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Ronald V. Clarke and Derek B. Cornish

## Modeling Offenders' Decisions: A Framework for Research and Policy

### ABSTRACT

Developments in a number of academic disciplines—the sociology of deviance, criminology, economics, psychology—suggest that it is useful to see criminal behavior not as the result of psychologically and socially determined dispositions to offend, but as the outcome of the offender's broadly rational choices and decisions. This perspective provides a basis for devising models of criminal behavior that (1) offer frameworks within which to locate existing research, (2) suggest directions for new research, (3) facilitate analysis of existing policy, and (4) help to identify potentially fruitful policy initiatives. Such models need not offer comprehensive explanations; they may be limited and incomplete, yet still be "good enough" to achieve these important policy and research purposes. To meet this criterion they need to be specific to particular forms of crime, and they need separately to describe both the processes of involvement in crime and the decisions surrounding the commission of the offense itself. Developing models that are crime specific and that take due account of rationality will also demand more knowledge about the ways in which offenders process and evaluate relevant information. Such a decision perspective appears to have most immediate payoff for crime control efforts aimed at reducing criminal opportunity.

Most theories about criminal behavior have tended to ignore the offender's decision making—the conscious thought processes that give purpose to and justify conduct, and the underlying cognitive mechanisms by which information about the world is selected, attended to, and processed. The source of this neglect is the apparent conflict between

Ronald Clarke was until recently Head of the Home Office Research and Planning Unit and is now Professor of Criminal Justice, Temple University. Derek Cornish is Lecturer in Psychology in the Department of Social Science and Administration, London School of Economics.

~~decision-making concepts and the prevailing determinism of most criminological theories.~~ Whether framed in terms of social or psychological factors, these theories have traditionally been concerned to explain the criminal dispositions of particular individuals or groups. More recently, faced with the need to explain not just the genesis of people's involvement in crime but also the occurrence of particular criminal ~~acts,~~ greater attention has been paid by theory ~~to the immediate environmental context of offending.~~ But the resulting accounts of criminal behavior have still tended to suggest deterministic models in which the criminal appears as a relatively passive figure; thus he or she is seen either as prey to internal or external forces outside personal control, or as the battlefield upon which these forces resolve their struggle for the control of behavioral outcomes.

A number of developments, however, have combined to question the adequacy of explanations or models of offending that do not take account of the offender's perceptions and thought processes. Interest in the criminal's view of his world—characteristic of the "Chicago School" of sociology—revived during the early 1960s within the sociology of deviance that was ~~beginning to stress the importance of developing an understanding of the offender's perspective.~~ In mainstream criminology a similar revival of interest was also fueled by the apparent failure of the rehabilitative ideal—and hence, many argued, of deterministic approaches to criminological explanation. Disenchantment with treatment also shifted attention and resources to other means of crime control, such as incapacitation, deterrence, and environmental approaches to crime prevention; and it became apparent that offenders' perceptions might be salient to the success of these alternatives. As a result, interest grew in the 1970s in ecological studies of criminal activity, in criminal life histories, in cohort studies of criminal careers, and in offenders' accounts of how they went about their activities. At the same time, other academic disciplines such as economics and psychology were exploring, and in some cases applying to criminological problems, concepts and models of ~~information processing and decision making.~~

Despite the vigor with which these diverse developments have been pursued, little serious attempt has been made to synthesize them; in particular, no concerted attempt has been made to draw out their implications for thinking about crime control policies. This may not be surprising given that most sociologists of deviance—whose theoretical concerns most directly corresponded to those of criminologists—had

repudiated criminology's crime control goals (see Sparks 1980). And the antideterministic rhetoric that accompanied the explorations of deviancy sociologists, to say nothing of the ideological climate within which their studies tended to be conducted, further limited the impact both of methodologies and findings on mainstream criminology.

