalk on only a couple of blocks of one street in a precinct. Therefore, the procedure should allow for patrolmen assigned to different areas arriving at different sets of expectations.

Third, the problems and hence the appropriate expectations may change in a given area from time to time, and expectations once thought viable may later prove to be inviable. For example, the children in one neighborhood may do a lot of vandalism in the summer but not in the winter. Therefore, the procedure for articulation of expectations must be permanent and continuous; it must allow for reassessment of existing expectations.

These considerations dictate that a procedure be established for patrolmen in each district to meet repeatedly with a variety of groups of citizens residing and doing business there. The question then arises as to how these meetings are to be organized.

The first problem is to locate groups of citizens and bring them to meetings. Initially, at least, it would probably be overly ambitious to create groups especially to meet with patrolmen. The history of community organization has mostly been one of frustration in attempts to stimulate citizen participation in community action. It is better to risk malapportionment of citizen representation in goal definition for patrolmen than it is to risk nonrepresentation, and so active, established groups, such as churches, schools, chambers of commerce, and political committees, should be approached to meet with patrolmen.

Most urban police departments today have community relations units. Typically, members of these units are speech-makers. Where such units exist, their members can serve as coordinators for arranging the patrolmen-citizen meetings. Where such units do not exist, they should be established for coordination purposes. Community relations officers' primary responsibilities would be to locate established citizen groups, contact their leaders, set up times and places for the meetings, and serve as informal chairmen at the meetings.

In police departments that have not already done so, manpower would need to be allocated so that two patrol units are on duty at any one time in each district. The Model City Precinct in Minneapolis provides an example of how this can be done. In each district, there

were three basic shifts of 8 hours each (not counting an extra shift to cover heavy activity in the early evening hours). Three secondary shifts overlapped the three basic ones. Thus, the early day watch began at 7:00 a.m., the late day watch at 10:00 a.m. The early middle watch began at 3:00 p.m., the late middle watch at 6:00 p.m. The early dog watch began at 11:00 p.m., the late dog watch at 2:00 a.m. The car on early day watch was on primary status from 7:00-11:00 a.m.; the car on late day watch took over primary status from 11:00 a.m. to 3:00 p.m., and so on. Thus, each car on regular patrol had primary responsibility for answering calls for 4 hours, and backup responsibility for the other four. If these cars were unable to handle emergency calls, a car was dispatched from a neighboring district.

In this situation, the backup patrolmen could have been out of service at any time without seriously impairing the capability for handling calls in any given district. Meetings with citizens could easily be scheduled for backup patrolmen to attend for a couple of hours. The benefits of potentially improved service from goal definition with citizens should outweigh the costs of taking backup patrolmen off the streets.

With citizens and backup district patrolmen in attendance at the meetings, the community relations officers would introduce discussion with one short question: "What can the patrolmen do for you citizens, and what can the citizens do for you patrolmen?" Perhaps members of a church could provide a place for patrolmen to bring public drunks for the night. Perhaps patrolmen could try to obtain portable radio units for citizen street patrols to call in police assistance. Perhaps a committee of citizens and patrolmen could develop lists of referral services for the patrolmen to use in response to various kinds of crises.

Out of the meetings, the patrolmen and the citizens should develop a sense of what they can reasonably expect from one another, and discuss how best to do what is expected. As patrolmen and citizens encounter problems with one another, they can raise the problems in the meetings with a view to resolution.

For the patrolmen-citizen process of articulation of expectations to be effective, it would have to be reflected in the reward structure of the police department. Thus, the community relations officers would be given responsibility for distilling criteria of patrol performance to correspond to the expectations of patrolmen coming from the meetings. When a community relations officer in a district could arrive at a set of operational criteria which all of the patrolmen in the district and the leaders of participating groups signed, the criteria would be placed in the personnel file of each district patrolman. The

sergeant or sergeants in the district would then be given primary responsibility for making periodic evaluations of the patrolmen, *in terms of the agreed-upon criteria only*. Hence, for example, unless the patrolmen and citizens agreed that patrolmen should make arrests for particular offenses, records of arrests for those offenses would *not* be included in the patrolmen's files. When a civil service group rated a patrolman's work and scored it on a promotional examination, the score would be based on the criteria that peculiarly arose from the police-citizen interaction in one district. If any group or any patrolman petitioned the community relations officer for a revision of the criteria, the community relations officer would be obliged to circulate the revision for possible approval and subsequent use.

Under the premise, then, that there is a need for articulation of expectations of police patrolmen, this is a proposal not of what the goals should be, but of how they should be obtained.

Members of Other Units

Members of other police units should be integrated into the procedure applied to patrolmen. Organizationally, this also calls for adoption of a version of the Syracuse team policing plan.

At a minimum, juvenile officers should be assigned to specific patrol districts under the coordination of the district sergeant. Whenever the patrolmen (who are the generalists) in their meetings with citizens reach matters concerning juvenile officers or detectives, the patrolmen should call these specialized officers to attend the meetings and negotiate reasonable expectations with the citizens. As with the patrolmen, these expectations should be adopted as criteria of job performance for the juvenile officers and detectives.

It has been suggested already that there appears to be no legitimate role for members of specialized units, such as those dealing with narcotics, morals, and organized crime, to play. Initially, then, these units should be eliminated and their manpower reallocated to other assignments. Should a police-citizen group manage to develop a viable set of expectations for officers in one of the jurisdictions of crimes without victims sufficient to require the full-time attention of one or more officers, a special assignment could be created in the local team. Since the articulation of concrete expectations for these kinds of assignment is theoretically so difficult, the development of such expectations is unlikely. Special assignments for enforcement of laws against crimes without victims should probably be permanently relegated to accounts of the history of ineffective law enforcement days gone by.

CONCLUSION

This survey of police decision-making is in no sense a condemnation of the police themselves. On the contrary, the literature indicates that police generally are trying to meet the proper goal in their working—that of manifesting legitimate and respectable control over the citizenry. When the police have failed to meet this goal, it is because the citizenry they serve has not equipped them to do so. It is likely that most citizens have not bothered to think through concretely how they expect the police to meet the goal of good law enforcement, and it is certain in any event that the citizenry has not communicated such expectations to the police.

The underlying organizational problem made salient by the findings on police decision-making is not unique to the police. It is generic to bureaucracies and has long since been noted by such observers as Selznick (1943) and Blau (1955). The problem is commonly called "goal displacement." When no clear way to meet a goal is presented to a member of an organization, the member will do his best to make it *appear* as though his conduct serves the goal, though rationally the service of the goal is not demonstrable.

If there is an indictment implicit in this discussion of police decision-making, it is an indictment of a failure of planners for police departments to address themselves to removing undesirable constraints on officers' capabilities. It is manifestly unreasonable and apparently unnecessary to ask a policeman to do a job without giving him the tools he needs to perform his duties. This, above all, is the lesson taught by research findings on police decision-making.

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CHAPTER IV

Prosecution and Sentencing Decisions

DON M. GOTTFREDSON

PROSECUTION DECISIONS

Once a person has been arrested, a variety of decisions may be made before that person leaves the adjudicatory system or is sentenced. These decisions focus on whether or not to press the case—i.e., to file charges (and the specific nature of the charges) and, if the decision is to prosecute, on the degree of vigor with which to prosecute. Generally, across the country, little is known of the criteria which provide the basis for these decisions; and even careful descriptions of the processes in various jurisdictions are lacking. Worse, there is even less information available concerning the effects of these decisions, either in terms of impact elsewhere in the criminal justice system or in respect to the later criminal careers of the persons accused.

A recent study in Los Angeles County sought to demonstrate the value of such analysis and description (Greenwood et al. 1973). Concentrating on following what happens to adult felony defendants, the authors identified these basic decision points:

- (1) the decision by the District Attorney on whether or not to file felony charges; (2) the decision by the Municipal Court as to whether the defendant should be held to answer on felony charges, should be dismissed, or should be treated as a misdemeanor; (3) the offering of inducements by the prosecutor or the court to encourage a guilty plea; (4) the decision by the defendant on whether to plead guilty, to submit on the transcript, or to go to trial before a judge or jury; and (5) the finding of the court as to the defendant's guilt and the appropriate sentence. (Greenwood et al. 1973).

These authors noted that prior studies of prosecution have been generally of two types. The first includes studies based on observa-

tion of how particular matters are handled or on interviews, generally concentrating especially on areas in which wide discretion exists and how it is exercised (Greenwood et al. 1973, p. v-5). In this category they refer to Kaplan's (1965) description from his own experiences, Newman's (1966) analysis of plea bargaining, Miller's (1969) study of variation in charging practices, Grossman's (1969) description of prosecutorial discretion in Canada, and the description by Graham and Letwin (1971) of preliminary hearing procedures in Los Angeles. They assert that:

Each of these studies demonstrates that the prosecutor is allowed a broad range of discretion in performing his function; that the use of this discretion is difficult to monitor; and that there is considerable variation in how that discretion is exercised.

The second type of study depicts the flow of defendants through the adjudicatory process. Pointing out that such studies have been used to demonstrate the screening performed at each step in the process, they cite Subin's (1966), Washington, D.C. study, the President's Crime Commission (1967) study, and other studies of particular courts. A general flow model, permitting the estimation of branching probabilities at each step in the process (and associated resource requirements) has been developed by Blumstein and Larsen (1969). Such a model has considerable utility for planning and for simulation of the expected consequences of changing policies. As pointed out by Greenwood et al. (p. 5), however, the data necessary to support the use of such a model is not currently available in criminal justice agencies.

In the Greenwood study, aspects of both methods were used in order to seek to identify factors within the system that affect the treatment of individual defendants.

A notable example of the potential utility of classification methods as an aid to management in the prosecution area is found in the offices of the prosecuting attorney for the District of Columbia. Since the work load in that office (annually, allegations of 8,500 serious misdemeanors and 7,500 felonies) precludes vigorous investigation and prosecution of all persons charged, a quickly obtained daily ranking of cases was desired which would approximate the ranking to be obtained subjectively by experienced prosecutors after a careful review of the case information (Work, C.R. 1971 and Institute for Law and Social Research 1974). Based upon an extensive collection of objective data obtained for each case and preliminary study of the relations of such data items to experienced prosecutor judgments, a linear combination of scores on two dimen-

sions—offense severity and risk of new offenses—provides scores which enable the rankings desired.¹ The case rating, called an importance score, is derived from modified versions of the Sellin and Wolfgang (1964) severity scale and a scale developed originally as a parole prediction device (Gottfredson and Bonds 1961). This is one central feature of a general management information system designed to achieve a variety of goals, including:

1. The rapid identification of the more serious cases. (The approximately 16,000 cases per year which must be considered for prosecution in the District of Columbia must be handled by the United States Attorney, who serves as the local prosecutor, aided by about 75 lawyers assigned to the D.C. Superior Court (equivalent to a State court of general jurisdiction).
2. The provision of control of scheduling impediments to the adjudication of cases on their merits.
3. The enabling of "monitoring and enforcing of evenhandedness and consistency in the exercise of prosecutorial discretion." The prosecutor's policies, exercised through many assistant prosecutors, may be monitored with respect to equity concerns in areas such as:
 - "The decision not to prosecute.
 - The decision to upgrade, reduce, add to or subtract from the charges recommended by the arresting officers.
 - The negotiation and acceptance of pleas.
 - The decision to allow defendants entry into diversion programs.
 - The decision to *nolle prosequi* or dismiss a case.
 - The initiation (of), or concurrence in, case postponements."
4. Provision of a data base for research on prosecution decision-making.

SENTENCING DECISIONS

Once convicted the offender must be sentenced. The sentencing decision is at present guided unsystematically by often conflicting goals of punishment, rehabilitation, community protection, deterrence, and equitable treatment. It is a decision which must be made within constraints imposed by law and by resources (i.e., alternatives). It is a decision which must be made with little systematic knowledge of the consequences of previous decisions in similar cases. It is a deci-

¹Personal communications, William A. Hamilton and Charles R. Work.

sion which must be made in the absence of data provided systematically to assist the judge in making equitable sentencing decisions, assuring that similarly situated offenders are similarly treated in the selection of sentencing alternatives.

The problem of equity implies a classification problem. Whatever meanings are assigned the concept, "justice," it appears that there may be general agreement that the concept, "equity," is an included but not synonymous concept. Thus, justice must include equity; equity does not ensure justice. But how is equity to be determined? If it means that similar offenders, in similar circumstances, are given similar sentences, then it is clear that equity is a statistical concept of classification. As decisions become less variable with respect to a given classification of offenders, they may be said to be more equitable.

Equity, of course, is not the only goal of sentencing decisions; and sentencing also implies a number of prediction problems. The courts at present, however, typically lack information about offenders which demonstrably is related to goals of changing the offender, deterring him or others, or community protection. Such information can be provided only by followup studies to determine the consequences of the decision, alternatives based upon information systems providing careful record keeping concerning the offenders' characteristics, the sentencing dispositions, and the results in terms of the goals of the criminal justice system.

An exception to the typical lack of attention to the classification and prediction problems inherent in the sentencing process is found in the attempt of one judge (Whinery et al. 1972) to develop "predictive sentencing" procedures. The project seeks to determine and test optimal sentencing strategies among five different treatment alternatives for youths classified according to likely recidivism (in terms of repeated traffic violations) when assigned to a given treatment modality.

Although there are other exceptions and a considerable relevant literature (Borjeson 1968, pp. 173-236; Sparks 1968, pp. 129-169; Wolfgang, Figlio and Sellin 1972, pp. 218-243 and pp. 252-255), the attention given thus far to analyses of sentencing does not match the importance of the problem. *It would be difficult to find other decision problems affecting critically the liberty and future lives of large numbers of people in which decisions are made with so little knowledge of their results.*

Presentence reports, usually completed by probation officers, are employed in most jurisdictions when penalties of more than 1 year may ensue (President's Commission on Law Enforcement and Ad-

ministration of Justice 1967) and in some jurisdictions when lesser penalties are at issue (Gottfredson and McCrea 1973). Typically, these reports follow from an investigation by the probation officer. Ordinarily he or she has talked to the defendant and, possibly, family, friends, employers, or others. The report typically is intended to present a comprehensive assessment of the defendant, his life situation, and it usually includes a recommendation concerning the court's disposition. Commonly, some identifying and demographic information is included, official and defendant's versions of the offense are summarized, as is the prior criminal record. Frequently, the report includes a life history; descriptions of the defendant's home and work situations; assessments of interests, attitudes, aptitudes, and physical and mental health; and other personality assessments. All are intended to clarify the factors resulting in the defendant's present difficulty and to assist in the court's disposition decision.

The judge may be presented in this way with a great mass of data concerning the offender before him; and this may provide him an increased feeling of confidence in his decision. But, while the courts typically keep records of decisions taken, they ordinarily do not keep score on the outcomes. As a result, information on the relevance of most of the assembled case data to rational decision-making for disposition (placement) of the offender is unavailable. Thus, presented with a wealth of data never assessed for its empirical relevance to his decision problem, the judge has exhaustive data but little information.

In chapter V, Professor Wilkins discusses the nature of decisions with particular reference to sentencing. He poses a number of issues which require resolution to enable advances in understanding of sentencing and hence an opportunity for increased rationality in these key decisions.

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CHAPTER V

Perspectives on Court Decision-making

LESLIE T. WILKINS

Two kinds of problem in relation to decision-making will be considered in this chapter. The first may be thought of as concerned mainly with the "quality" of decisions and the second with the "kinds" of decisions.

THE QUALITY OF DECISIONS

There are many ways in which decisions by the courts may be considered to be similar to other kinds of decisions. It is possible to suggest similarities and differences in terms of the nature of the process of coming to a decision which may determine its quality, and it is possible to focus upon the subject matter of concern in the decision which may influence the choice of process and its relevance.

The word "decision" often is qualified by a preceding adjective or adjectival clause. We talk of rational decisions, fair decisions, significant decisions, correct decisions, or of incorrect or unfair decisions. It is, of course, difficult to say whether any of these qualifying terms suggest any change in the decision process itself. Perhaps exactly similar procedures are used by persons who, as we see it, arrive at unfair decisions as by persons who arrive at decisions which we would classify as "fair." These considerations indicate one aspect of the decision-making processes of the courts which it will be necessary to explore. Simply and in lay language, the question is whether both good and bad decisions are arrived at by the same means, or whether a difference in process can be identified.

THE KINDS OF DECISIONS

The subject matter of decisions may be another factor in determining the nature of the decision process. As an illustrative example from the particular area of the courts, consider the two kinds of decisions:

1. the decision with regard to the guilt of the person charged
2. the decision with regard to the disposal of the offender who has been found guilty (sentencing).

Are the quality and nature of the *process* of decision-making exactly similar in the two cases? Of course, the information used must be different for the two kinds of decisions, but that is not the question. The issue is whether, given an appropriate set of information (whatever that might be), that information is processed (i.e., weighed, assessed, or manipulated) in the same ways irrespective of the nature of the end product. This indicates the second main area of concern in this chapter.

WHAT IS A DECISION?

It seems important to be somewhat more specific than we might normally be in sorting out what it is we are discussing. Every layman knows what a decision is—within limits. However, while it may be simple to say that a decision has been made, it is not so simple to discuss the process of making it. A person may know that he has decided to get married, but he may not know exactly when that decision point was reached. After the decision it is clear that it has taken place. If, for example, we could ask our bachelor every second or minute, "Have you decided yet?" at each point he could answer "yes" or "no," and we would then have a fair idea as to when the decision was made. More generally we would expect the transition from "decision=no" to "decision=yes" to be somewhat slow—like the scale which tips when the weight on one side exceeds the weight on the other. The "last straw" does not strike us as having any special weight, but it is that "straw" which "causes" the scale to tip. In this analogy it would not matter in what sequence the items were placed in the scales. The identification of the last straw is a matter of no special consequence in the process; it is, nonetheless, very important in the general result.