This essay reviews these developments primarily from the standpoint of their possible contribution to crime control policies. This might seem unnecessarily and even harmfully restrictive, but a narrowing of focus can sometimes be an advantage in policy-relevant research. When describing the long-term development of the Home Office Research Unit's program of crime control research, we have argued (Clarke and Cornish 1983) that simple and parsimonious accounts of criminal behavior—such as those provided by dispositional or situational theories—can have considerable heuristic value. They do not have to be "complete" explanations of criminal conduct, but only ones "good enough" to accommodate existing research and to suggest new directions for empirical enquiry or crime control policy. As soon as they no longer serve these ends they should be modified or discarded. We illustrated our argument by tracing the successive development of (i) dispositional theories "good enough" to guide research into treatment effectiveness; (ii) "environmental/learning" theories that accounted for the principal findings of the treatment research (that under the powerful influence of the contemporary environment the effects of intervention tend to dissipate rapidly); (iii) "situational" accounts that were developed from the environmental/learning perspective in order to guide the direction of research into crime prevention; and (iv) rudimentary "choice" theories that were developed to provide a means of understanding crime displacement (which is often the result of situational crime prevention measures).

It is with the enhancement and refinement of rational choice models of crime, made necessary by the recent growth of research interest documented below, that this essay is concerned. Section I documents the convergence of interest among a variety of academic disciplines—the sociology of deviance, criminology, economics, and cognitive psychology—upon a conception of crime as the outcome of rational choices and decisions. A brief and selective review is undertaken of each discipline's major contributions to the notion of crime as the outcome of rational choices—the intention being to provide a flavor of each approach and a summary of what seem to be its main limitations. Section II outlines the main requirements of decision models, temporarily

"good enough" to explain the processes of criminal involvement (initial involvement, continuance, and desistance) and the occurrence of criminal events. In essence, these models are flowchart diagrams that identify the main decision points and set out the groups of factors bearing upon the decisions made. For reasons that we discuss, decision models need to be specific to particular kinds of crime, and we have chosen to illustrate the construction of such models with the example of residential burglary. In conclusion, Section III discusses the implications of the decision models for ways of thinking about crime control policies and associated research efforts.

### I. Relevant Concepts

The following discussion of research relevant to the rationality of offending is couched in the form of brief reviews—and even briefer critiques—of the contributions made by each of the disciplines concerned. The reviews are intended to illustrate the confluence of interest in rationality and to provide the material for the synthesis of concepts and findings attempted in Section II.

#### A. *Sociology of Deviance*

In contrast to most earlier sociological formulations, the "deviancy theories" that were developed in the 1960s explicitly emphasized the cultural relativity of definitions of delinquency, the relationship between social control and the distribution of political and economic power in society, and the need to appreciate the meaning of deviance from the actor's perspective. Of greater relevance for our purposes, these theories also explicitly rejected deterministic and pathological explanations of crime in favor of those emphasizing its purposive, rational, and mundane aspects (see Taylor, Walton, and Young 1973; Box 1981)—concerns also shared by much previous oral history research (Bennett 1981). For example, Taylor et al. asserted that "... a social theory must have reference to men's teleology—their purposes, their beliefs and the context in which they act out these purposes and beliefs. . . . Thus men rob banks because they believe they may enrich themselves, not because something biologically propels them through the door . . ." (p. 61).

A substantial body of ethnographic work illustrates and supports many of the tenets of deviancy sociology. The following examples relate to the rational, largely nonpathological, and commonplace nature

of much crime and illustrate how it is accommodated in the individual's day-to-day life:

i) Howard Becker's (1963) observation—based on his studies of marijuana use among jazz musicians in the 1950s—that deviants frequently see their conduct as a rational and obvious response to the pressures and opportunities of their particular circumstances. They may come to this position in a series of rationalizing "private conversations" in which they reconcile public and private morality. To justify their conduct, they may make use of "techniques of neutralization" (Matza 1964; Sholey 1980) such as: "everyone else does it"; "I am only borrowing it"; "he shouldn't have started it," and so on.

ii) Evidence from the life histories of individual offenders that criminal involvement is frequently initiated by relatives, friends, or acquaintances, and hence that the drift into crime is seen as unremarkable and almost natural (Samuel 1981); that legal and illegal ways of earning a living are not necessarily in conflict and may even be complementary (Klockars 1974; Prus and Irini 1980; Maguire 1982); that offenders frequently develop an increasingly more sophisticated and businesslike approach to crime (Shover 1972); and that certain forms of crime, such as bank robbery or truck hijacking, provide both the excitement and the large sums of money that are requirements of "life in the fast lane" (Gibbs and Shelly 1982).

iii) Documentation from participant-observation research that in many (if not most) occupational groups, such as waiters (Henry 1978), bread roundsmen (Ditton 1977), and dockworkers (Mars 1974), pilfering and cheating are commonplace and are largely accepted by managers and workers alike as legitimate perquisites. Indeed, as Denzin (1977) suggests in his case study of the American liquor industry, illegal activity may be routine, institutionalized, and essential to the satisfactory performance of the industry.