It will be observed that we talk of decisions in various ways. The analogy of the weighing of information as though in scales is a com-

monplace with the special characteristic of being dignified as the symbolic representation used to represent the idea of justice. (The fact that justice is also blindfolded is an additional, but unrelated, symbolic consideration.) We also refer to decisions using the analogy to a journey—we arrive at a decision. This pictorial analogy again has a sequential reference: the distance traveled is increasing until we arrive at the point when we can say that a decision has been achieved. However, if we press these analogies to any extent it will be seen that there are many differences between that of the "scales" and "the journey." In a journey the sequence is important, for clearly one cannot travel the last mile before completing the first. There is another common analogy which suggests that we build up a decision—an analogy with construction. Again this use of language suggests the importance of sequence, for, as everyone knows, a building must have a sound foundation and the sequence of operations is a matter of considerable importance.

Is this merely empty philological speculation? It would seem that we must ascribe similar importance to the philological analysis, when the words we are considering relate to a "process" carried out by man, as when the words apply to objects which may be seen, touched, and directly experienced with the senses. We know, for example, that the peoples who live in the frozen regions of the north have many more words by which to describe "snow" than we have in the English language. This greater differentiation is necessary in order to communicate the conditions which are important to their day-to-day work or even to survival. In English usage we qualify the word snow by adding adjectives "hard powder," "soft wet" and so forth, as anyone who has waxed cross-country skis with the various color-coded waxes knows all too well! The fact that we have only one word for "decision," yet use a variety of analogies which present quite different images, suggests that we are somewhat uncertain as to what a decision is. If the processes of decision-making can vary as much as the analogies we use, then, perhaps there are many decision processes? If there are many different decision processes, when do we use which kind? Do some people use one kind and other persons a different kind all the time, or do we select the decision-making process according to the nature of the problem? If we select a different process of decision-making for each kind of problem, can we say anything about how many kinds of processes exist and how many kinds of problems it is necessary to distinguish in order to match the process with the problem? In our specific case, is the decision regarding determination of guilt a different decision from the decision regarding the disposition of the offender by sentencing?

The fact that we do not have more than one word for the concept of a decision leads us to treat all decisions as alike, unless we can specify otherwise. A decision is a decision no matter what the subject matter. But consider two examples of a decision (Wilkins 1973). The first, the President decides to go to war; the second, he decides to wear a pink shirt. Is the difference between the two decisions only in terms of the amount of consideration given to each? Is there a difference in the process as well as in the kinds of information which are considered? Or, to put it another way, is the difference only in terms of the time and effort given to the consideration (quantity) or are there differences in the manner or process (quality) of the consideration? We must assume, since it is necessary to use the same word—decision—to describe the decision to wear a pink shirt as we use to describe the decision to go to war, that whatever differences we may postulate are not so great as to have demanded the invention of a different word as a token of that difference. If different qualities of snow require differentiation in the verbal coding, then, had there been a noticeable difference, surely different decisions would have been similarly discriminated by modifications of the linguistic code.

CONSEQUENCES AND DECISIONS

While there is nothing which can indicate the nature of the decision-making process in the words used to denote that process, we would normally wish to discriminate between "wars" and "pink shirts" in terms of the consequences of the decision. In other words, we seem to assume that the decision has been made and to have regard to the probable outcome. Some decisions may not have serious consequences whereas others might. But we are still set with the same term for the decision process. It might seem that if we knew precisely how decisions were made where these have trivial consequences, we might consider the same facts to apply to decisions with serious consequences. But somehow it seems absurd or insulting to suggest that if we knew the manner in which the President went about weighing the decision to wear a pink shirt, we might be able to infer something about the ways in which he would weigh the information concerning the decision to go to war.¹

¹Note that the same question posed in inverse order seems to be a different question: If we knew how the President weighed the information with regard to questions of going to war, we might make reasonable inferences about how he would decide to wear a pink shirt. If, however, there is a correlation between the two processes (or if they are identical) whether the consequences are serious or trivial.

The postulation of widely different consequences (as we see them) leads almost intuitively to the rejection of the idea of an identity of process in the decisions. We tend also to resist the suggestion that while the processes may be similar to each other, in the more serious cases there may be much more of the same method in use.

We seem intuitively to require a qualitatively different procedure to satisfy our feelings about the decision-making processes when the consequences are serious.

Each key word which it becomes necessary to use as we proceed with the analysis of decision-making has a tendency to crumble under the pressure we must place upon it. We have noted that there are several analogies which are commonly used in discussing the term, "decision," and that this suggests that the meaning of the word is uncertain or that (as with our word "snow") there are many different classes of process covered by the one word. We have tried to identify possible differences by noting that the outcomes for decisions may differ and that this may be known to some degree before the decision process is begun. We have noted that there would seem to be a preference for a belief that there are differences in the quality of the decision processes themselves which are related to the postulated seriousness of the outcome. It will be necessary to take up one or two more concepts and to try to put these together with those already dealt with before we can begin taking apart the complex set and once again reduce our concern to the single idea of a "decision." This elaboration will (it is hoped) be analogous to the lepidoptera (caterpillar); the overlaying of the chrysalid and the emerging of the imago. The concept of "decision" with which we shall emerge may not be brighter or more beautiful, but it may be more useful to us in considering how decision processes may be studied and improved. It may be necessary to know with more precision what it is we are talking about if our task is to seek improvements.²

then clearly it does not matter in which way the sentence is constructed. The "less serious" cannot be more strongly correlated with the "more serious" than the inverse. If we know the process for making a serious decision (decision with expected serious consequences) we may feel more relaxed about making inferences about trivial decisions. In the one direction we require a higher level of certainty of the correctness of the inference than we require in the other. We are making decisions about our postulated decision-maker and the kinds of decisions we consider him to be making. The consequences for us of our decisions about him lead to different levels of requirements.

²This is not so much an ontological question as it is a concern to find an operational definition of "decision" and "decision processes."

INFORMATION SEARCH AND DECISION-MAKING

The making of decisions, no matter which meaning or analogy we may select to describe this process, implies a search for and a dealing with information. We weigh information and come to a conclusion, we balance the probabilities, or we may cut off discussion and force a decision. Indeed the idea of a "decision" as a termination of a process is implicit in many of the words we use, as it is in the etymological basis of the word "decision" itself. (Webster relates "decision" to the Latin *decisio*—a cutting off.) The idea of decision-making as a process is, of course, quite different from the idea of the decision as the termination of a prior process. It seems that we should know with which kind of phenomenon we are dealing.

The idea of a decision being made in the total absence of any information seems absurd. A person may act blindly in the absence of any information, but that action can hardly be described as a decision. On the other hand, if a person says that he wishes to continue to search for more information or to consider more information we would not normally characterize his state as having made a decision. He may have made an "interim decision"—but this is a provisional termination in the middle of a process. It is possible to use words in this way, but we are, it seems, postulating that at the "interim decision" stage the person is behaving as though he had seen all the information he needed—he is not in the state of having made a decision, but he is pretending that he is. The pretended situation is, then, the one we should consider as relevant to the definitions we will use.

When we think about decisions, we think of information. We assume that a quantity of information exists, in our imagination or memories or in records, files or computer tapes, or we may make direct observations (i.e., collect information) at the time we make the decision. We may, for example, observe the color of the shirt while we are also thinking about the kinds of situations we will face during the day and we will "decide" in the light of this information. We have a strategy for the search for information. We may look, we may call for a file, we may ask somebody some questions or merely stop and think. Having obtained the information, or at the same time as we are collecting it, we are processing it in some way. That is, we are relating one item to another and trying to put together the various pieces while attaching some significance to each item.³

³See Burham, R.W. in this volume for discussion of this process.

We may, in general, exercise some selection over the order in which we seek for specific items or information—what we want to see first, second or later, and, of course, we may terminate the search at any point which seems reasonable to us in the light of the information we have already obtained. We do not wish to go on collecting data when we are ready to cut off (conclude) the process.

It would seem reasonable to postulate that the strategy of information search is closely related to what we mean by "decision-making." Indeed it seems that the decision is merely a point at which we are prepared to stop searching for more data. Clearly, if we are taking a behavioral approach we might say that a person could be said to have made a decision when we observed that he stopped seeking for information. There is, however, the further point of considering the data. It may be that the processing (consideration) takes place at the same time as the collection, so that the termination of collection is the decision. It may be, on the other hand, that the processing continues after the termination of the collection of data. There are mental processes involving recall of data previously seen (an internal retrieval system) and also some form of assessment, the nature of which may vary both from person to person and from decision to decision. There is, of course, no way for us directly to observe the process of coming to a decision (i.e., of assessing the information and combining it). We may observe outcomes of decisions where the information available is controlled in some ways and make guesses as to the nature of the process. We may identify other kinds of processes which seem likely to be similar to those which the human intelligence carries out. We shall return to some of these considerations later. First we must consider the termination of the information search-and-assess phase.

CONFIDENCE IN THE DECISION

It will be remembered that when we were discussing the "trivial decision" (to wear a pink shirt) and the "serious decision," we raised the question as to whether a different process for information search and assessment might characterize decisions with different levels of consequences. It is, of course, absolutely obvious that the same kinds of information cannot be used for quite different decisions, but this does not necessarily imply that the search and retrieval methods we adopt are different, nor that the ways in which we "weigh" the information are any different. We noted that in the case of the serious decision, a higher level of confidence in any decision would be

required by any decision-maker and expected of him by any observer. This analysis needs to be qualified. It is possible to have a high degree of confidence in a decision which is just as wrong as one in which we have no confidence. Clearly, when we ask of the decision-maker that he be more confident before coming to a serious decision, we do not have in mind his subjective happiness with his decision, but some concept of the probability that the decision is correct.

The move which we have now taken into probability statements is an important one. We are saying in effect in the previous paragraph that while we expect the decision-maker to have a higher degree of belief in the correctness of any serious decision he may make, this, of itself, is not enough. We may hope that the higher degree of belief—which may be referred to as the *subjective probability for the decision-maker*—bears some close resemblance to the idea we may have of the objective probability of a correct decision.

In some cases we may be prepared to make a decision even though our level of confidence is not very high (our feeling that the decision may be wrong is not totally allayed), while in other cases we would make strong efforts to increase our level of confidence before terminating the information search or assessment processes. It appears that we may postulate an association between the degree of confidence which we wish to see in a decision and the consequences of that decision. We require a higher degree of confidence where we postulate large differences between alternative outcomes which rest upon the decision we, or others, are about to make. (This does not imply any differences in the nature of the decision processes which we might adopt). The requirement of confidence relates to the consequences (for us); that is, it concerns a projection into the future of possible outcomes to alternative decisions (one of which may be a refusal to decide). Confidence is not related to the methods of operating upon the data.

CONFIDENCE AND COMPETENCE IN DECISION-MAKING

How may a decision-maker seek to increase his level of confidence that a decision he may make is correct? It may be expected that in some way or another he will do more work on the problem. We might expect the level of confidence in a decision to increase as the amount of work done on the problem increases. It certainly seems unlikely that a decision-maker would express more confidence (for a decision

of the same complexity) in a case where he had done less work. The amount of work done, however, would not only relate to the degree of confidence required, but also to the perceived difficulty of the task. If a task is seen as more difficult than another, then more work would be expected to be done to achieve the same level of confidence. Thus we would expect an association between the degree of confidence and the perceived degree of difficulty of the task, so that the more difficult the task the lower the level of confidence for the same amount of work. But the relationship may not be quite as simple as that. Some experimental evidence to be examined later suggests that a different explanation may be necessary.

Let us take up the question from the point of information search. A decision-maker can, in all normal decision-making situations, terminate the information search whenever he wishes—presumably when his confidence level has reached a point which he considers is commensurate with the consequences of his decision. It is also possible to terminate the information search when the level of confidence is low, thus avoiding unnecessary work. Unless I am particularly fastidious, I would not spend much time seeking out and considering information relating to which shirt I should wear; unless, by chance, I was going for an interview for employment and I knew the interviewer to be unduly particular about shirt colors. In the first part, the level of confidence required is a matter of the personality of the decision-maker (fastidious about dress or not). In the second part it is related to the consequences for the decision-maker, as he perceives them to arise from the environment.

The wish, or requirement, to raise the level of confidence in a decision seems to be a common need. Indeed, it seems likely that under normal circumstances the search for and retrieval of information, as well as its processing in the mind, will not be terminated (i.e., in our terms, a decision will not be made) until a level of sufficient subjective certainty is reached. Whatever the situation in this case, we have not moved toward any resolution of our doubts as to whether, as a decision-maker approaches a problem which he sees as likely to have serious consequences, he adopts a different strategy of information search from the start, or whether the process of search is similar in all cases. Furthermore, if there is only one strategy of information search common to all decision-makers for all kinds of decisions, there is still the question as to whether the information obtained is dealt with (i.e., weighed, considered, or processed) in the same ways by all persons for all kinds of decisions.

It may seem that these are interesting questions to a psychologist but that they have no practical importance to judges or other deci-

sion-makers in the field of criminal justice. It is true that at the present time these questions may be little more than interesting, since each judge can determine for himself exactly how he will proceed, and he can require the probation service to pass to him information (such as the pre-sentence report) in almost any form he personally prefers. But the very large variation in the decisions made by courts are receiving more and more critical comment, often by the courts themselves (Frankel 1973). If social scientists are to assist judges and other decision-makers in the criminal justice field, and particularly if the facilities of computers are to be harnessed to the problems of sentencing, then questions of the kind we have posed above must be answered. If this is not done, and if some kinds of reasonable answers cannot be obtained, then there is a good chance that money will be wasted in providing apparatus of information retrieval for courts which is not suited to their needs. If the level of confidence required in a decision is, as we have suggested, related to the seriousness of the consequences of the decision, then perhaps there may be differences in the decision-making processes in relation to persons accused of serious or less serious crime.

DECISIONS ABOUT PERSONS

Judges, and indeed all persons in the criminal justice area as well as in many other areas, talk of making decisions about persons. We know, of course, what this phrase means, and it certainly does not mean what it says. Decisions cannot be made about individuals, but only about information about individuals. The individual may be put into prison, sent home, or other, as a result of a decision made with respect to him, but the basis for the decision can only be information which the court has about him, in some form or another. Obvious as this may seem, the consequences of this simple elaboration of the generally used language are seldom recognized. If we recognize that decisions are made about the information we have about a person, then we must accept that that information is limited in quantity and may have some deficiencies in quality.

It is often claimed, despite the limitations of the information, that decisions about offenders are decisions about unique individuals. This is in some measure true, in that it is reasonable to describe every person as "unique." But it does not follow that our decisions can be as differentiated as are the persons involved. If we wish to consider each individual as unique (as indeed he is) and to claim to deal with him as such, then it follows that there is an infinity of relevant bits

of information, since each further piece of information we obtain about the person has a probability of marking him out as different from somebody else who was similar except for this particular item of information. How many items of information do we need to be able to say (prove?) that a person is unique? Since there are an infinity of persons (or a number large enough to be considered to be infinity) then there must be an infinity of information. Even if we could measure only one thing, but accurately enough, then we could describe each person as unique in terms of only one piece of information—say, his exact height or his exact weight. There is, of course, no point in attempting to measure height or weight so accurately that each person can be described uniquely. We use a scale of measurement which is adequate for what we want to do: fit a suit, decide the height of a table, length of a bed, or whatever. In any event, and in all actual cases, the number and variety of the decisions we can make are limited, and we are wasting our time (if nothing else) if we seek information which exceeds that required to do the job. The job may be the placing of a person in a category which we see as most appropriate for him, where clearly the number of categories (or types of decisions) cannot extend too widely: certainly not to infinity! One argument against the claim that decisions must relate to the unique individual is that if we were to match the unique individual to our decisions, we would require a potentially infinite set of different (unique) decisions. But this is not the strongest argument against the absurd claim of some decision-makers to make decisions about individuals. If each person is unique, and if each decision we make about persons is also unique, then we can never learn anything from experience. No unique or once for all event can be any guide to policy (Wilkins 1962). We can only use information as a guide when we are prepared to consider similarities, not when we are emphasizing differences (uniqueness) to the exclusion of all other considerations.

The claim that every person is unique is, of course, reasonable. It serves also as a moral basis for our behaviour toward persons, for if we consider each individual as unique, then we impute to him a level of autonomy. Furthermore, if we accept the moral claim that each individual is unique, while making decisions affecting such persons on the basis of limited information, we must also accept that there is a chance that any decision we make may be wrong. (It is clearly no solution to say that we must obtain all the information about the person, because then we could still not make a decision. We would not have time.) We have to accommodate the idea of making morally acceptable (good, rational, or fair) decisions under conditions of uncertainty. This presents some difficulty since it has been customary to

consider most issues of morals on the assumption that states can be accurately defined.

A RATIONAL DECISION

We have used terms to qualify decisions, such as "good," "fair," or "rational." The idea of "fairness" will be touched upon later. The idea of "rationality" is a difficult issue, but one which can be considered to be relevant to sentencing and, indeed, to all other court decisions. Rationality has been discussed by philosophers from many different viewpoints; a rational decision, however, may be somewhat easier to define than the idea of rationality.