iv) Evidence that offenders may decide that the risks of continued criminal behavior are not justified by the rewards: among Parker's (1974) group of adolescents many gave up shoplifting and opportunistic theft of car radios when, as a consequence of increased police activity, some of their number were apprehended and placed in custody. West's (1978) study of the careers of young thieves provides similar evidence of the rational nature of decisions to desist.

v) Matza's (1964) observation that much delinquency is "episodic"—that individuals choose to engage in delinquency at certain times but

not at others; that "manufacture of excitement" provides the reason for much adolescent delinquency; and that much offending is of a petty, everyday, even "mundane" character. Similarly, Humphreys's (1970) findings showed that even behavior commonly viewed as pathological—casual homosexual encounters in public lavatories—often represents clearly encapsulated episodes within essentially normal heterosexual and "respectable" life-styles.

vi) The observation made by Cohen (1972) in his study of clashes between groups of "mods" and "rockers" and by Marsh, Rosser, and Harre (1978) in their studies of football hooliganism, that much of the "uncontrollable" violence between rival gangs of youths is highly ritualized; it rarely causes serious injury and is calculated to produce maximum effect upon onlookers.

vii) Evidence from interviews with offenders convicted of serious violence (Athens 1980; Felson and Steadman 1983) that many apparently unpremeditated or impulsive acts of violence are in fact the result of intentions formed during a sequence of confrontations between offender and victim immediately prior to the incident or sometimes even days or weeks beforehand.

While deviancy theory has generated a mass of suggestive data on the perspectives, attitudes, and life-styles of offenders, its limitations in terms of the crime control orientation of this discussion stem from three of its fundamental premises—the deliberate eschewal of the test of immediate practical or policy relevance; the belief that individuals are in a position to provide comprehensive and valid accounts of the reasons for their behavior; and the rejection of more quantitative and controlled methods of data collection. The end result is that although the ideas produced may provide valuable insights and hypotheses, their validity and generalizability are frequently suspect.

### B. Criminology

The past two decades have seen a great expansion of criminological research—largely the result of direct funding by governments—and a marked change in the topics investigated. General disillusion with the rehabilitative ideal and criticisms of the determinism of mainstream criminology, especially in Britain, meant that credence was once more given to "classical" views about crime that emphasized the offender's own responsibility for his conduct. This has been reflected in the reaffirmation of the importance of such sentencing principles as just desert and due process for juvenile offenders, as well as an increased

interest in deterrent sentencing and incapacitation. And in response to the same disappointment with rehabilitation, criminologists began to explore methods of prevention focused not upon the offender's inner personality but on the immediate circumstances surrounding the offense. Improved understanding was sought about the rewards of crime, the relationship between criminal opportunities and crime, and the ways in which crime becomes part of the offender's everyday life. Some of the themes of these new lines of research can be grouped together as follows:

i) The findings of longitudinal cohort studies (e.g., Wolfgang, Figlio, and Sellin 1972; Petersilia 1980; West 1982) that, while large proportions of boys in any age group may commit acts of delinquency, most even of the more persistent offenders appear to desist from crime as they reach their late teens or twenties. This may be because they decide that continued criminality is incompatible with the demands of holding a full-time job or settling down to marriage and a family (see Greenberg 1977; Trasler 1979)—or for some it may represent a shift from "street crime" to occupational deviance.

ii) Recent research in the ecological tradition that has inferred from the distribution of particular crimes that offenders make rational choices. For example, on the basis of findings that it is the homes on the borderlines of affluent districts that are at most risk of burglary, Brantingham and Brantingham (1975) suggested that burglars preying on such districts will select the nearest of the suitable targets because escape may be easier and because they prefer to operate where they feel least conspicuous. Similar considerations of reducing risk and effort, minimizing inconvenience, and trading on familiarity explain other findings about the ecology of crime, such as that juvenile offenders seldom stray far from their immediate neighborhoods (e.g., Downes 1966); that crimes tend to be committed en route between an offender's place of residence and his habitual place of work or leisure (Rengert and Wasilchick 1980); that offenses tend to cluster along main roads (Fink 1969; Luedtke and Associates 1970; Wilcox 1974); that neighborhoods with easily understandable "grid" layouts tend to have higher rates of victimization than those with more "organic" street layouts, that is, with winding avenues, culs-de-sac, or crescents (Bevis and Nutter 1977); and that offenders' "images of the city"—their familiarity with its different parts or their perception of the differential ease or rewards of offending—correspond with observed crime patterns (Carter and Hill 1979).