Statistical decision theory offers one such simple definition. We must assume that there is available a choice of possible decisions. (Clearly if only one decision is possible it is not profitable to discuss whether it is or is not rational.) Normally, there will be a choice, since it is usually possible to decide or to decide not to decide; the latter being also a decision. A body of information is also assumed to exist. It is not meaningful to discuss the idea of rationality of a decision if the decision is made in the total absence of information. Again, however, this is a trivial condition, since in order to perceive the need to make a decision we would expect some information to be available. Third, there must be some criterion or purpose in respect of the decision to be selected. Usually, this is stated in the form of something which we wish to maximize or minimize. If we do not know what we wish to achieve, it is not possible to consider the rationality of any selection among possible decisions. Thus, *a rational decision is that decision among those possible for the decision-maker which, in the light of the information available, maximizes the probability of the achievement of the purpose of the decision-maker in that specific and particular case.*

It must be noted that each rational decision is considered as a specific and single route between the information and the goal. There are, of course, decisions about decisions. It may be rational for a decision-maker to decide-not-to-decide until he has more information. This may, or may not be, in itself, a rational decision. In order to determine whether this is so, we would need to have information about the information, since the second order decision is with regard to information and not to the initial criterion. It will be seen that this procedure can go on forever—fleas have smaller fleas which bite them. The fact that an infinite series is possible does not, however, render an absurdity the use of the concept of a rational decision in

these terms. The ratio of the diameter to the circumference of a circle is also an infinite series, but we use (π) to the value which has sufficient accuracy for our purpose. It may be quite reasonable to ask questions (i.e., to seek information) about information which we are using in our decisions. Indeed, we might even claim that it is rational to do so. The method and the criterion, however, whereby we should assess information is not the same as the method or criterion we use in relation to the decision which concerned us in the first level of our consideration.

If this argument seems complex or unnecessary it may be noted that some recent research suggests that most decision-makers do, in fact, carry out a process of this kind. In coming to a conclusion by searching and weighing information, there is a transition from seeking information with respect to the decision itself to the seeking of information about the information used in arriving at the initial decision. An interim decision, say, to grant parole, will be made after the decision-maker has examined a small number of items of information. He does not stop seeking information at this point but continues to examine further data. It appears, however, that he is not relating the latter items of information to the decision criterion, but to the information upon which he based his initial (or interim) decision. If no item of information appears in the latter period of search which seems to fit badly with an item used in the interim decision, the decision is quite soon made final—the information search ceases. If on the other hand information at the later stages seems to be dissonant with some of the earlier information, the search will continue. It is far more satisfactory to see the latter search for information as relating to "information-about-information" (a checking for possible dissonance) rather than the obtaining and weighing of further data with respect to the decision itself.

ASSISTING THE DECISION-MAKER

The phenomenon described in the preceding paragraph has been made use of in a practical manner in relation to decisions of the United States (Federal) Board of Parole. The initial decision is simplified (or almost routinized) by the use of guidelines. The human decision-maker is relieved of much of the effort of making the first decision, but he is especially to be concerned with the second part of the decision process—to examine information which may suggest dissonance to the extent that, in any particular case, the guidelines should be set aside. The process of decision-making in this area can

then be improved by collecting together the reasons put forward for considering particular items of information dissonant with the guidelines and subjecting these to rigorous appraisal. The practical application of this theory has been found to be most useful to the Parole Board and has been commended in at least one court opinion (Gottfredson et al. 1973).

In re: Lupo v. Norton, and Zagardino v. Attorney General of the United States, et al. the court noted:

The issues arise because the Board, though not constitutionally required to give reasons for its decisions, *Memechino v. Oswald*, 430 F.2d 403 (2d Cir. 1970), has commendably adopted a new procedure designed to promote rationality in the decision-making process and to enhance understanding of the process by all concerned, especially prisoners. Key ingredients of the new procedure are (a) the use of a table of guidelines as an aid in deciding the appropriate length of time a prisoner should serve before being paroled, see 28, C.F.R. §2.52, and (b) a requirement that a prisoner denied parole receive in writing the reasons for the decision, see 28 C.F.R. §2.15 (c) (revised). These aspects of the new procedure are detailed in *Battle v. Norton*, 365 F. Supp. 925 (D. Conn. 1973), and *Grasso v. Norton* (D. Conn. 1974). The guideline table sets forth suggested lengths of time to be served prior to parole for various combinations of two variables, the severity of the offense and the characteristics of the offender.⁴

RATIONALITY, DIFFICULTY, AND CONFIDENCE

It may seem adequate, if we wish to know how difficult a decision is for a decision-maker, merely to ask him. Similarly, if we were to ask how confident a person felt about a decision once he had made it we might expect a useful answer. In practical situations these procedures lead to some rather peculiar results.

If we assume that the human decision-making processes are similar to those which might take place in a computer we would assume that the more difficult the task, the more work would have to be done to obtain the same level of confidence. Further, we might measure the amount of work in terms of the quantity of information examined—the more, the greater the amount of work done. We have

⁴It may be noted that the items in the variable termed here, "characteristics of the offender," consist mainly of his previous conviction record and related matters.

noted earlier that the level of confidence which a decision-maker would require before terminating the information search process would be expected to be associated with the believed consequences of any decision he might make. A decision with trivial consequences would require a low level of confidence, and hence little work, and fewer items of information would be expected to be studied. If we hold constant the level of the seriousness of the decision (consequences) we would expect the level of confidence achieved to be inversely related to the assessed difficulty. That more confidence is obtained only by more work seems a reasonable assumption.

Actual experimental results prove otherwise. As expected, decision-makers, in a sequence of interim decisions, assess their level of confidence to be increasing as the amount of information they examine is increased. They also claim, however, that as the amount of work done increases (the number of items of information examined increases) the difficulty of the decision task *decreases*! The ease with which a decision is said to be made is directly proportional to the level of confidence in the decision. It is said to be the easy decision in which there is confidence, and, as the difficulty is seen to be increasing, the confidence diminishes. It may be that the individual decision-maker is unaware of the fact that as he examines more information he is doing more work. He believes that as he examines more information the task of making a decision is progressively becoming easier. If we were to simulate the human decision-making process by the use of a computer, the greater the level of confidence we required, the more work the computer would have to do; and we might say that this would be, for the computer, a more difficult task.

It will be noted that the relationship between confidence and difficulty in decision-making is only unexpected if we assume that decision-making is a process. If we assume that all decision-makers, when involved in the actual task of decision-making, realize, as we stated in the beginning of this chapter, decision-making is not a process, but the *termination of a process*, then the rating makes sense.

In rating confidence and difficulty, the decision-makers are not considering the processes of information search but of *terminating* the information search—that is, coming to a decision. It is obvious that if we view a decision in this way it is easier to stop the process when we are confident—a positive correlation is then expected between ease and confidence. If, however, we think of decision-making as a process, then this is a very striking anomalous result.

There is still one remaining disturbing finding from the experimental work from which the results noted in the previous paragraph were derived (Wilkins 1959). All decision-makers claim that they can

deal with large quantities of information at least as easily as small quantities. The information search is continued well beyond the point at which research shows any possible utility to the continuing activity. This is a more serious error than a mere wasteful use of time and effort. Usually, it seems that persons will not voluntarily terminate the information search until they have reached the point of information overload and their expected performance has deteriorated to well below their optimal level. This is, of course, unfortunate, but not unexpected. In any continuing task how do we know that we are beginning to do badly? If we are playing any ball games, we know the exact level of our success after each stroke—there is continuous feedback. Our decision-maker, however, does not have any means for knowing, after each item has been retrieved and studied, how well he is doing in his attempts to combine the data into a rational decision. The only way in which the information searcher/decision-maker has any feedback that his performance is deteriorating is when he senses that he is beginning to be disorganized. This is an internal, subjective criterion which may function quite differently in different decision-makers. Most decision-makers are not satisfied to cease the information search in decisions regarding offenders until the number of items exceeds the memory span. The number of items of information which can be used in a decision (as Burnham in another place in this monograph has discussed) is a mere fraction of the number which can be remembered. In experiments with case data from files of offenders it appears that up to 30 items can be remembered immediately after the presentation of the information, where the recall is facilitated by a checklist in which one response is fixed as correct if the two others are also correct. This would seem to be providing almost the best conditions for recall. Individual decision-makers, however, will seldom stop their information search operations at less than 30 items, nor do there appear to be any stopping rules consciously applied. The process is terminated by a feeling that enough data has been obtained. This feeling appears to agree closely with a recognition that the information already studied is not being well organized for the purpose required. In other words, there has been some internal feedback indicating overloading or disorganization.

There are many and various research studies of decision-making and there is also a large body of theory. Much of this work is reviewed in the chapter by Burnham already mentioned. For the purpose of the present argument our position can be summarized quite simply. Decision-makers who believe that they can consider all the relevant information are deceiving themselves. Decision-makers who believe that they need only more information in order to make better

decisions are clearly incorrect. Computer salesmen who try to persuade managers, administrators, and judges that "if only they could have information at their fingertips their problems would be solved" have far too simplistic an idea of information search, retrieval, and decision-making.

Pending further research in cooperation with decision-makers in a variety of decision situations, there are few indications of how we might proceed toward improved decision-making. Clearly complex problems cannot be addressed without considerable quantities of information; yet, as we have indicated, the human information processing does not seem adequate. Complex problems must, perhaps, be broken down into dimensions or elements and then recombined after simple, less complex decisions have been made on limited sets of data. In this way the human decision-maker may not be overloaded with considerations outside the immediate concern of the particular dimension, and there is an opportunity to proceed to examine the issues one by one. However, such a process of breaking down requires a complementary method for putting together. Rules for recombination of the subproblems must also be identified. Perhaps an example of the reduction of a problem to dimensions may be given. Judicial decision-making is often concerned with the problem of the dangerous offender.

SENTENCING THE "DANGEROUS OFFENDER"

Who is the dangerous offender? What constitutes dangerousness? There clearly will be differences of opinion on these questions, but let it be assumed that there is also some general basis of agreement. For purposes of illustration let us consider that any person who has committed an act of physical violence against another person may be defined as a potentially dangerous offender. The initial act of violence may, under this formulation, be taken to be a superficial indicator of further violence. Of course nothing which can be done after the act can change the circumstances or nature of the act itself. We might wish to take the view that the only action justified with respect to the offender is that which takes account only of his *past* crime or crimes. If this view is taken, then clearly there is no point in collecting information which relates to the probable actions of the offender in the future. Most philosophies of sentencing would take a rather different view—probable future acts of violence are a consideration

in the disposition as effected through the sentence, while the seriousness of the past act is also to be taken into account. It does not follow, however, that the more serious the past act the more probable a future act. Indeed the general trend seems to be in the reverse order. It will be clear that as soon as it is acknowledged that there are two considerations (or more) in determining the disposition, the question of balancing them also appears as a problem. What may be indicated as a reasonable disposition in terms of one consideration may be reinforced by the other or may be contraindicated by it. It is possible to continue to discuss issues of complexity far beyond this point in abstract terms. But the stating of the problems does not provide a formal solution; rather, there is a tendency to think that because the issues can be stated they can be dealt with by common sense or by application of general intelligence and experience without reference to any explicated rules of analysis or combination. It does not, then, assist with decision-making research to continue to note the complex issues, but rather to examine the consequences of simple ones in the first instance.

The first question raised when the example of the dangerous offender is posed is that of whether the past offense alone provides the basis for the disposition or whether some implicit prediction of future dangerousness was involved. This is a fundamental discrimination of the possible bases for information search strategies, decisions, and moral value choices. Immediately, when attention turns to considerations of probable future states or events (and there are important differences between these which we will not discuss), the consequences of any decision also change. The past is more surely known than the future, indeed insofar as we can know the future, it is only by inference from the past or the present. Thus, if we are concerned only with the award of just punishment (without concern for the future probability of crime) we would base our moral judgment as to what constituted "just desserts" in terms of the seriousness of the criminal act and that alone, whereas if we wish to make inferences with regard to future behavior, the limitation of information to the quality of the criminal act may afford no guide. The main difference, however, is not in terms of the nature and quality of the information to be sought, but rather in terms of the nature of the decision. In the former case the decision is a moral matter; in the latter it is more akin to, say, business, scientific, technical or even mathematical decisions since the focus is upon an estimate of a probability. Once the probability is determined, there is still remaining a moral question to be determined even if the moral questions regarding the nature of the initial offense are ignored.

The technical issues raise further moral questions, because any inferences with regard to the future (e.g., probability estimates, whether intuitive or mathematical) can be incorrect in two quite different ways. Moreover, the two different kinds of error have different kinds of consequences and, hence, it would generally be accepted, two different kinds of moral issues to be balanced. A consideration of errors of prognosis will indicate the value of subdividing of problems—the dividing of errors into two kinds, known to statisticians (not surprisingly) as errors of the *first* and *second* kind!

a) Errors of *First* and *Second* kind.

A decision is wrong if we reject the hypothesis when it is in fact true and also wrong if we accept it when it is false. These two ways of being incorrect are not, however, necessarily equally wrong. That is, we may predict a particular case as being a likely recidivist and be either right or wrong, and may predict a case to be nonrecidivist and be either right or wrong. This is clear from the two-way table (table 1).

Table 1. Predicted and actual outcomes and kinds of errors

Predicted outcome	Actual outcome	
	Success	Failure
Success	(right)	(wrong)
Failure	(wrong)	(right)

It is customary to use the term "false positive" to designate those cases predicted incorrectly as becoming failures. That is, "false" applies to the direction of prediction. Alternatively, the risk of error can be seen as representing, as it often does in practice, either a consumer or a producer risk. In many situations in the criminal justice field, however, there is no opportunity for identification of the consumer risk. This is because when a prediction is made that the individual will recidivate (fail) if he is released, he will, in fact be detained in the institution; accordingly, he has no opportunity of demonstrating that the prediction was wrong—that he could succeed. When he is eventually released, if he is then successful, this fact is credited to the decision to hold him longer (i.e., for more treatment), and this was effective, thus proving the earlier decision to be correct! If on the other hand, he fails, this is direct proof that the earlier prediction was also right—he was thought to fail if released then, he was

released later and failed, and clearly the failure could not be the result of further treatment. This is a kind of Catch 22 in reverse! No matter what the outcome is in relation to the prediction, three of the four results (as noted by the cells of table 1) are assumed to reaffirm the wisdom of whatever decision is made, so long as it resulted in the offender being detained longer. Only if the offender is released and then fails (top right-hand cell of table) must the predicted outcome be considered to be an incorrect prediction. There is, thus, a built-in bias toward risk averse behavior in assessing probable outcomes.

In addition to difficulties in assessing the errors in just terms because of the confounding of predictions with decisions, there are questions of trade-off between various preferences or moral values. Some of the issues are due to the fact that prediction of future outcomes (prognosis) is an inexact science. Perhaps the most detailed and extensive study of the violent offender, which was conducted in the attempt to find a measure of violence-proneness, was that of Wenk and Emrich (1972). They studied over 4,000 young men in California, giving them a very large variety of tests and collecting data on almost every aspect of their lives. They used the best known techniques of statistical analysis to build a prediction table for violence proneness. They were not very successful. They say,

Those individuals who have the top 260 scores (of the 4,000) were classified as violent-prone, and the remainder as not violent-prone. On the first step with variable one (history of violence), twenty-eight individuals were correctly classified as violent-prone as they were also found to be in the violent sub-sample (true positives). These hits stand against 256 individuals who were misclassified. According to the prediction index, 24 persons were classified as non-violent (false negatives); and 232 persons were classified by the index as violent-prone and turned out to be non-violent (false positives).

This means that in order to ensure that about half of the persons who are in fact violent are identified in advance, the penalty is that we would also classify 9 out of every 10 incorrectly. We cannot identify the 1 among the 10 who must be classified as potentially violent because all have similar characteristics. The implications for the two classes of error (consumer/offender v. producer/decision-maker risk) are very clear in this example, and the problem of the trade-off as a moral choice is most strongly evident. How many false positives (i.e., persons who are similarly suspect) is it reasonable to incarcerate in order that we can be sure to incarcerate the true positive cases? Is it reasonable or morally acceptable to treat as dangerous 100 persons of whom 10 may be correctly assigned to the "dangerous"

category? It does not appear that it is possible to do better than to have nine false positive cases for every correct assignment if we are to catch half of those who will commit further violent offenses—that is the limit of present knowledge. If 90 persons wrongly considered as dangerous is too high a price to pay for the 50 percent insurance, then would 50 persons for 10 percent insurance be morally acceptable? If not 50 for 10, then what number represents a morally acceptable ratio between the true and the false positives? If we act at all and even if we do not, there will be some number representing this ratio. The only way to avoid treating any person incorrectly as a potentially violent offender is to treat no one at all as being potentially violent. Similarly, if we wish to incarcerate all potentially violent persons, we must incarcerate all persons, since everybody has some risk of committing a violent act!

The problem may be avoided if it is proposed that we act with respect to offenders only in terms of their past act, making no assessment with regard to future probable acts and not modifying the decision in terms of any expected behavior. This is the "just desserts" argument made by the recent book entitled *Struggle for Justice* (American Friends Service Committee 1971). If any consideration is not completely in terms of the past, then the issue of the trade-off between risks has to be faced.

It may be suggested that while an insurance against false positives should be quite high when this has regard to the normal citizen, the ratio might reasonably be reduced when persons who had already committed crimes or particularly violent crimes were concerned. This is not an unreasonable suggestion, but it sets further constraints and raises other issues which can be subdivided and considered (see table 2).

Table 2. Prior record and morally acceptable false positives

Classification of person	Level of false positives regarded as morally acceptable
(1) Nonoffender.....	(a) none acceptable.
(2) One prior, nonviolent, proved offense.....	(b) some slight reduction in the proportion of false positives (p).
(3) One prior, violent, proved offense.....	(c) value of (p) lower than that for 2(b).
(4) Two prior, nonviolent, proved offenses.....	(d) value of (p) lower than 2(b) and/or 3(c)?
(5) Two prior: one violent, one nonviolent	(e)
(6)	(f)

There is difficulty in establishing a hierarchy in the first column: Is (4) worse than (3) in all cases or only for some? Given that a hierarchy could be established for that column, there is still the issue of determining the intervals among the (p) values in the second column. Having established a hierarchy for the first column, however, it would follow that the second column should diminish in (p) values from the top entry downwards. Thus, we see that by spelling out in a specific form one set of issues, another set begins to show constraints on the values which may be accepted as rational or morally acceptable.

The analysis in the preceding paragraphs indicates what may be achieved by the process of attempting to provide models for the decision-making of judges, prosecutors, or others in the criminal justice field. At the present stage of development, the major contribution from decision theory may be in that attempting to apply it, new dimensions are forced into our thinking. Some useful models (as previously noted, see p. 71) are already being applied by the U.S. Board of Parole and much more could be done to build other models to harness the computer to assist the decision-maker. The moral issues must be clearly defined, however, even though there may not be agreement about details.

THE NEXT STEPS IN DECISION RESEARCH FOR THE COURTS

There can be no question of the judge's role being taken over by the computer! The computer could, however, take a load of the work from the judge (or other decision-maker) and free his capacities for the kinds of considerations which require human thought and assessment. Finding ways to use the computer to assist the decision-maker is not merely a matter of technology; indeed the technology seems simple. Rather, the major considerations lie in the interface between technical (or scientific) and moral (or humanitarian) principles. Moral problems need to be considered anew as they apply to contemporary society. There would seem to be a moral requirement that man should be as rational as he knows how to be; yet the field of criminal justice abounds with symbolic activity. It is indeed doubtful whether society is ready for a completely rational approach to problems of social control. Moral constraints apply to rational decisions, of course, but there is a need also to consider the relation between our moral values and the symbolic activity of criminal justice procedures.

Perhaps our main problem is that we have not been honest in our language in discussing criminal justice procedures. We have tried to believe that our actions were rational when they were mainly symbolic and we have used the language of a medical analog and confused many significant issues of equity in the process. If we were to acknowledge the symbolic elements, we might begin to understand their import and discover that they were of considerable value. The design of rational decision models in relation to computer technology forces us to use a different language from that which has served in the past, and the ambiguities in our current language appear in our attempts to translate. Furthermore, since the translation involves the communication among persons of different backgrounds, the field upon which it is focused may be enriched and advanced. No one authority in the field of criminal justice can merely delegate responsibility for certain specific areas to another; all concerned must understand the basic principles. We must be prepared to face up to the most serious problems of our time which lie in the interfaces among fields of specialization: This "no-man's-land" must be surveyed and its dangers and potential values explored.

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CHAPTER VI

Correctional Decision-making

DON M. GOTTFREDSON

After sentencing, the next critical points of decision depend, of course, upon the outcome of the sentencing process. Typically, these will include placement decisions affecting the offender's program in jail, under probation supervision, or in prison; they may include the decision whether or not to parole, and they often include determination of the length of time to be required in custody or under supervision. In each case, the decision-makers are confronted with the usual, sometimes conflicting, demands of the criminal justice system for societal protection and rehabilitation of the offender.

Decisions on the offender's program are made by probation officers, by correctional classification officers, wardens, parole board members, parole officers, and others. Like the judge, these decision-makers typically lack the basis from painstaking recordkeeping, analysis, and feedback which is requisite to a truly informed decision process.

Little work has been done toward developing classification methods for use in jails, and little systematic study has been completed which could give probation administrators an increased confidence that their charges will be provided the kind and degree of treatment most appropriate for the individuals assigned. To the extent that each jail inmate and each probationer is unique, no amount of experience can assure such confidence; but to the extent that similar persons respond similarly to differential program placements, that experience could guide future decisions and thus could improve the results of jail and probation programs.

Much more research has been done with persons sentenced to prisons or to correctional facilities for youth, and much of that has relevance to classification problems in the area of jail and probation. Except in those research studies, the word, "classification," typically refers actually, in corrections, to procedures for the assignment of persons to institutions or to institutional programs. In some systems, e.g., in California, the newly arrived prisoner is observed and studied

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intensively for a period of 2 or 3 months in a specially designed reception-guidance center facility. Such study may include interviews with the inmate which, together with materials assembled from inquiries of others, provide a basis for a brief social history. Vocational counseling may be provided and recommendations made concerning offender needs for education and training. Group and sometimes individual psychological testing may be included in the assessment procedures; sometimes they include observations of behavior in housing units, recreational facilities, and counseling sessions; and (more rarely) they include psychiatric evaluations or individual psychological diagnostic study. The objectives typically are determination of the institution in which the prisoner will serve at least the first part of his term, the degree of custody (i.e., physical security and surveillance) required, and the treatment program placements judged appropriate in terms of rehabilitative aims. In correctional systems with sophisticated treatment resources, program placement alternatives may include a wide variety of programs—each with ardent advocates with respect to rehabilitative value. For example, they may include educational regimes, vocational training for numerous occupations, group and individual counseling and psychotherapy from diverse theoretical frames of reference, occupational therapy, forestry or road camp programs, and work-furlough placements. The data collected to aid in these decisions are sometimes painstakingly compiled with careful accuracy. Ordinarily, however, there is little evidence of the validity of the data in terms of any objectives of the correctional process. Hence, again, much data, little information.

There are, indeed, beliefs among correctional staff responsible for these decisions in the validity of certain kinds of data in predicting program outcomes. Such beliefs are most usefully regarded as hypotheses to be tested through followup studies. Those found valid can be retained and used in educating other decision-makers, hopefully to increase the likelihood of helpful program placements. Those not supported by the evidence can be rejected. Without such a process of systematic study and feedback to the decision-makers, improvement in the decisions cannot be expected. That which was reasonably supposed, assumed, or thought likely is apt to be taken increasingly as that which is supported by evidence—indeed, to be mistaken for fact. Presumptions concerning relations of offender data to desired outcomes may in time achieve the status of folklore. These concepts may provide a basis for implicit classification models. Thus, implicit classification methods based on tradition and folklore may become the chief tools of the correctional decision-maker.

DECISION-MAKING IN THE CRIMINAL JUSTICE SYSTEM

Many useful starts toward more explicit and reliable classification methods have been made; and validation studies—with respect to a variety of correctional purposes—have begun to be reported. An excellent discussion by Warren (1971) (including many useful references on this topic) has shown there is a considerable communality among many of these classification systems.

These classification methods, from psychological, sociological, or psychiatric perspectives, are not equally valuable for all purposes. Some have more direct treatment implications than others. Some are demonstrably more reliable than others. Some are more helpful in generating testable hypotheses than others. In only a few instances has the relevance of the classification for treatment placement been clearly demonstrated. Thus, the need is great for development of theoretically sound, clinically useful, testable classification systems, with enunciation of the probable etiology; for proposed treatment or control measures; and for demonstration of the effectiveness of differential treatment placements. (Grant 1961; Warren 1971; Cormier 1959; Argyle 1961; Gough and Peterson 1952; Peterson, Quay, and Cameron 1959; Sullivan, Grant, and Grant 1956; Venezia 1968; Borjeson 1967, pp. 173-236; Sparks 1967, pp. 129-169; Wolfgang, Figlio, and Sellin 1972, pp. 218-243 and pp. 252-255; Quay 1964; Grant and Grant 1959; Warren 1969, 1972.)

The importance of person classifications at each step in the correctional continuum from conviction to discharge should be emphasized (Warren 1972). To the extent that criminal justice agencies adopt goals of modifying behavior to reduce the probability of law violations, it is important to have available at each decision point (concerning placement decisions) classification information which will indicate the setting and methods most likely to achieve those goals. In the absence of any classification system, no interactions of persons by treatments on outcome measures can be observed; and there is now considerable evidence that such interactions are critically important. Warren has provided examples of such interactions based on interpersonal maturity classifications from the California Youth Authority programs (Warren 1972a). Evidence now available from this line of investigation (diligently pursued since 1957) clearly supports the central thesis of the importance of offender classification methods in treatment evaluation research. She cited a variety of other examples. A Project Outward Bound program in Massachusetts was said to be effective with one classification of delinquents but not with another (Kelly and Baer 1971). Two studies were said to demonstrate effectiveness of individual counseling programs with cases in the middle range of difficulty but not for easier or more difficult

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cases (Berntsen and Christiansen 1965). A study of group therapy was reported to have shown a differential impact on persons in various offense categories (Clanon and Jew 1969).

Offenders are not the only proper subjects for classification efforts. Other components of intervention strategies may be classified also; as Warren suggests, these may include environmental settings, workers (treaters), and treatment methods (Warren 1972a p. 12). One may then proceed to seek to sort out the optimal "matches" for greatest effect in terms of desired outcomes. Reviewing studies of correctional treatment in community settings, Warren (1972b) cited current research reported by about 125 persons in 25 countries (including investigations in 25 of the United States). She concluded that two general movements can be observed in these studies, which involve "increasing differentiation of the 'who' and the 'what' of correctional programs." The "who" question refers to increased concern with offender characteristics and with their relation to "what will be required to get him out of the correctional system permanently." The "what" question points to increased attention to "studying various treatment elements and their contribution to outcome."

Parole is an area of corrections which provides a good basis for discussion of our presently limited knowledge of decision-making and of the contributions and limitations of classification and prediction methods.

Parole in the United States evolved from "tickets of leave" which had been used in England, along with indeterminate sentences within a fixed range, since 1853 and since 1840 in a program of transporting prisoners from England to America in accordance with English law of 1597 (Newman 1968, pp. 19-20; Rubin 1963, p. 33). At the organizational meeting of what is now the American Correctional Association, a principle involving classification was adopted, apparently having grown from a system of marks (for good conduct and achievement in education and industry) as a basis for tickets of leave with community supervision. The principle stated,

... The progressive classification of prisoners based on characteristics and worked on some well-adjusted mark system should be established in all prisons above the common jail (Lindsay 1925-1926).

Thus, a century ago, American correctional leaders were urging a careful, systematic classification of offenders by their characteristics and progress in correctional programs. The examples below represent but slow progress toward this objective through a long line of research efforts.

A brief look at the history of these studies, aimed at parole prediction, shows that they began about 50 years ago (Mannheim and Wilkins 1955; Simon 1971). Warner's (1923) study of items related to parole success and failure was continued by Hart (1923) who suggested combining items into a single score, a task apparently first performed by Burgess (Burgess, Bruce, and Harno 1928).

The next three decades saw the further development of these efforts in the United States. The Gluecks published eight volumes on the topic between 1930 and 1950 (Glueck and Glueck 1930, 1934a, 1934b, 1937, 1940, 1943, 1945, 1950). Meanwhile, probationers were studied in Minnesota (Monachesi 1932), attempt was made to validate Burgess' results (Tibbits 1931), jail recidivists were studied (Argow 1935), and those from a correctional school (Fenton 1935); the use of inmate hunches regarding the parolability of their fellow prisoners was investigated (Luane 1936), further work on prediction was done (Ohlin 1951), and closely related studies were published (Caldwell 1951; Reiss 1949; Witmer and Powers 1951). Attempts were made to validate the Glueck tables with other groups—for example, with children with behavior problems.

Related research was completed meanwhile in Europe. Mannheim finished a similar study in England and a later one with Wilkins (Mannheim and Wilkins 1955).

These studies led to parole prediction efforts in California beginning in 1958 (Gottfredson 1959). The primary motivation for these attempts was not to provide assistance in individual decision-making; rather, a classification tool was sought with a potential use in studies of effectiveness of treatment and in program planning (Mannheim and Wilkins 1955; Wilkins 1961). The methods developed and tested for adult male and female prisoners and for confined youth have demonstrated validity for samples released in different years, to different geographical areas, in different seasons of the year, from different institutions, in different jurisdictions (Gottfredson and Beverly 1962; Havel and Sulka 1962; Gottfredson, Wilkins, and Hoffman 1972).

These instruments for classification of offenders according to a specific predictive purpose have been found useful for the research purpose intended (Gottfredson 1965) as well as for practical applications to program planning problems. Illustrations of the latter use show how classification study results may be incorporated into administrative decisions which in turn affect individual decisions.

One application sought to alleviate problems of prison overcrowding and increased confinement costs. The prison administration, through its research division, screened the entire confined population

of California's prisons (more than 20,000 persons) first by base expectancy (parole prediction) scores, then by further clinical criteria. The result, with both male and female prisoners, was that some persons were referred for parole consideration at a date earlier than originally scheduled; some of these were released on parole by decision of the parole board.

In a second application, minimal supervision case loads of male and female parolees were established. Persons assigned to classifications having a high probability of successful parole completion received minimal supervision. Experience demonstrated that these cases may be given less supervision with no increase in the parole violation rate (Havel 1963). This enabled parole workers to deploy their forces from areas where help was less needed to concentrate efforts to where it might be more helpful.

Based upon a parole prediction device for female offenders, a new assignment and supervisory system was established (Betts 1961). The best risks received only minimal supervision, and parole agent time was redeployed to treatment-oriented supervision of judged amenable parolees and to surveillance of judged nonamenable cases.

In supervision of male parolees, the saved time was used for more intensive supervision of middle risk parolees. This was an application of a research result reporting no differences with reduced case loads in the case of good and poor risks but a favorable gain (i.e., fewer violations) with parolees in the middle risk group (Burdman 1963).

These efforts had resulted in substantial monetary savings by 1961 with no increase in parole violations. The female offender classification program reduced the institutional population and it was the opinion of correctional administrators that this program had accomplished the avoidance of the necessity to build a new women's prison.

In 1961, the California legislature approved a program based on a screening of inmates by base expectancy scores combined with programs for more intensive institution and parole services. The goal was reduction of institutional costs for nonviolent cases by release slightly ahead of the expected time (Burdman 1963). By 1963 the Department of Corrections reported to the legislature that this program had reduced the institution population by more than 840 men and women, that support savings were at least \$840,000 and that \$8½ million in capital outlay were deferred. These savings were attributed to the new program and to initial efforts by the paroling authorities to base decisions partly on base expectancy measures (Burdman 1963).

By 1969, the California Department of Corrections reported an assignment system for parolees with three classes of supervision. The program objectives were to increase community protection, improve

performance by parolees, and save institutional costs. The base expectancy measure provided a basis for the assignment procedures. The agency reported to the legislature that total prison returns for new crimes and violation of parole rules were reduced by 25 percent since the 1965 start of the program. They concluded (on the basis of base expectancy scores, incidentally, illustrating a research use of these measures) that 1,543 additional men had succeeded on parole who, on the basis of past experience, would have been expected to fail. The saving from keeping men in the community rather than in prison was estimated as equivalent to the cost of the entire population of an average-sized major prison. Savings in operating expenses were estimated at \$4½ million yearly and in construction savings at \$20 million (Parole and Community Services Division, California Department of Corrections 1969).

A quite different use of such prediction methods was illustrated recently by the United States Board of Parole (Hoffman 1973; Hoffman and Gottfredson 1973). This application called attention to the two general classes of decisions made about parole by paroling authorities: individual case decisions and paroling policy decisions. Although the latter may be assumed to set the framework within which the former are made, they generally are not stated explicitly.

Hoffman's study, in collaboration with members of the Youth Correction Division of the United States board, showed that the implicit policy could be made explicit through an analysis of practice. Judgments on three factors—offense severity, parole risk, and institutional performance—were found to account for most of the variance in parole decisions. Accordingly, guidelines were developed to combine these dimensions as a statement of general policy. Thus, for cases with average institutional adjustment, assignments to offense severity and parole prognosis (using a prediction device developed for the board) indicated the expected range of time to be served in prison before release. When decision outcomes fell outside the expected ranges, specific reasons were required of the decision-makers. Provision was made for periodic review and revision of the policy guides. Besides numerous other advantages which accrue from an explicit, clearly stated policy, it was believed that the guidelines permitted a structuring of discretion without removing it and a greater opportunity to exercise discretion in a fair and rational manner. Thus, it was argued, they contributed to improved justice by helping to ensure fairness or equity—by requiring similar sentences of offenders similarly classified with respect to relevant dimensions.

Applications such as these, as well as improved information for individual assignment decisions, can come about only when an adequate

recordkeeping, analysis, and feedback system has been established. The necessary classification studies and required assessments of the relations of offender, treatment, or environmental variables to the outcomes which define criminal justice system objectives can likewise be done only with an adequate base of data on these variables. Only in such a context can data now presumed pertinent to decisions be transformed into information actually useful in efforts to make such decisions more rational. In chapter IV Professor Burnham discusses these correctional decisions and these information needs in detail.

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CHAPTER VII

Modern Decision Theory and Corrections

R. WILLIAM BURNHAM

Corrections are a subsystem of the criminal justice system if, that is, we agree to call the chain of agencies involved in the public administration of criminal justice a "system." Some contemporary criminologists prefer to refer to "the criminal justice process" for the very reason that the features necessary for a sequence of events and procedures to be defined as a "system" are absent from the criminal justice world. I start with this point because its relevance to this chapter is more than that of an idea which is academically interesting, but in practice unimportant. For any consideration of decision-making in the correctional system must consider how this relates to, and differs from, decision-making in other sectors of criminal justice work, unless it is to be merely a descriptive account of current practice in certain respects; and this chapter is intended to be other than that.