iii) Crime-specific studies of burglary (Scarr 1973; Reppetto 1974; Wal-

ler and Okihiro 1978; Walsh 1980; Maguire 1982; Winchester and Jackson 1982), vandalism (Ley and Cybrinwsky 1974; Clarke 1978), and shoplifting (Walsh 1978), which have shown that the vulnerability of particular targets can be explained largely on the basis of factors such as ease of opportunity, low risk, and high gain. For example, Winchester and Jackson (1982) found in their study of burglary in Southeast England that the most important factors determining victimization were the apparent rewards, the chances that the house was occupied, and the siting of the building, which either facilitated or restricted access. Thus they found that houses standing in their own grounds were much more likely to be burglarized than ones in the middle of a terrace. Waller and Okihiro (1978) and Reppetto (1974) found that apartment blocks given protection by a doorman had particularly low levels of burglary. Shoplifters are more likely to operate in large self-service stores where it is easy to steal, and which provide a more impersonal target (Walsh 1978). As for vandalism, the targets are more likely to be public property such as telephone kiosks or bus shelters (Sturman 1978) or private property that has been abandoned or left in a state of disrepair (Ley and Cybrinwsky 1974). In other words, vandals appear to choose targets that are afforded less protection or (perhaps) where repair will not cause individual owners too much hardship.

iv) These findings from crime-specific studies about target vulnerability are complemented by information obtained from offenders themselves. For example, interviews with convicted burglars by Reppetto (1974), Waller and Okihiro (1978), Walsh (1980), Maguire (1982), and Bennett and Wright (1983, 1984) confirm that, the decision having been made about the locality in which to commit burglary, the choice of the particular house is made on judgments of the likelihood of its being occupied and the difficulty of entering without being seen. And interviews with muggers (Lejeune 1977) have shown that victims are chosen as being unlikely to resist while yielding an acceptable payoff.

v) Studies of the opportunity structure for crime have shown that fluctuations in levels of offending reflect the supply of available opportunities. This has been demonstrated for auto crime by Wilkins (1964), Gould (1969), and Mansfield, Gould, and Namenwirth (1974) and for residential burglary by Cohen and Felson (1979). The latter mounted a persuasive case for regarding increases in burglary as the outcome of the increased portability of electronic goods and of an increase in numbers of unoccupied houses as more women go out to work.

vi) Crime prevention experiments have shown for a wide variety of

offenses (including vandalism, car theft, football hooliganism, aircraft hijacking, and theft or robbery on public transport) that reducing opportunities or increasing risks through environmental management and design can achieve reductions in the incidence of crime (see Clarke 1983). In many cases offenders appear to decide that the risks and effort of offending are no longer worthwhile. For example, few of the motorists prevented from using illegal "slugs" in a particular district of New York by the installation of redesigned meters are likely to have parked their cars in some other more distant place so as to save a few pennies (Decker 1972). In other cases, reduction of opportunities has simply displaced the attention of offenders to some other time, place, or target of crime (see Reppetto 1976). For instance, the introduction of steering-column locks on all new cars from 1971 onward did not produce the expected immediate reduction of car thefts in England and Wales—because most car theft is for temporary use, offenders simply turned their attention to unprotected pre-1971 models (Mayhew et al. 1976).

These various strands of research provide much useful information about offenders' decision making, but they have been pursued too much in isolation from each other and without the benefit of a coherent theoretical perspective. The decision-making concepts employed have been derived from common sense or culled from the unsystematic accounts of offenders. In consequence the relevance of the research for policy is limited. For example, the concept of displacement—of central importance for policy-making—has not been disassociated from its theoretical origins as the outcome of powerful internal drives toward criminality. This has meant that much, perhaps undue, skepticism has been expressed about the value of situational crime prevention. But it is not difficult to see how displacement could be accommodated within a decision-making framework (i.e., as the outcome of choices and decisions made by the offender in the face of changed circumstances) and how this might give a better basis for advocating the reduction of criminal opportunities.