In some respects the decisions that are to be made as a matter of routine within the correctional process are parallel to those considered elsewhere in this book. They deal with persons who have relatively little control over their immediate fate and are made by persons who have little involvement in that fate, if only on account of the numbers involved. They are made to maximize two formal objectives, which may be conflicting: The probability of "rehabilitating" the prisoner, and the dispensation of "justice" (a notoriously complex concept). These may be combined under the term "the protection of society." While these are the only objectives to be maximized, at least in formal theory, and openly professed in most of the other aspects of criminal justice work, in corrections there is a third overt objective, which again may conflict with either of the other two—the maintenance of the internal stability of the system. All who have worked in correctional or prison settings will know that the question of whether inmate X is allocated to an open institution or to a given training program depends upon the number of places available, at least as much as upon his own personal claims or needs for inclusion.

MODERN DECISION THEORY AND CORRECTIONS

Countless examples of variations on this theme can be given, and there is no need to belabor the point here. In all sectors of criminal justice work there are many more objectives which it may be intended to achieve by a given decision or decisions, but these are largely covert, and sometimes deliberately so. The recent writings on the sociology of punishment, law-enforcement and corrections provide plenty of instances, but for the moment we should simply note the point (to which I return in the proposed theoretical approach), and turn to three respects in which decision-making in correctional environments differs significantly from that activity in other criminal justice environments.

SPECIAL FEATURES OF CORRECTIONAL DECISION-MAKING

First, and already mentioned, there is the very strong effect of system constraints and requirements. All prisons are, in several senses, run by their inmates, and a regular supply of these to essential jobs, such as kitchen and the laundry, must be maintained. Thus there are two types of decision usually collapsed into one. (1) "What is the appropriate disposition for this particular inmate?" (in terms of which institution, which work assignment, which training program, etc., is the most suitable for him), and (2) "Which inmates are to be used to provide the manpower for the following essential tasks?" The problem emerges in the collapsed form as (3) "Is this inmate suitable for what he requests, and does it suit system requirements for him to be so allocated?" or more simply (4) "Can we allow him to do what he wants?" In version (4), the factors involved in "allowing" refer to both the personal qualities of the inmate (e.g., offense, violence record, intelligence, aptitude test scores) and vacancies, either open to be filled or which must be filled. Although parallel considerations may intrude occasionally into some other aspects of the system, they are exceptional and not, therefore, to be considered as a permanent and important parameter, with respect to which decision-making techniques are to be analyzed.

Second, the sheer number of decisions is different. For each passage through the system, each inmate usually is arrested once, tried once, sentenced once, paroled once, and so on. In the correctional stage, he is subject to frequent decisions which affect where he lives, what he does, and other issues which matter deeply to him. Thus in one respect correctional decision-making impinges more on an

inmate's life. But in a more important way, it matters less—for most of these decisions are reversed with relative ease; and thus, as well as having less far-reaching implications for the subsequent system career path of the individual, they are not so final. In general terms, we can characterize criminal justice decision-making, perhaps as being infrequent but momentous (for the individual), except for the correctional process wherein final importance is traded off for frequency, and a sequential for a one-off nature.

The third main difference is in the amount and type of information available to the decision-maker. The arresting police officer, the district attorney or whoever brings the charge, the court which tries, and the judge or jury who sentence will often have, or probably feel they have, a shortage of data upon which to base their decision. But what they do have is significant. Once an individual is in the correctional system, however, data about him are accumulated very rapidly, so that a great deal is known; but much of it is seemingly trivial and uninformative with regard to the particular decisions required.

INFORMATION AND DECISION THEORY

I should make clear at this point that I am following the standard information theory/decision theory practice of distinguishing between "data" and "information" by the criterion of uncertainty reduction. That is, all bits of potential knowledge which reach the decision-maker or whoever are referred to as "data." These can be classified into "information" which is that which genuinely reduces uncertainty in the decision or problem under consideration, and "noise," which is the residue. As information is defined as being specific to a particular decision or problem, any single datum, therefore, can change state from "information" to "noise" or vice versa in a change of context. No datum is ever one thing or the other by virtue of any intrinsic quality; only the use to which it is put determines its status for that moment. It will be familiar to all experienced correctional workers, again, to consider that one of the greatest problems in correctional decision-making is to distinguish between the information and the noise in the abundance of data available; in other words, to determine which are the significant data, from all available, for any specific decision.

By the middle 1960s, it had been realized by certain correctional and other criminal justice administrators, and by certain research criminologists led by Leslie T. Wilkins, the author of another chapter

in this book, that these factors required a specifically-designed response to the problems of rationalizing, or attempting to rationalize, decision-making in corrections. This requirement was, *inter alia*, to design an information and decision system which would enable a rational sequence of decisions in the specific correctional environment to be taken with optimal outcome and also to provide for the most effective and suitable interface with the information and decision systems of other parts of the criminal justice system. A detailed study of certain parts of this general problem was undertaken by the Correctional Decisions Information Project, with the help of NIMH grant RO1 MH1 4787, and the results were published in 1972 (Hill 1972).

One aspect of that study, undertaken by the present writer, was the development of a theoretical basis for constructing a rational case decision system in corrections. The results of the empirical testing of the proposed system are published in appendix E to *Correctionnetics*, but the theoretical background was not included as that publication is primarily for direct practical application. However, the theoretical study revealed a great deal of highly significant information concerning the structuring of decision-making systems and the information flow with which they work, and a summary of that study is what follows. Its application and relevance, therefore, are not specific to any one correctional setting, nor is the solution proposed the only one possible. Indeed, it is very likely that for certain, perhaps even most, circumstances alternative solutions are preferable; only experience will reveal that. The significance of this chapter now is that any proposed system which does not take account of the factors which are regarded as important by this theoretical study will probably encounter severe, perhaps disastrous, practical difficulties later. Thus, too, the following analysis is normative, and not descriptive; it attempts to point out what we should do to improve, and not what anyone actually does now. Likewise it is exploratory; there is no claim that this is definitive or final. Indeed, by the nature of the study, I am committed to the view that continuous inflow of information will lead to revision of our views as to what is appropriate. In the case of individual prisoners this process has to be cut off fairly quickly and some dispensation made; in the case of developing a system, not only can the continuous revision go on, but it should. What is written here in early 1974 should contain the seeds of not perhaps its own destruction, but at least its own replacement or considerable refinement within the next decade or so.

The bulk of this material is derived from the empirical research of others, mostly psychologists, and the analyses of decision theorists. It

can be dangerous to transfer the results of one experimental situation to another without qualification, and therefore I have attempted not to build extreme positions on the results of a few people working in another field. Most of the claims made have been substantiated by several workers, and the exact standing and degree of support for each assertion can be found in the original full version of this study (Burnham 1969). This study also represents what may be a growing trend in social science, that of secondary scholarship. By this I mean the practice of some social scientists, instead of pursuing individual research on a limited topic "at the frontiers of knowledge," of attempting to perceive patterns and information at the macro level in collections of micro studies done by others, perhaps in fields not normally related to the one in question and which have no obvious significance when considered in isolation.

The material to be considered consists therefore, of two different types: A summary of the empirical findings of research psychologists concerning the interaction between human decision-maker and the mode of provision of information to him and a brief summary of the most relevant parts of modern decision theory.

The summary of the findings is concerned as much with the retrieval and perception of information as with actual decision-making as such. We must appreciate, therefore, that any distinction between these two processes can be a dangerous one, as they are, psychologically, so inter-related that they can be considered one process. For if it can be shown, as I think it can and will be below, that the way in which the information is presented can and often does affect the reaction to it of the decision-maker, then we cannot consider solely the latter part of the process—the formal production of the decision. For the decision may already have been made. In turn, this has implications for the style of data presentation throughout a correctional or any other system, so that we shall consider information systems and decision-making procedures as components of a process which, except for accuracy of detail and conceptual clarity, will not be decomposed more than necessary.

VARIABLES AFFECTING DECISION-MAKING

The study of the variables which affect the decision-making process, in this wide sense which I have defined and defended the term, and in which I propose to use it henceforth, highlighted two clear dimensions along which the variables could be grouped. These are labeled "operational variables," being those variables within which

behavior appears reasonably consistent across subjects, but dependent upon the environment in which they are operating, and "personality variables," being those wherein behavior varies among subjects with the operating environment held constant.

Operational Variables

The consideration of operational variables, where we are looking at the effects of change in situations external to the judge, begins with information search and the predecision processes of the decision-maker. It seems that decision-makers rarely take all the data available to them, and postexperimental discussion with my own subjects led me to believe that one of the major factors responsible is the widespread belief that to take all data is in some way a sign of a poor decision-maker; a good decision-maker is to some extent one who can manage on the smallest amount. If this belief is indeed widespread, it could be dysfunctional, perhaps severely, in many decision situations. Despite this, decision-makers do search quite extensively for information before making a decision, and the largest single determinant of the extent of the search is a feeling of uncertainty. As long as there is no predisposition on the part of the decision-maker to prefer one decision to the other (i.e., he has started to choose one alternative over the other already), this search for information will be nonselective. That is, the decision-maker will take data items he regards as most likely to have high information content, and not those most likely to support a particular outcome, no matter how weakly.

The effects of the style of presentation of data to the decision-maker have not yet been very fully researched, but one or two things seem fairly sure. First, the assumption that data should be presented sequentially, i.e., item by item discretely, may not be valid, at least for all persons and all decision situations. In some experimental situations not totally dissimilar to correctional environments, summary presentation of data led to an improvement in decision quality for a majority of the subjects. If sequential presentation is used, and this seems the most likely especially if computer-based electronic information systems become general, then the so-called "order effect" is important. To complicate matters more, it can work in one of two, mutually contradictory, ways. In some situations or with some people (this is not yet known), the decision indicated as appropriate by the earliest data items is then adhered to in the face of later counterindicative data with higher information value. At other times, the data which are given a weighting in excess of their information value are

those which occur last, immediately before the information search and/or data input is terminated. Thus, although we cannot say for sure how the style of data presentation will affect the outcome of a decision, we will be well advised to bear in mind that it will do so and it will be necessary at some stage to investigate this further.

When we move from the style of data presentation to the amount to be presented, we find a much more developed state of knowledge. This derives above all from one study done for the United States military some years ago, (Hayes 1962) and to show its relevance for the correctional situation, I will quote part of the introduction:

This report will be concerned with decisions similar to decisions involved in choosing which one of a number of cars to buy and which of several apartments to rent. Most usually in such decisions, the alternatives will differ from one another in several characteristics, and these differences must be taken into account simultaneously in making the choice. For example in choosing among alternative apartments, one may consider cost, size, appearance, convenience of location, quality of neighborhood, and possibly a number of other characteristics. The difficulty in making such decisions arises in trading the advantages of an alternative in some characteristics against its disadvantages in other characteristics. Such decisions might be described as multidimensional judgments.

It is commonly assumed that the more relevant data one takes into account in making a decision, the better that decision will be. It is clear, however, that as one takes more relevant characteristics into account for comparing alternatives, the opportunities for confusion increase. If confusion were to increase rapidly enough as the number of characteristics increased, it is conceivable that decision-makers would perform better if some of the relevant data were eliminated.

One important point to notice is the wording of the last line. The author is not merely distinguishing information from noise, but suggesting that there can be an overload of information in the strict sense.

Extensive testing, both by Hayes and others, has suggested that the maximum number of data items along different dimensions which can be processed profitably at the same time, without any formal decomposition and restructuring of the decision process, is about eight. Above that number, confusion does set in resulting in a decline in decision quality. However, it has been demonstrated also with some reliability that decision-makers seem to have a psychological need to take more than this optimal number, probably for reasons of

confidence. If this is so, perhaps what is required is extra data of a nondamaging kind, which can provide the increase in confidence necessary to bring the decision-maker to delivery without inducing confusion. At very least, we must be aware that information overload is real, likely, important, and damaging.

The number of data items required by the decision-maker before he feels himself ready to make or announce a decision is called in the technical literature the "decision criterion." There is evidence to suggest that not only does this vary with the difficulty of the decision—a borderline decision requires more data items, that is, has a higher decision criterion, than one in which all the evidence points the same way—but also with the method of information presentation. Following a period of uncertainty, where data conflicting in respect of the decision outcome they support are intermingled, any introduction of unidirectional data, all supporting the same outcome, will produce a marked drop in decision criterion. The decision-maker becomes, in fact, very ready to be persuaded.

"Feedback" is a word which has become a part of the vocabulary of every man who wishes to claim even nodding acquaintance with the world of social science and modern business methods. As with all such trend words, it has become rather diffuse in meaning. I use the term here, however, in a fairly narrow sense, as in its original cybernetic sense, as referring to the provision of information to a decision-maker as to the outcome of his previous decisions and/or effect of his previous tactics. Whenever decisions are to be made in a situation where not all the independent variables are known, that is a probabilistic one, there are two senses in which a decision can be right. It can be the decision which gives the highest theoretical probability of achieving the desired outcome, although occasionally it will fail just through being probabilistic, like backing a hot favorite which loses; or it can be the decision which in this instance gives the actual desired outcome, irrespective of the theoretical odds, like backing a rank outsider which wins. Feedback with respect to these two meanings of the term is called "correct-answer" feedback and "outcome" feedback, respectively. The first is geared to some kind of decision theory and is predicated upon an assessment of probabilities, while discounting the effects of intangible or unknown factors, such as luck. The second gives direct empirical observations without recourse to theory, and no guidance as to whether the result was achieved (or not achieved) because the chosen alternative was theoretically a good (or bad) choice, or whether this instance was an atypical minority occurrence.

Experimental evidence suggests that, although the provision of both types of feedback is helpful to decision-makers, it is correct answer feedback which is essential if decision-makers are to learn by their mistakes and so improve their performance over time. Also, it seems that, if correct answer feedback is not supplied routinely whenever the decision-makers are following an inappropriate strategy, an excessive and unnecessary amount of contraindicative information is required to persuade them to change this; and sometimes more is required than is available. Thus any system which hopes to be evaluative and self-improving must incorporate a regular correct answer feedback component.

One of the most complex, and largely unresolved, problems in the theory of decision-making concerns the level of confidence in his decision, or ability to make a good one, held subjectively by the decision-maker. The experimental evidence on it is often conflicting, and sometimes ambivalent in its significance even when not conflicting. There is no doubt that the confidence level of an individual both waxes and wanes, in various patterns, during the genesis of a decision. It is almost certain that this is affected by the style of data presentation, although the details of this are complex and unknown. Certainly, too, it is strongly affected by, and perhaps dependent on, personality factors, which are to be discussed next.

Confidence seems to correlate positively with the sample size of information taken as a proportion of the data available; but it does not correlate very much, either positively or negatively, with decision quality. That is, the degree of confidence felt by the decision-maker in his judgment is a poor indicator of the quality of his likely decision. This is not to say that high confidence necessarily increases the probability of a poor decision, but merely that it is no guide one way or the other. High confidence levels do apparently entail an inertia effect—an unwillingness to change one's mind and revise the decision, which persists long after this change should be made in accordance with the arrival of fresh information disconfirming to the original choice.

Personality Variables

Personality variables are those factors which affect the resulting decision without there being any significant change in the environment. It has been suggested that there are four main dimensions along which the workings of the minds of decision-makers can vary. Internally stored information, which is the equipment which a deci-

sion-maker brings to bear on fresh data in a problem-solving situation, can be broken down into: "data"—facts, opinions, or impressions which are traceable to identifiable sources and subject to consciously controlled analysis, "intuition"—past learning and experience, plus perhaps instinctual inheritance, which cannot be analyzed in practice, and "bias"—emotions, unconsciously compiled attitudes, etc., in no way subject to conscious control. Fourth, all men have their own cognitive styles, that is habits of intellectual manipulation and thinking in its different respects. Although researchers have found a lot of difficulty in establishing knowledge in this area, they are largely agreed that any formal models or systems of decision-making which ignore personality variables are inadequate for predicting behavior or consistently optimizing outcome. It does seem that changing one's mind and reversing a decision are more functions of personality than of operational variables; this, of course, is in agreement with the previous remarks on confidence.

There is considerable difference between the styles of data gathering used by individuals. Some ask for all, or many, items in quick succession and then ponder over the collection. Others take the items slowly and consider each one with some thoroughness before passing on to the next. There are theoretical reasons for believing that the second procedure is slightly preferable in the types of decision situation with which we are concerned in corrections.

It is only common sense to expect that the ability to make good decisions, as investigated in controlled situations where quality can be measured, is correlated with intellectual ability. Nothing can make men with poor cognitive powers outstandingly good calculators. But it seems that emotive variables, the way in and degree to which individuals are dominated by their emotions, do play an important part. They do this particularly in that they appear to control the degree to which an individual performs up to his intellectual potential; the presence of certain emotive variables may result in his falling considerably short of his intellectually optimal performance. So emotive variables, while not affecting the role of cognitive/intellectual variables as necessary condition for high decision quality, prevent their being a sufficient condition. This suggests that any information/decision system should aid the logical use of cognitive powers as much as possible while minimizing effects which may activate deleterious emotive variables.

The most important personality variable is that of abstractness or complexity of cognitive style as contrasted with concreteness or simplicity. Research workers have established without much doubt that men do vary along this dimension very significantly. Abstract think-

ers are those who have the ability to construct a conceptual approach of some subtlety and sophistication to any decision problem, considering several dimensions in probabilistic terms. Concrete thinkers are those whose conceptual structure in a decision uses few dimensions in a rather deterministic, definitely yes-or-no way. Not surprisingly, for decisions of the sort encountered in most criminal justice areas, complex decision strategies produce an overall higher level of decision quality.

It has been shown also that abstract environments, that is, a situation in which the data are so presented, and the decision-maker is prompted, to encourage a complex conceptual approach, do definitely stimulate concrete subjects. Such people will tend to regress to their simplistic approach if this stimulus is removed. Complexity of cognitive style appears to be correlated negatively with authoritarianism, dogmatism and (perhaps not too surprisingly), high decision confidence. Concrete persons use narrow information categories, require guaranteed information, and ignore incongruent, disconfirming information. They claim to need more information, but in practice use less. They cope less well with changes in the information load, and it seems probable that they suffer more quickly from information overload, without realizing it.

This chapter is concerned primarily with decision-making as an individual exercise. But a lot of correctional decision-making is performed by groups, and while all of the above is thought to have equal relevance to the group situation, there is one important difference. It seems that functioning in groups stimulates an abstract approach to decision-making and also leads to more risky decisions being taken. This could be either because the members of the group feel that their collectiveness in some way reduces their own responsibility, so that they are less pressured to play safe by taking a cautious decision, or because the members disseminate more information to each other than an individual takes alone, and more information usually leads to riskier decisions.

Training in decision-making techniques, especially in groups, apparently helps an individual to become more complex in his conceptual approach. In particular, it has been shown that training can bring a realization of greater complexity to a concrete individual who had previously not been aware of all the variables, and it can help him to construct a complex decision strategy to cope with it. By encouraging an understanding of the concept of probability, training can help individuals overcome what has been called the conservatism phenomenon. This is the fact that decision-makers are often unwilling to alter their estimates as to the probable outcome of a decision to

anything like the same extent that new information theoretically supports. For instance, if a decision-maker estimated that a desired outcome was 60 percent (or .6) likely to occur as a result of a decision to follow one of alternative strategies, and new information became available which, if analyzed theoretically, justified an increase of up to 85 percent probability of success, the decision-maker may well raise his estimate to only 75 percent. Clearly this implies that the significance of much information is likely to be missed, and our system should try to counteract this, provided that it does not lead to excessive and wild over-estimates of probability change.

The introduction of probability estimation has brought us, at the end of this section devoted to a consideration of the main operational and personality variables involved, to a brief look at one or two key concepts of decision theory.

DESIGN FOR RATIONAL DECISIONS

One of the ambitions of most contemporary social support, organizational, or control systems now is to be able to claim that they are rational—or at least to describe themselves as such. Rationality is a quality which applies, in strict logic, to sequences of action with a view to achieving a desired (though not necessarily permanent) state. One can be rational only if the boundary conditions, and range of possibilities open, are known, at least roughly. Within this framework, the decision theorists have argued fairly convincingly that the decision-maker concerned must know which of the possible outcomes he prefers, be consistent both internally in his order of preference and in considering only the outcomes which depend upon his decision, and be able to separate completely his objectives, or utilities, from beliefs, or estimates of likeliness. It is not all that surprising that empirical research has found individuals to lapse from these high standards in all but the most simple decision situations. Therefore, if a decision system in corrections, or anywhere else, is to claim itself to be rational, it must encourage those who operate in it to be consistent in their preference scales, to have a definite choice or preference, and to keep their estimates of probabilities as little influenced as possible by their preference scale, while extracting all possible information from the data.

I have introduced both the terms "utility" and "preference" because both are used by decision theorists, but they can be regarded as synonymous for our purposes. I will stay with "utility" from now on, and elaborate just a little on the concept. It may be defined

roughly as the importance we attach to a given state of affairs which could be attained, as contrasted with the importance attached to all other states which are relegated to not being as a result of choosing this one. The economic concept of opportunity cost is exactly parallel. Thus, utilities are concerned with goals, ends, or aims, and most decision situations entail the comparison among various goals. Decision theory is basically concerned with carrying out this comparison in an orderly, logical manner, and therefore will turn as far as is practicable in any given situation to the appropriate tools: numbers and quantifying techniques.

In theoretical discourse, it is easy to talk rather blandly about quantifying utilities, or estimates of probability, but in real life things are a bit different. The following quotation from a social scientist will illustrate that even academics sometimes appreciate this point (Gore 1964).

In reality, goals are always surrounded by a thick, sticky coating of ambiguity. They are presented to us in a number of different forms: regulations, aversions, concerns, purposes, and commitments are only a few examples . . . The expectations and concerns of power centres outside the organisation are also virile goals if accepted or enforceable. Permeating almost all goals are the subtle, unarticulated assumptions of society, i.e., that an agency should eventually show a social profit.

A look at even the outlines of goals in the correctional field will support this view.

The utilities involved in correctional decision-making will, inevitably, differ in detail among decisions: but they do have some features in common and these are the important ones. They are also very good examples of that class of dimensions which seems quite unsuitable for any quantification procedure. The three main utilities which are implicit, and sometimes explicit, in most policy statements by correctional agencies are justice, protection of society, and constructive treatment of the individual prisoner, or some paraphrase of these. The implication intended is that what happens to one man should be roughly parallel to whatever befalls another who has a similar transgression or record—all men should be judged by the same standard; that convicted men should be restrained from harming general society at least for the length of time spent in custody and that as much as possible should be done to bring about the resocialization of the individual prisoner, usually within the constraints of the first two concepts.

Decision theorists have pointed out how soon the maximization of one outcome reaches a point where it can be accomplished only at the expense of another outcome. These utilities are no exception. For instance, it is now widely believed in correctional circles that the more humanely and less oppressively a convicted man is treated, the better his chances of resocialization. So far there has been only a moderate amount of sound evidence to support this, but more or less none to refute it. The practical implications of this are that offenders should be placed in the community; such as on parole, or in minimum custody so far as possible. But this certainly creates problems in respect to the second utility—"dangerous" offenders may be "free"; and it is quite possible that if sufficient differentiation is made among cases, the first utility is also violated.

In addition to these overt utilities, there are secondary ones which in specific instances can be equally significant. Public opinion must be observed and perhaps respected and this becomes more pressing the more immediate the link-up of the correctional and political systems of any given country or state. There are also, as mentioned at the beginning of the chapter, utilities internal to the system—bed spaces available and requirements for prisoners to do specific skilled jobs. Thus, there will be a cut-off point where the negative value of other utilities involved exceeds the positive value of the treatment utility.

This cut-off point is a function also of the probabilities involved of a prisoner's acting in a certain way.

Another important theoretical consideration is "optimality." We want our system to help make optimal decisions, but what exactly does this mean? First of all, it does not mean that the right decision is necessarily made every time; for that to occur, and every choice produce the desired outcome, we would have to be operating in a deterministic world from which all uncertainty can be eliminated. I do not feel it necessary to argue in any detail that the correctional world is very much probabilistic, and that in it uncertainty is the one thing more sure than death or taxes. Optimality, therefore, is concerned with obtaining the decision which, on theoretical grounds from the information existing at the time, has the highest probability of producing the desired outcome. Unforeseeable factors may intervene, and the result may be different—the whole concept is parallel to the difference between correct answer and outcome feedback discussed earlier. Optimality, therefore, is like rationality in being most appropriately ascribed to a whole series of decisions over time, and an optimal decision system is that which produces the theoretically best decisions overall. Note that if we do consider a series over time, the optimal decision strategy will produce the actual greatest number of

desired outcomes compared with any other strategy. If it does not, this is one indicator that the system is indeed suboptimal.

If we are prepared to talk of optimality, however, it does have one implication for any individual decision. It asserts that, in any given decision situation, there is one choice which can be declared, on theoretical grounds, to be superior to all possible alternative decisions. That is to say, it is a claim that the decisions in question matter; that it does make a difference to select disposition A over disposition B or vice-versa. I emphasize this because there is, generally, a mood of indifference in the correctional world emanating primarily from the studies of recent years which tend to show that institutional corrections are a failure in terms of recidivism rates. That is, whatever we do to people in prison, however therapeutic the regime or constructive the training, it has no effect in terms of later criminal career. If this is the case, correctional systems should come to terms with it and either accept it, or attempt to change themselves to alter it. In either case a rational, optimal decision system is required. In the first instance the bogus goal of reduction of recidivism should be removed from the decision objectives and replaced by realistic, appropriate terms such as considerations of humanity or system requirements, and the emphasis placed on reducing commitments to institutions. In the second, such a decision system is necessary in order to monitor the effects of such reforms as may be introduced and to isolate the features of them which are responsible for any change for the better (or worse) which may be detected. Although (and this is still probably an open question) it may not matter much for recidivism what dispositions are made, it matters on other grounds. It may well be that in corrections all decisions are bad decisions. But some are worse than others, and if we are dealing with a choice-of-lesser-evils situation, the least evil is the optimal decision.

If different people make different decisions on the same case, and we accept the notion of optimality, all but one of the decisions must be nonoptimal, unless we allow that the different decision-makers are using different utilities as they have different goals. But if we do allow this, then we have removed the question from the context of a single system decision and substituted a situation of personal opinions as being equally valid, and thus no longer have a true decision situation at all. Thus optimality entails some form of consistency or agreement across decision-makers, and we wish to have as high a proportion of them as possible reaching our theoretical optimal decision.

The impact of personal values is critical. Another decision theorist has written (Hoffman 1958):

... the one great and troublesome task that must be attacked before decision theory has any general usefulness at all is that of developing a scheme by means of which people entrusted with policy in an organisation can reveal their value system for these outcomes ... and in such a way that the system is quantifiable and trustworthy.

It is very difficult to get at these values. If we simply ask the decision-maker to state what his values are, he may be prevented from answering truthfully by any of the following factors suggested by Hoffman:

1. He may have values of which he is unaware.
2. He may not have sufficient insight into his own value system to be able to state it clearly; and he may not be willing to acknowledge this, even to himself.
3. Value systems can be complex, and there may be two or more interacting in his system, which, in turn, he may not be able to communicate.
4. He may have as working values ones of which he is ashamed, and will not admit.

Thus, the decision system must do what it can to reduce the effect of distorting or hidden values in the selection of outcomes; and it has already been said that values and estimates of probabilities should be kept separate.

Therefore even a quantifying procedure involves some element of values which may not be consciously expressed; the important thing at this stage is to emphasize that decision theory invokes no more subjective evaluation than any other method of arriving at courses of action. So that, although the evaluation of outcome may seem, and be, arbitrary and subjective and lead one to question whether any of the conclusions from decision theory can be trustworthy, this is no more the case than in orthodox, feeling, intuitive decisions. It is just that the rigorous fashion in which the remainder of the problem can be handled makes this haziness stand out and perhaps reduce the likelihood of mutually concealing errors. The fact that objective techniques have been introduced to try to obtain maximum benefit for minimum cost does not entail any lack of concern for the subjects' welfare.

The main rival to a utility criterion for optimality, although not the only one, seems to be a minimax strategy and criterion. This is the strategy of minimizing the maximum loss or disadvantage which could result from a given decision outcome. The theorists have pointed out that this strategy is so conservative that it can easily be demonstrated to be suboptimal in any case except when for some par-

ticular and curious reason, no loss of any kind can be risked. Correctional systems tend to revert to a minimax strategy after any startling adverse publicity, and it is never without its advocates in the world of criminal justice; but on theoretical grounds it cannot really stand as a serious rival. The decision strategy adopted here, therefore, is a utility theory, and that forms the criterion for optimality. By this I mean specifically the proposition that a good set of decisions is a set which over a long run can be counted on to maximize the utility of the outcomes according to the values of the decision-maker, or the rationally optimal decision is that for which the expected utility is greatest. The expected utility is the product of the probability of a given outcome's occurring and its subjective utility to the decision-maker. When, as will be the case in what follows, the estimate of probability also is subjectively determined, the model is known as the Subjectively Expected Utility (SEU) model. It must be emphasized that this is intended as a normative model, structuring how decisions should be carried out, and not a descriptive one, detailing how they are (as which the SEU model is not without its critics).

The terms "probability" and "probability estimates" will occur with increasing frequency, so that some brief account of their meaning for our purposes is necessary. "Probability" is practically a subdivision of mathematics, and our concern here is with just two details. First, a rough definition: An assessment of the chances that some event x will occur. For convenience and by convention this ratio is expressed as a decimal of unity, so that a probability of 0.1 means that there is a 1 in 10 chance of the event happening; or, of the 10 units which make up the certainty of occurrence, 1 is positive and 9 are negative. This is hardly a mathematician's definition, but this paper is not written for mathematicians.

Second, where do these estimates come from? What is the guiding logic behind the choice of figures for an assessor in any given problem? There are three main types of such logic. These can be based on observations of what has happened in the past in identical cases (the frequentist school); a theoretical calculation of the relativity of various partitions of the total universe in question, which is essentially confined to mathematical situations (the symmetrist school); and individual opinion, or hunch, which may be a frequentist model modified to allow for small differences among cases, or be much less structured (the personalist school). This third form is the one which I shall be following hereafter.

Although its acceptance by statistical theorists is not complete, there exists in Bayes theorem a mathematical formula for the revision of opinion in the light of further probabilistic information. The

theorem has been best explained, perhaps, for our purposes by Ward Edwards (1963, 1965a, 1965b), upon whose analyses and proposals in a different field of information and decision problems much of the following is based. Bayes theorem deals with revision of probabilities in the light of fresh information and does so by means of odds and likelihoods. In Edwards' words:

The odds in favor of a hypothesis is simply its probability of being true divided by the probability of its being false. The likelihood ratio is the ratio of the probability that the datum would be observed if the hypothesis were true to the probability that it would be observed if the hypothesis were false.

It would not be appropriate in what is intended to be primarily a paper directed at practice, even if in theoretical terms, to go further into Bayes. Sufficient to say that the technique exists, is mathematically respectable and is appropriate for handling sequences, or separate items, of probabilistic data. Some experiments have been conducted to see whether men can be reasonable generators of probability estimates for use in a Bayesian procedure, and the results have been encouraging, although we should note that different subjects value different predictors equally, or the same predictors differently, in the situation. They also apply different weights to utilities, as we may guess. The implication here is that if a decision system is to become more rational and better-structured as it is used, it is a prerequisite that some good, rigorous assessment of how the data items used in it are valued by different decision-makers, and which items are valued with any consistency.

There are one or two points to be amplified, and one potential criticism of the conceptual basis outlined to be met before all the material is synthesized into some coherent whole. To deal with the possible objection first, this takes the form of the argument that "the concern of the decision-makers is to give what they believe to be the best decision for the particular case," and though plausible, is untrue. For the true concern of the decision-makers is to give what is the best decision in the case, as we assume there to be such a choice, and they give what they believe to be the best for only one reason: They have no other means of discovering what is the best save their own imperfect beliefs, based on whatever information, calculations, and prejudices the particular individual indulges in. Thus, the main task of any rational system is to bring it about that the estimated best decision of the decision-makers corresponds as often as possible, and more often than not, with the "real" best decision.

It may be objected that this is a false position, because in a human judgment situation there can be no "real" best decision, and each decision's optimality can be expressed only in terms of the views, utilities, and probabilities of each decision-maker. But if that is the case we do not have a genuine overall decision situation, but merely a series of personal preference scales; and time, effort, and money put into a modern information and decision system are wasted. This objection fails, however, in that there is an external, rather than personal, value scale by which all decisions are measured, and this is an undefined one emanating from society. The personal aspect of the decision problem arises only from the fact that the decision-makers are not only the individual estimators of personal probabilities, but also the individual interpreters of society's values, as its appointed representatives.

Thus, in our estimation of utility and probability, these are two quite separate elements. To some extent, all decisions are predictions; the decision to play cricket or read a book is most often a simple prediction of a meteorological future state for those to whom the personal utility, or pleasure, of the two is approximately equal. But not all decisions are only predictions, and so we have in the correctional decision situation, not a sliding scale and a constant, but two sliding scales; and yet still a criterion, however theoretical, of one best decision and inferior alternatives.

I have mentioned the desirability of having a system which is capable of some kind of self-evaluation and self-improvement, on a cybernetic model. At the moment there is no body of material which derives from the decisions made in a correctional system other than a simple statement of what they are. One substantial side-benefit of any quantification scheme, that is one which requires individual estimates of separate probabilities and/or utilities in numerical form, will be that a large and ever increasing amount of raw data will be generated on decision behavior. It should be possible to work out by moderately sophisticated research which items are most correlated with correct and incorrect decisions, in the senses of successful or unsuccessful outcomes, and which with liberal or conservative decisions. Perhaps most important, these quantifications will highlight what has been called "secondary disagreement," both in a particular situation of disagreement over a decision and in an analysis of which items overall receive the most varied weightings from individual decision-makers. Thus, a much more sharply defined area of disagreement can be specified; and this is often the first step to the resolution of such disagreement.

The end product of this collection of theoretical analysis and empirical research results, of which the above is a brief summary, is to be a series of design directives. These lay down the conditions to be met by a rational decision system, particularly if it is to take full advantage of a modern electronic data processing (EDP), i.e., computer-based, information system.

Design Directives

These design directives merely state what specific minimal performance characteristics are required of a system to the best of our knowledge at the moment. There are several alternative solutions, presumably, and the one which follows is merely the one considered to be the best example at the moment. With feedback over time, both the directives and the solution may change comprehensively or in detail.