### C. Economics

As with recent work in the sociology of deviance and criminology, developments in the economic analysis of criminal behavior have tended to revive some of the concerns of classical criminology. Located in the utilitarian tradition of Beccaria and Bentham, these approaches argue that individuals, whether criminal or not, share in common the properties of being active, rational decision makers who respond to

incentives and deterrents. In Gary Becker's words, "a useful theory of criminal behavior can dispense with special theories of anomic, psychological inadequacies, or inheritance of special traits and simply extend the ~~economist's usual analysis of choice~~" (1968, p. 170).

In contrast to classical economic and criminological theories, however, the new economic formulations take account of the existence and influence of a restricted number of potential individual differences (see Ehrlich's [1979] discussion of the role of "preferences" and Cook's [1980] discussion of subjective evaluation). The economists' emphasis on the importance of the concepts of ~~rewards and costs~~ and their associated probabilities has much in common with the accounts of behavioral psychology. Where economic models depart radically from behavioral ones is in their stress on the importance of the concept of choice.

To chart the various economic models of criminal behavior and the econometric studies to which these models have given rise is outside the purpose of this brief review (but see Palmer 1977; Orsagh and Witte 1981; Freeman 1983; Orsagh 1983; Pyle 1983), as is the extension of economists' interests into the fields of resource allocation by law enforcement agencies (Pyle 1983) or the development of complex mathematical models to study criminal justice decision making (Garber, Klepper, and Nagin 1983; Klepper, Nagin, and Tierney 1983). The relevance of economic models of rational choice to the present discussion may be summarized as follows:

i) Whatever their current limitations, economic models of criminal decision making effectively ~~demystify and routinize~~ criminal activity. Crime is assumed a priori to involve rational calculation and is viewed essentially as an ~~economic transaction or a question of occupational choice~~—a view compatible with many of the recent sociological and criminological studies of crime as work (e.g., Letkemann 1973; Inciardi 1975; Akerstrom 1983; Watlo 1983). In the same way, phenomena such as displacement or recidivism can be provided with economic rationales as alternatives to explanations that emphasize offender pathology (see, e.g., Furlong and Mehay's [1981] econometric study of crime spillover).

ii) Such economic models are currently extending their analysis beyond crimes motivated predominantly by financial gain. Thus, attempts are being made to find room for nonpecuniary gains as a component of expected utilities (through their translation into monetary equivalents) and to suggest models for so-called expressive crimes—

such as those involving violence to the person (Ehrlich 1979)—which emphasize their responsiveness to incentives and deterrents.

iii) Economic models suggest that law enforcement agencies are justified in proceeding on the basis that criminals are deterrable; thus they both provide some grounds for optimism and suggest a range of factors (beyond traditional deterrence theory's preoccupation with certainty and severity of punishment) which might be manipulated in the interests of crime control. These include, for example, the potential rewards of crime and the degree of effort required. Similarly, exploration of the relationship between unemployment and crime (Orsagh and Witte 1981; Freeman 1983) also provides some economic rationale for rehabilitative programs designed to improve offenders' prospects of legitimate work.

Despite the welcome rigor these contributions have brought to criminological theorizing and to the evaluation of policy, there are a number of problems that for the purposes of the current discussion limit the usefulness of existing economic models of criminal decision making. A variety of economic models have recently been proposed (e.g., Heineke 1978; Orsagh and Witte 1981), which recognize the need to include individual differences, but they have generated little empirically based micro analysis of individual criminal behavior. Some attempts to study such models using individual-level data have recently been made (e.g., Witte 1980; Ghali 1982). But it remains the case that, as Manski (1978) pointed out, economic modelers seem largely unaware of the growing empirical data on criminal behavior from other disciplines; they continue to produce theoretical accounts of individual choice behavior which "are ~~too idealized and abstract~~ from too much of the criminal decision problem to serve as useful bases for empirical work" (p. 90). Where empirical investigations are undertaken they tend to be macro analyses using aggregated crime data; and the interaction between micro analysis (uninformed by empirical data) and macro analysis (using imperfect and inadequate data, and uninformed by relevant information about the bases of individual criminal decision making) may be impoverishing both efforts.