1. The system should de-emphasize the effect of personality variables, especially emotive personality variables, in the decision process.

Because:

Personality variables are known to affect the decision process, and so produce a variety of decisions. This is not consonant with the optimality criterion.

2. The system should encourage the use of the cognitive and intellectual powers of the decision-makers, by encouraging an abstract conceptualization of the decision.

Because:

a. Abstract environments seem to stimulate concrete personalities to perform abstractly.

b. Concrete decision strategies are positively correlated with dogmatic and authoritarian conceptualizations.

c. Concrete personalities use too little information in too narrow a category width.

3. The system should be able to be used to train decision-makers in a further understanding of the complexities of their task.

Because:

a. There is evidence that subjects do respond to formal mediation training and improve their decision quality.

b. On-the-job training has usually been found to be the best method of evaluating expertise and refining its usage.

4. The system should rely as little as possible on the subjective confidence of the decision-maker.

Because:

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- a. There is evidence that low-confidence decision-makers may produce the highest quality decisions. Subjective confidence is known to correlate more closely with personality type than with the appropriateness of the decision, as justified by the quantity and quality of information processed.
- b. Subjective confidence is known to correlate more with data sample size than decision quality, but the extent of both these correlations, and especially the latter, is unknown.
- c. Judgments will be distorted by the unwillingness to change decisions when that is called for—the inertia effect—if dependent on subjective confidence.
- d. Subjective confidence is hard to measure, so that improvements in the system would be made more difficult.
5. The system should provide large enough data inventories for the decision-makers.
Because:
 - a. It seems likely that if a decision-maker has access to only a few data items, this influences his estimates of probabilities.
 - b. Men desire more information than they strictly need by Bayesian theory, and to some extent it may be psychologically helpful to supply this, provided that directive 6, following, is not violated.
6. The system should be able to avoid the effects of information overload.
Because:
 - a. It is known that the number of information items which can be processed by human decision-makers is low—almost certainly no more than eight—before a decline in decision performance commences.
 - b. With relatively low-value information items, as is usually the case in correctional decisions, as many potentially helpful items as possible should be considered.
7. The system should allow for the presentation of data to be either sequential or nonsequential, or both. At least this is true at the start, before further research can establish which if either of these presentation styles is preferable.
Because:
 - a. There is evidence that a summary presentation has some advantages.
 - b. The order effect, i.e., the question of whether the way in which the order in which the data are presented affects the decision will have to be considered.

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- c. Most data systems do use sequential presentation, and most correctional personnel are used to some version of this at the moment.
8. The system should be able to diminish the strength of the order effect, if sequential presentation is used.
Because:
This has been shown to have a marked effect on decisions, both ways, i.e., both early and late data items, especially if clustered with respect to indication of decision (significance), can in certain circumstances receive more weight than is their due. Again, this is a question about which relatively little is known at present.
9. The system should arouse the uncertainty of the decision-maker, at least, to start with, but diminish his vested interest in one decision at an early stage.
Because:
 - a. Only in conditions of uncertainty will the decision-maker search at all extensively in the data provided. That is, the system must not encourage him to decide very quickly.
 - b. Once a tentative decision has been reached, or a reason for preferring one exists, information search may become selective in a disadvantageous manner.
10. The system should generate data as to the agreement among decision-makers, among different individuals and over time, on the weighting of factors.
Because:
 - a. The accumulation of such material will provide an excellent raw data base for future research necessary for further improvement in the system.
 - b. The material so collected will be useful in the training of future decision-makers, particularly when combined with a multiple regression type analysis of the actuarial predictive value of the data.
11. The system should reproduce formally, so far as possible, the underlying informal structure of everyday decision processes.
Because:
Any structured decision process will seem strange and disconcerting to decision-makers. It will be easiest to convince them of its present value if it can be shown to be parallel to their present style of decision-making.
12. The system should produce and utilize probability and utility estimates by the decision-makers in numerical form.
Because:

- a. Only in this way can these estimates be combined mathematically.
 - b. Only in this way can they be recorded and analyzed as required by directive 10.
 - c. Any noncontrolled interaction between the two dimensions violates the principle of rationality.
 - d. The almost inevitable conflict of utilities in real life will be made clear.
 - e. Such a process produces a specific area of secondary disagreement among decision-makers, which can then be more rigorously examined.
13. The system should employ the weighting of pay-offs, that is utilities, and personal probability estimation, perhaps based on frequentist experience, and revised by an appropriate procedure.
- Because:
- a. This will allow individual judgment to the decision-maker.
 - b. Game theoretic (frequentist) models seem to be the most appropriate only where much is known and much is at stake.
 - c. Bayesian statistical procedures are now generally accepted as the appropriate formal methods for the revision of probabilities in the light of new evidence.
14. The system should encourage decision-makers to improve their estimation of probabilities and utilities
- Because:
- a. It is through such estimation that their expertise is brought to bear.
 - b. It is known that for untrained personnel this estimation is likely to be biased and naive, whether knowingly so or not.
15. The system should discourage any tendency not to be as influenced by fresh information as much as is theoretically warranted (the conservatism effect) or at least have the capacity to check for that built in.
- Because:
- The conservatism effect is known to be a distorting factor in probability estimation.
16. It may turn out to be preferable eventually for the system to use estimates of likelihoods rather than orthodox probabilities.
- Because:
- There is evidence that men tend to be better at deriving the former than the latter.
17. The system should provide considerable feedback, preferably of a correct-answer type.

Because:

- a. It is known that this type of feedback produces the greatest improvement in decision quality in controlled decision situations, where the provision of such feedback is possible.
 - b. This type of feedback is essential to any cybernetic, self-improving decision system.
 - c. Over many outcomes, this will also be outcome feedback. If this is not so, this fact is evidence of a failure or weakness in the estimation of the quantities.
 - d. This will provide decision-makers with information about other decisions, and thus, hopefully, improve decision consistency across decision-makers.
18. The system should encourage consistency across decision-makers in the hierarchy of decisions, and especially in respect of the decision criterion.
- Because:
- a. This is a necessary condition for a rational system, and so for any "just" system.
 - b. It is known that untrained personnel are erratic in their choice of decision criterion, as well as of probabilities.
19. The system should have a criterion of optimality, which entails both measurement across many outcomes and consistency across decision-makers.
- Because:
- a. In a probabilistic world, individual outcomes are too open to unpredictable, perhaps random, influences.
 - b. For optimality to be genuine, there must be one decision better than the alternatives, and for a system to be better than others, the decision-makers within it must choose correctly more often than those in other systems.
20. The value of information extracted from the data in a system is to be defined as a measure of its ability to reduce uncertainty.

Decision System Design

The search for leads to devising some kind of decision system to meet all or most of these requirements brought me, again, to the work of Ward Edwards and his associates. Specifically, the Probabilistic Information Processing (PIP) system proposed by them (Edwards et al. 1968) for use in a military decision situation—the

decision as to what defensive measures to take under conditions of uncertainty as to whether an enemy attack was imminent—seemed to have many features which one would expect in a system meeting our requirements. The basis of this is that the system structures very carefully the way in which decision-makers handle and process their information, and in the case of man-machine systems, the way in which the machine accepts estimates on individual data from the man and combines them according to set rules. Thus, the human element is not excluded, but limited to that function which it alone can perform, while irrationality in calculation is minimized. I have suggested above that eventually correctional decision-making will take place in the context of computer-based information systems, such as that in which PIP is designed to operate. But the principles of PIP can, in fact, be applied even if the information system is the traditional tatty bulging file with all the pages in the wrong order, and the rational calculation device is a pencil and paper.

One source of significant support which can be found for such an approach is the work of several eminent decision theorists (Shephard 1964), (Pratt et al. 1964), who have emphasized the fact that such a structuring is remarkably close to the way everyday decisions can be, and often are, taken. Pratt and his colleagues write:

The *essential* point is simply that the decision-maker can solve any decision problem, no matter how complex, by merely expressing his basic preferences and judgments with regard to very simple problems and then performing straight-forward computations. Whether he will feel that he can express his preferences and judgments more effectively by intuitive analysis of complex problems is another matter; but even though there is a good deal of empirical evidence to show that many practical decision-makers instinctively want to avoid the rather awful clarity that surrounds a simple decision, we nevertheless believe that most responsible decision-makers who take the trouble to train themselves to support this clarity will end by preferring to make decisions in such a way that they can see what they are doing.

Edwards and his co-authors describe the functioning of their system, and the way it handles data, as follows:

A PIP system has no advantage over a more traditional deterministic information processing system unless its special capability, the ability to accept and generate explicit numerical probabilities, is necessary to successful performance of the system mission. It is therefore an improvement over a deterministic system only if the input information is fallible, or the *relation of input*

information to output diagnostic categories is ambiguous or uncertain (my emphasis, see below), or the output is required to be in expressly probabilistic form. If one or more of these three characteristics obtains, a PIP should be superior to a deterministic system. The extent of that superiority will, of course, depend on specific matters which vary from system to system and time to time. Under some quite plausible circumstances, a PIP should be able to produce quite usable outputs, while a deterministic system would be completely baffled.

It is perhaps useful to point out that the strategy of information processing used by PIP differs in an important way from that used by deterministic information-processing systems. Most deterministic information-processing systems begin by performing an operation which might be called "cleaning up the data." In this clean-up operation, information judged irrelevant or likely to be incorrect is excluded, and a tidy, orderly display of relevant information plus first order deductions from it, (e.g., identity) is prepared. Thereafter, a deduction of the meaning of this cleaned-up information is made.

PIP works differently. It does not achieve order by throwing out information which may or may not be irrelevant or incorrect. Instead it assesses the correctness and relevance of every item that comes its way and processes them all by means of an orderly mathematical process which takes formal account of the degree of correctness and of relevance of each item of information. This orderly mathematical process produces an orderly display. But that orderly display already contains an evaluation of the meaning of the information because that evaluation was applied to each incoming item of information in the course of assessing its relevance to desired system output. So the two stages of operation of deterministic information-processing systems are completely mingled and cannot be separated in PIP.

The sentence which I have italicized in this extract seems to me to describe exactly the situation of the correctional decision-maker: We do not know the predictive or diagnostic value of any data precisely, and for quite a lot of them not at all. This suggests a priori that PIP or something similar may have a lot to offer us. It was my encounter with this proposal of Edwards that first turned my thoughts to the possibility of a system wherein human decision-makers, especially in correctional classificatory or placement decisions, provide a series of sequential assessments of the significance for good or bad of each datum, expressed in numerical terms and then these are summed and expressed as an overall probability decision by a machine.

A description of the PIP here would be inappropriate for space reasons, and it can be found in the reference given. The adaptation of it which I propose for correctional decision-making is the following sequence of stages. The parts within parentheses are explanatory comments, or discussions of points of remaining uncertainty, as distinct from the system description proper.

1. The evidence available to the decision-maker should be presented to him sequentially. (I believe that a brief summary beforehand will be helpful, and that it is still uncertain whether he should be fed the information in a set order, or be allowed to choose the order himself. On both these points further research is needed.)

2. The decision-maker should be asked to record his estimate of the significance of that piece of evidence relative to the decision in question. This estimate will first be based on the extent to which the decision-maker regards the evidence as information, and so by definition reducing his uncertainty, or "noise" and so of no further relevance. The second criterion for the estimate will be the value-judgment, or utility, content of the datum. That is, the decision-maker will express in numerical form his estimate of whether the case deserves, on moral, legal, social, or political grounds, a favorable or unfavorable disposition, and whether he deserves this strongly or only just. The third criterion will be the predictive content of the datum. That is, the decision-maker will express in numerical form his estimate of whether the case is likely to succeed in the more liberal of the dispositions for which he is being considered.

All of these estimates will be made on a scale from 0-10, with a score of 5 the neutral figure. The logic of this is that these estimates are essentially probability weightings for a Bayesian revision procedure, so that a prior probability of x is unaltered by a score of 5, which represents the ratio 5:5 and not a decimal of 0.5. Thus a favorable estimate to the prisoner is 7, 8 or 9, which stand for 7:3 8:2 9:1. It will be remembered that the posterior probability of an event was defined as the prior probability multiplied by the probability of the hypothesis being correct from the new datum over the probability of the hypothesis being incorrect.

The first criterion will merely decide whether the estimate is to be an extreme or a central one. If the datum is estimated to be of no great relevance, i.e., is mainly "noise," the estimate will be 5. If it is estimated to be moderately relevant and significant, the estimate will be 4 or 3, if adverse to the case, and 6 or 7, if favorable. If it is estimated to be very relevant and significant, the estimate will be 2 or 1, if adverse, and 8 or 9, if favorable. It is important that the first criterion be understood to have no directional signpost; it gives

guidance only as to the magnitude of the estimate, and the degree of its placing away from or at the center of the scale, and no guidance as to which end of the scale it should be.

The second and third criteria will decide the direction of the estimate. For many data items, both criteria will affect the estimate, and for some only one. (I left undecided whether it will be better to use two separate figures, or ask for a combined weighting. I have followed the latter course in my practical research because I wished to keep the structure of the decision task as simple as possible on a first run-through. In the light of subsequent research this may prove to be the poorer choice, and it certainly is not as theoretically pure.)

The score of 0 will be used only if that item, in the eyes of the decision-maker, is totally swamping in its implications, for once a zero is introduced into a multiplication process, the product is zero. Therefore a zero score implies that for some reason, moral or predictive, the decision-maker thinks it right to rule out any chance of a decision favorable to the prisoner. The converse of this is slightly different: No one factor can prove, finally and beyond all doubt, that a prisoner must morally be given and will in practice succeed in the more liberal disposition. Therefore, the score of 10 is never used, and except in quite exceptional cases, the scale to be used is 1-9.

3. These weighting estimates will be made for all the available data items which the decision-maker feels could be relevant, one after the other. (There is no need for the decision-maker to consider more than one at a time, and so he can cope with many items without information overload and has no need to feel confident to decide to stop information search.)

4. These weighting estimates, in the form of a long fraction, as which the series of ratios can be regarded, will then be multiplied out. If an EDP system is in use, the machine can be programmed to receive each estimate and revise the prior probabilities accordingly. (In a probability revision process which is essentially the multiplying of one fraction by another, the multiplication can be done as each new estimate arrives or in one long process at the end. This procedure is one reason for my using a ratio/fraction representation of probability, rather than the more normal decimal representation.)

5. In the survey of utilities in a correctional system, earlier, I wrote that it was generally considered desirable to have as liberal a disposition as possible for the prisoner, within the boundary conditions of the values of society and the probability of his succeeding therein. For each two-way decision, therefore, the decision-maker is to make his estimates relative to the more liberal alternative. Should the result of the calculation come to more than unity, the optimal decision

will be, on theoretical grounds, to grant the more liberal disposition. Should the result be less than unity, the less liberal disposition becomes the correct decision.

In cases where there are more than two dispositions, the process should be started for the most liberal, and repeated for each successively less liberal disposition, with altered weightings as the disposition becomes more severe, until a product of greater than unity is first encountered, and this disposition will be the theoretically optimal one. (In practice I think that this will not be as clumsy or long a process as it sounds.) Owing to the fact that the most conservative dispositions will always have the highest prediction for success, as one can always guarantee, for instance, that a prisoner will not misbehave on parole if he is not paroled, we are interested not in the decision which produces the highest fraction, but in the cut-off point at which the element of risk involved becomes acceptable.

Such is the system. When it is measured against the design directives, it emerges reasonably well from the comparison.

Directive 1 is satisfied, as the only respect in which personality variables could have any effect would be in the actual quantified weightings. Any personal prejudices would thus have to be aired and declared publicly for them to have any influence on the decision.

Directive 2 is reasonably satisfied, as it requires the decision-maker to consider many different data items specifically from more than one perspective and to be nondogmatic in his combination of the inferences from these.

Directive 3 is satisfied in that, with an EDP system, simulation training runs, with feedback and discussion, would very easily be possible.

Directive 4 is satisfied, as the decision-maker continues estimating until he has used all the information he considers relevant, whatever his confidence level.

Directive 5 is satisfied, for all the available evidence is presented, as in a PIP system.

Directive 6 is satisfied, for the decision-maker has to evaluate each item separately and record this weighting. After this he can forget that item and carry on, so that he does not have to carry the impact of any ever-growing number of data items in his head all at once.

Directive 7 is neither satisfied nor violated. This really concerns the information display system, but my proposed modus operandi is capable of use in either environment, and to that extent satisfies the directive.

Directive 8 should be satisfied, as, although the estimation of each weighting is bound to be influenced a little by what has gone before,

and perhaps desirably so, there is no cut-off point and each datum is considered in some isolation from the rest. This condition is brought about by the fragmentation of the decision process.

Directive 9 should be satisfied, as vested interests should not appear in an estimation situation as compared with a direct choice, and subjective uncertainty is not lowered by the weighting estimation process.

Directive 10 is satisfied as all the weightings can be recorded and verbally or statistically analyzed, especially if an EDP system provides automatic access to a computer.

Directive 11 is satisfied, as I argued with the support of the theoreticians, when describing the PIP.

Directives 12 and 13 are satisfied by the description of the system.

Directives 14 and 17 are together capable of being satisfied, in that the comparison among decision-makers, and the analysis of recorded past experience, should act as correct-answer feedback to improve decision performance.

Directive 15 is not satisfied intrinsically by the system and further research will be needed to discover whether the conservatism phenomenon is indeed a serious problem in practical, as distinct from psychophysical, situations.