These criticisms suggest that current economic models have yet to achieve satisfactory accounts of the bases upon which individual criminals actually make choices, and that they may also underplay individual differences in information-processing capacities and strategies (Cook 1980). The question whether the increasingly sophisticated empirical



research on deterrence using aggregated data provides a valid means of monitoring the effectiveness of criminal justice policy lies outside this discussion (but see Pyle 1983). So far as the development and evaluation of more specific crime prevention and control policies in relation to particular offenders and offenses is concerned, however, it may be that this requires the investigation of actual decision processes rather than the further elaboration, in isolation, of a priori models. In this connection it is interesting to note that, as a result of their review of empirical economic studies using aggregate and individual-level data, Orsagh and Witte (1981) remarked that the relationship between economic viability and crime might vary with the type of crime and the individual involved. Such comments indicate the pressing need for further empirical data, such as those provided by Holzman's (1983) study of labor force participation among robbers and burglars, to clarify these issues and to encourage the construction of narrow-band empirically informed models.

#### D. Cognitive Psychology

With the few exceptions noted below, a considerable body of recent psychological research on information processing and decision making has passed largely unnoticed by criminologists. The impetus for this work, which itself contributed to criminological theory, should be briefly mentioned. During the 1960s, many psychologists were becoming disenchanted with the concepts of personality traits and predispositions as determinants of behavior; more attractive was the suggestion of radical behaviorism that the most important influences in relation to criminal behavior (reinforcements and punishments) lay outside the organism. This approach, which has some similarity to economic theories of crime, emphasized the importance not only of incentives and deterrents but also of current situational cues and opportunities. This latter emphasis became a primary influence on British studies of situational crime prevention (Mayhew et al. 1976), the further development of which drew attention to the need for a fuller understanding of criminal decisions (see Clarke and Cornish 1983).

Within academic psychology, the reaction during the last decade against the environmental determinism of radical behaviorism has led to an increasing recognition of the important role played by cognitive processes. This can be seen in the development of more sophisticated "social learning" theories (Bandura 1969, 1977) that stressed additional

mechanisms of learning, such as imitation (which required the assumption of symbolic mediational cognitive processes), and reintroduced person variables in the guise of cognitive competencies and capacities (Mischel 1973, 1979). Several attempts to apply selected social learning concepts to an analysis of criminal behavior have been made (e.g., Akers 1977; Feldman 1977; Conger 1978).

It is not in respect of social learning theory alone, however, that developments of direct relevance to an understanding of criminal decision making have occurred. Studies of the professional judgments of clinicians and similar personnel concerning risky decision making, and of information-processing strategies in decision making, provide their relevant insights and analogies. The contributions itemized below relate as much to the methods and concepts as to substantive findings in this area:

i) Psychological studies of professional judgments made in clinical and similar settings have for a long while suggested that even experts often handle information in less than perfectly rational or efficient ways (Meehl 1954; Wilkins and Chandler 1965; Wiggins 1973).

ii) These findings received further support from early studies of risky decision making (see Koziol [1982] for a review) which suggested that people did not always behave in accordance with economic models of the rational, efficient decision maker—they frequently failed to make decisions that were objectively the "best" (Cornish 1978). An attempt to apply one such model (the subjective expected utility model) to an experimental study of the factors involved in juveniles' decisions about committing hypothetical crimes is reported by Cimler and Beach (1981).

iii) Some of the reasons for the failure of a priori models to explain decision making were identified by Slovic and Lichtenstein (1968). They suggested that real-life decision makers might be led to pay selective attention to certain risk dimensions over others by reason of their "importance-beliefs"—notions derived from past experience, logical analysis of the decision task, or even quite irrational fears and prejudices.

iv) These conclusions led naturally to an increased emphasis upon information-processing models and strategies in relation to real-life decision making (see Cornish [1978] on gambling; Carroll [1982] on criminal behavior). "Process tracing"—a technique for studying decision making as it actually occurs in natural settings by asking subjects to

think aloud about the decision task (Kleinmuntz 1968)—has recently been applied to the investigation of offending decisions by Carroll and Herz (1981) and Bennett and Wright (1983).

v) Payne (1980) has suggested that more attention should be paid to the characteristics of the decision maker as information processor and their effect on the handling of choice problems. Warr and Knapper's (1968) model for person perception emphasizes the effects on information processing of the perceiver's stable personal characteristics, of ephemeral moods, previous experiences, and expectations, and of the decision rules employed by the decision maker's "processing centre." Crucial to the operations involved might be Slovic and Lichtenstein's "importance-beliefs," Cook's (1980) "standing decisions," and the wider concept of "knowledge structures" used by Nisbett and Ross (1980).