Directive 16 is not satisfied and is in fact violated. It seems likely to me that the greater difficulty of understanding the concept of likelihoods rather than the more straight-forward odds, which are the terms in which correctional personnel are accustomed to think, will produce a greater decline in decision quality than the more theoretically sound likelihoods will produce improvement. This requires careful research, for it may well be either that I am wrong and considerable improvement may be possible, or that in the end it will transpire that in a situation as unrefined as correctional decision-making, this is not a significant variable.

Directives 18 and 19 are satisfied in theory, as shown in the system description and by analogy with the PIP. The system proposed is above all an attempt to render these directives in a practical form. They remain to be demonstrated satisfied in practice.

Directive 20 is satisfied by the first estimation criterion of step 2 of the proposed system.

I suggest, therefore, that this proposed system has some claim to be considered, on theoretical grounds, a rational system for individual correctional case decision-making, which satisfies most of the requirements of a normative decision theory while absorbing or avoiding a good proportion of the hazards discussed in the earlier part of the paper. Even if it is accepted as such, it will inevitably require refine-

ment, revision, and remodeling in some respects before it is operationally satisfactory.

The operational hypothesis which can be derived from this theoretical material may be expressed as follows:

A simple quantification procedure of probabilities of success and social value utilities, combined in a Bayesian manner, can be shown to produce a higher degree of consistency of decision among correctional decision-makers than the normal unstructured decision process; and for theoretical reasons, this achieved level of decision agreement will favor the optimal decision.

This hypothesis was tested through the good offices of the Adult Authority and the Department of Corrections of the State of California on three important correctional decisions. The results are published in appendix E to *Correctionnetics* cited above. In brief, we can say that the change to a formalized structured method produced no deterioration in consistency across decision-makers, and it was the opinion of most of the subjects, that, given time to get used to the new system, it would both improve their own understanding of their decision processes and contribute to clarity and consistency in the decision over time and among different personnel. The short time required to begin to adjust was also very encouraging. The smallness of the sample prevented much meaningful analysis of the significance attached to different data items, but the results were encouraging enough to stimulate further research along these lines, which is now being planned in England.

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CHAPTER VIII

Some Research Needs

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IMPORTANCE OF DECISION STUDY

It has been argued in preceding chapters that available methods of diagnosis, classification, and prediction are inadequate to provide much useful guidance to law enforcement, prosecutorial, judicial, or correctional decision-making. Although much has been learned that can contribute to such guidance, it has been suggested that the decisions taken by criminal justice functionaries throughout the system rarely can be assured to be rational. A rational decision, according to Wilkins (chapter V) "is that decision among those possible for the decision-maker which, in the light of the information available, maximizes the probability of the achievement of the purpose of the decision-maker in that specific and particular case."

It is clear that increased rationality in juvenile and criminal justice is likely to come about only after it has become possible to identify explicitly, with adequate operational definition, the specific objectives of each phase of the various parts of the apparatus designed to reduce, control, or at least cope with problems of delinquency and crime. A second requirement must be the identification and adequate description of the alternative decision choices at each step. The third necessity, about which we have perhaps the least evidence, is the requirement of information.

Information, as used here, does not refer to mere data, no matter how carefully collected nor how reliable. It refers, instead (as defined by Burnham in chapter VII) to those data which reduce uncertainty in the decision under consideration. This implies knowledge of the relation of the datum in question to the decision objectives; and this knowledge ordinarily is lacking.

It is far easier to conceptualize the information needs for more rational decision-making than to achieve them in practice. One reason is the present lack of consensus on objectives at each of the decision points which define the flow of persons through the process. Another

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is lack of knowledge generally of the relative effectiveness of the available alternatives—in terms of the objectives chosen—especially as these may differ for different classifications of persons. The third reason is that agency information systems with appropriate interfacing with other agencies in the system do not exist to provide the followup studies of persons which are essential to estimation of the branching probabilities of objective achievement along the tree of decisions.

Additional importance to study of criminal justice decisions must be ascribed by the fact that at each decision point considerable discretion by the decision-maker typically is permitted. Ordinarily, there is no explicitly stated policy to guide those decisions.

DEFINITION OF DECISION OBJECTIVES

If the decision-maker is unclear on the objectives of a given decision, that person can hardly be expected to behave rationally in the sense of maximizing the probability of achieving that undefined purpose. Given a mixed set of criminal justice goals, however, including the possibly conflicting aims of punishment, deterrence, rehabilitation, or reintegration, it cannot be surprising to find absent a consensus on objectives within or among criminal justice agencies.

Much research is needed, at each of the stages of criminal justice procedures, to more explicitly define objectives with some degree of consensus and to give operational meaning to these terms of the "rational decision" equation. This may be expected to include a good deal of measurement development work, including at least more attention to the measurement of end result concepts such as offense severity, or recidivism, but also concepts related to intermediate, or earlier, stages.

The definition and improved measurement of objectives is an obvious requisite to improved effectiveness and efficiency, but these latter values still can be attained only in terms of those definitions. The meanings assigned to the more global concept, justice, could justifiably be assigned a logically higher priority for research and search for consensus, setting the stage for derivation of intermediate objectives to be sought in its pursuit. Even in the absence of such guidance, however, it seems clear that the concept, equity, may be regarded as a necessary though insufficient condition of justice. And it has been argued that the definition of objectives, with formulation of rules for decisions with respect to specific classifications of persons, provides a plausible means for increased equity in decision-making.

Examples of lack of clarity of definition and inadequate measurement of objectives abound in the juvenile and criminal justice systems. Research is needed at each of these steps to better define the decision problem, then to cull the information from the available data by assessment of the relations of data to objectives.

Among juvenile justice procedures, what are the objectives, for example, of taking a child into custody by law enforcement personnel? Setting aside the due process issues subsequently raised by (what amounted to) arrest of Gerald Gault (U.S. Supreme Court 1967) one may ask whether the objectives to the decision problem confronting the sheriff's officer in a like situation are clear, reasonably well agreed upon, and hence permit assessment of the rationality of the decision. Was the purpose to ensure Gerald's availability to the juvenile court? If so, were alternative procedures to achieve this aim available or possible of invention? Was the "arrest" or the subsequent detention required to prevent Gerald's harming of others, himself, or running away? Much attention has been given to the constitutional issues stemming from this famous case and to the potential impact of the Court's decision on the philosophy and practice of the juvenile courts. Little attention, however, has been given to the fundamental questions which must be asked when the rationality of the decisions (of the officer or the juvenile court judge) is examined. This is not to minimize the importance of the legal issues involved; but it is to assert that these may have little to do with whether or not decisions are taken in such a way as to maximize the probability of presumed objectives of those decisions.

When it comes to the postadjudication decision for placement of the young offender, we are in a situation analogous to the sentencing of adults, and no more clear on the objectives. To argue the relative merits of *parens patriae* and criminal sanctions adds little to such needed clarification. If this is incorrect, and if, for example, the philosophy of the juvenile courts leads to assignment of a greater degree of importance to rehabilitative aims, less to punitive and deterrence goals, this does not negate the importance of specifying when and how the assessment of rehabilitation is to be made. Only when such criteria are developed can we ask whether boys in Gerald Gault's circumstance ought rationally to be placed in custody, in detention, or in the training school in addition to asking whether constitutionally correct procedures are followed.

Some of the problems to be encountered in seeking improved definitions of police decision objectives are suggested by Pepinsky (chapter III). He proposes that the police and their clients will have to be equipped to define expectations for themselves, and that "the

task before the social scientist-consultant is not that of defining the substance of policemen's expectations but of defining a procedure by which expectations can be articulated and revised by those who meet them," (p. 45). He provides a number of suggestions as how this might be done.

An example of the utility of greater clarity in decision objectives is given in the prosecution area by the project PROMIS discussed in chapter IV. Implicitly at least, the prosecutor has determined (by study of predictors of experienced prosecutor judgments) that cases to be prosecuted are those that are more serious and those that present the greater risks. Further, the inclusion of measures of these two variables in linear combination provides an explicit description of the decision policy with respect to the weighting of these determinants of the decision. In turn, the weighting of objectives may be inferred.

Whether or not the sole purpose of bail is to assure appearance of the defendant for trial is the focus of present controversy related to preventive detention. The arguments tend to focus on the traditional presumption of innocence before trial (although this is a stage in proceedings when probable cause presumably has been established) and on the lack of validity of predictions of new offenses (additional offenses?) if the person is released from confinement. Certainly, the objectives demand clarification; and in this case it may be that that must be done by the courts.

In the sentencing arena, judges are beset by conflicting societal demands for retribution, punishment, deterrence, rehabilitation, reintegration. It cannot surprise us, and we cannot blame the judges, if they are unable to clearly articulate the objectives of the individual decisions required of them. It may be possible, however, to identify the objectives which are implicit in their actions, through procedures analogous to those adopted for development of PROMIS and for the establishment of policy in the U.S. Board of Parole (discussed in chapter IV).

A further avenue toward useful research in this area, with promise of potential aid to judges in seeking a greater degree of rationality in their decisions, is suggested by Wilkins' proposal (chapter V) that it may be necessary to break down the complex process of arriving at a decision into simpler subproblems with later recombination. As his example of "Sentencing the 'Dangerous Offender'" makes clear, the objectives of sentencing may differ over various classifications of offenders.

A similar breakdown of problems into subproblems may be required in correctional placement decision-making, with similar con-

sequences for the statement of objectives. These may differ over classifications of prisoners, probationers, or parolees. Some may require secure custody and this may be, for those cases, regarded as the paramount objective. Which ones? Some may be thought to benefit, in terms of reintegration goals, from some types of probation supervision. Which ones, and what types? Some may be believed to profit, in terms of rehabilitation goals, from other placements. Which ones, what programs? Are the objectives the same for all categories of offender? Perhaps we need to differentiate not only different kinds of programs for different kinds of offenders but to articulate clearly different kinds of objectives for those combinations.

Burnham notes (chapter VII) the objective of maintenance of the internal stability of the system. How should this be taken into account in defining correctional objectives in pursuit of increased rationality in decisions? He notes also the number and frequency of decisions to which the prisoner is subject once he enters the correctional stage, particularly if a first decision results in confinement. There are many decisions to be made besides obviously critical ones such as those about parole or the length of sentence to be fixed. They include designation of the specific institution, and within that, placement in particular programs. The program goals and objectives, however, typically are notoriously lacking in definition. Rarely are these program objectives related explicitly to the more general aims of the correctional agency.

As Burnham points out further, "... it is correct answer feedback which is essential if decision-makers are to learn by their mistakes and so improve their performance over time" and "any system which hopes to be evaluative and self-improving must incorporate a regular correct answer feedback component." Obviously, the answer to "correct in what sense?" can be answered only in terms of the objectives of the particular decision.

Burnham's suggestion, however, that three main utilities are implicit (and sometimes explicit) in most policy statements by correctional agencies provides a starting point. The "justice" term in his formulation (p. 92) seems equivalent to or at least inclusive of the equity concept. The restraint and resocialization concepts are the familiar two possibly conflicting purposes; and Burnham notes that resocialization is usually seen as an aim to be pursued within the constraints of the first two concepts.

Explication of paroling decision objectives, like those concerning sentencing, is complicated by widely different legal structures among jurisdictions. In some instances, with indeterminate sentencing, the function is one of sentencing deferred. In other jurisdictions there is

less discretion as to the length of sentence but still considerable leeway for placement alternatives, including placement in specific programs in confinement or on parole. The fact that objectives differ markedly among parole board jurisdictions (and sometimes within board memberships) is illustrated by the fact that some boards (or members) will assert the objective of selection of good risks for parole as an element of the decision process, while others argue that it is the poor risks who ought to be paroled. The latter assertion seems to surprise many people at least until they hear the rest of the argument: The good risks ought to be discharged; most offenders are released eventually, and both societal protection and rehabilitation may be enhanced by surveillance and provision of services to the poor risks.

Are correct parole placements to be judged by recidivism? If so, how is "recidivism" to be defined? Does the concept include parole violators returned to finish terms in prison without conviction for a new offense? If so, is the objective of such return the prevention or restraint of expected new offenses? If so, are the correct returns (parolees who would in fact commit new crimes) to be counted as successes for the board though as failures for the parolees? How would such correct answers be known? Are the incorrect returns failures for the board (since they would not in fact commit new offenses) but unhappy successes back in prison? If recidivism does *not* include parole violators returned to finish terms, are these persons to be returned to prison but counted as successes?

What are the intercorrelations among outcome criteria, which may be included as candidates for improved measures of paroling or correctional program objectives, such as work stability, freedom from drug or alcohol abuse, length of time in the community without conviction, or reduction in the seriousness value of offenses? How are such criteria to be measured? Can composite measures of objectives be defined as single scales to provide reasonable and satisfying objectives?

INFORMATION ABOUT ALTERNATIVES

Knowledge that an alternative choice exists does not by itself provide the decision-maker with information. That is, the availability of the alternative does not reduce his uncertainty about the probable consequences of his selection; that requires knowledge of the relation of that choice to the decision objective. This is a principal reason for the need for program evaluation at each stage in the juvenile and

criminal justice processes; and it is why such research is critical to the improvement of individual decision-making.

The general problem of program evaluation is a very large topic indeed, with many complexities. Generally, however, either experimental or quasi-experimental statistical designs are used, with the aim of determining how much if any of the variance in outcomes (i.e., consequences related to objectives) may be attributed reasonably to the program under study. This is the kind of information needed by the decision-maker; and each alternative available must be assessed in this way.

This circumstance exists at each stage of the system. The juvenile judge needs to know, from the evidence after followup study, whether detention vs. foster home placement makes any difference in terms of later delinquency. The judge needs to know empirically whether placement in the training school changes the probabilities of future delinquency, compared with other alternatives. The probation officer needs to know whether persons placed in treatment category A more likely do better or worse than do persons placed in category B. The judge requires knowledge of the different consequences, if any, of fines, probation, suspended sentences, combinations of these, or imprisonment. The classification committee in the prison reception-guidance center needs to be aware of the probable consequences of their placements.

These examples, of course, only hint at the complexity of the general problem. Some consequences of this complexity are as follows:

1. Agency information systems are required with sufficient sophistication to provide program evaluation feedback routinely.
2. Since it is not feasible to provide such feedback from experimental designs for all treatments of concern, the system must provide for statistical control of outcome-related nontreatment variables.
3. The interrelated nature of the criminal justice system is such that the necessary feedback can be obtained only by an appropriate interfacing of the inter-agency components.

In development of such systems, the interrelated nature of the concepts, diagnosis, classification, and prediction, must be recognized. Diagnostic data must be assessed to determine its utility for classifications demonstrably relevant to treatment placement. The criterion of relevancy is the proportion of variance in outcomes which is associated with treatment for specific groups of persons. Prediction measures must be developed and tested to provide the means for statistical control of nuisance variables in the feedback reporting system.

Such a system would have great potential for both scientific and practical contributions. It could provide a general framework for adding to knowledge about the relative effectiveness of programs in achieving specified objectives for various classifications of offenders. At the same time, the decision-makers could be advised routinely of probable outcomes to their alternative decision choices. It could provide also a basis for feedback from parts of the system which deal with offenders at a later phase of the process to those on stage earlier in the drama. The police need information on the results of their decisions from prosecutors, judges, and corrections. The judge needs feedback on results of sentencing from the probation, prison, and parole agencies.

These arguments are related to issues of effectiveness and efficiency; but what of justice concerns? Such a system cannot define justice, but it can provide information necessary for addressing concerns at least of equity. Throughout the justice system, the data should be available to permit fairness comparisons for various classifications of offenders.

Given such a system, the needs for study of the decision-making process as suggested by Wilkins in chapter V would be no less significant. Such study can contribute not only to our understanding of perceived objectives by decision-makers and their perceived information needs, but also to our understanding of how information—to be most useful—is best arranged to assist them. These investigations should help define how decision-makers go about their tasks and indicate their preferences not only for different kinds of information but also different methods of presentation. This may be especially pertinent if decision choices are associated not only with the quality of the information but also with the mode of presentation. If decision choices are associated also with differing ways in which the information is processed by decision-makers, then types of decision-makers may have to be taken into account in systematic attempts to aid them.

DECISION STUDY AND RELATED RESEARCH

It has been argued in this monograph that a study of decisions at each step in the juvenile and criminal justice process provides a useful starting point for assessment of the rationality of that system. A focus on decisions may provide at the same time opportunities for increasing that rationality, especially if we can contrive to present demonstrably relevant information to decision-makers which enables

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them to enhance the probabilities of achieving agreed-upon objectives.

An analysis of typical decision problems encountered by criminal justice decision-makers emphasizes the needs for improved definition and measurement of objectives, for more complete specification of alternatives, for evidence not now available on the consequences of differing methods for handling offenders or providing treatment to them, and for building further on progress made toward useful methods for classifying offenders. A study of decisions aimed at assessment of their rationality clearly suggests needs for the development of information systems which are equipped to focus on program evaluations and to provide routine feedback to decision-makers. Such systems, to be effective, apparently will have to take account of decision-maker styles, or cognitive processes.

The problem of increasing the rationality of decision-making is thus extremely complex. Attention must be given to seemingly diverse but actually closely-related areas of study: problems of classification and prediction, treatment effectiveness, agency information systems, and decision-making processes. The studies discussed in this monograph represent steps toward solutions to the general problem, but much remains to be learned if we are to claim an increased rationality in these decisions. When we can justify such a claim we may claim also a contribution to effectiveness and fairness in the criminal justice system.

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