vi) An emphasis on decision rules suggested that inferential "rules-of-thumb" are universally employed in order to enable decision making to proceed rapidly and effectively. Some of these judgmental heuristics (Tversky and Kahneman 1974; Kahneman, Slovic, and Tversky 1982) can lead to error: for example, too much attention may be paid to information that is readily available or recently presented, and inductive rules may be too quickly formulated on the basis of unrepresentative data.

vii) Finally, it appears that the riskiness of an individual's decisions may vary according to whether the decision is made alone, or as a group member. Early studies had suggested that group decision making tended to be more "risky"; hence the phenomenon was termed "risky-shift" (Pruitt 1971). Recent reviews (Myers and Lamm 1976), however, suggest a more complex picture in which group decisions may also become more cautious under certain conditions.

The facts that people do not always make the most "rational" decisions, that they may pay undue attention to less important information, that they employ shortcuts in the processing of information, and that group decisions may be different from individual ones are all clearly relevant to an understanding of criminal decision making. But cognitive psychology is still at an early stage in its development and the topics studied so far are not necessarily those that best illuminate criminal decision making. For example, there has been perhaps too much concentration upon bias and error in information processing (see Nisbett and Ross 1980), whereas, in fact, the judgmental heuristics involved usually enable individuals to cope economically and swiftly with very complex tasks (Bruner, Goodnow, and Austin 1956)—a process Simon

(1983) has termed "bounded rationality." And there are some other basic issues, perhaps of particular relevance to crime control policies, which have scarcely been addressed by the discipline. These include the extent to which cognitive strategies are produced consciously or unconsciously, the degree to which they are under the individual's own control, whether they indicate a predisposition to process information in a certain manner or merely a preference for doing so, and the extent to which individuals differ in their information-processing capacities and competencies.

Finally, of special relevance to the present discussion, the question has not properly been considered whether those individuals who habitually make criminal decisions think in different ways from other people. This, in fact, is the claim made by Yochelson and Samenow (1976) on the basis of detailed clinical interviews with 240 criminals, most of whom had been detained in hospital as a result of being found guilty by reason of insanity. Yochelson and Samenow believe that criminals *choose* specific thinking patterns—of which they identify fifty-two characteristic modes including suspiciousness, self-seeking, manipulateness, impulsiveness, concrete and compartmentalized thinking, and excitement or sensation seeking—which inevitably lead to crime. Such thought patterns, while internally logical, consistent, and hence "rational" to the offender, may be regarded as both irresponsible and irrational by the noncriminal.

Many methodological criticisms have been made of Yochelson and Samenow's work (e.g., Burchard 1977; Jacoby 1977; Nietzel 1979; Sarbin 1979; Vold 1979), but it remains true that the thinking patterns identified have much in common with many of the concepts reviewed above, that is, with individual information-processing styles and strategies and with motivational and cognitive biases. Moreover, they reflect themes commonly encountered in criminal life histories (Hampson 1982) such as the offender's preoccupation with maintaining "machismo" and with "techniques of neutralization." This further reinforces the point that a full (and policy-relevant) understanding of the processes of criminal decision making will not be gained through studies of "normal" decision making alone.

## II. Models of Criminal Decision Making

Even allowing for some selective perception on our part, we believe that the material in Section I demonstrates that during the past decade



there has been a notable confluence of interest in the rational choice, nondeterministic view of crime. This is a natural perspective for law and economics, but it has also achieved wide currency in criminology's other parent disciplines—sociology and psychology—as well as within the different schools of criminology itself. That the shift is part of a broader intellectual movement is suggested by the increasing popularity of economic and rational choice analyses of behaviors other than crime. Why there should be this movement at the present time and what social forces and events might be implicated is difficult to say, but cross-fertilization of ideas between different groups of people working on similar problems always occurs, and certain individuals have deliberately applied the same theoretical perspective to a variety of different problems. For instance, Gary Becker (1968) pioneered his economic analyses of crime when dealing with the economics of discrimination and has since extended his method to choice of marriage partner (Becker 1973, 1974).

Despite the shift of interest described above, there has been little attempt to construct a synthesis—within a rational choice framework—of the concepts and findings provided by the various approaches. As an illustration of the value of such a synthesis, it is worth making brief reference to the approach adopted by one of us in a review of the research on the determinants of gambling behavior (Cornish 1978). While not adopting so explicit a decision-making orientation, the review made similar use of concepts from sociology, psychology, and economics as a basis for analyzing existing control measures and for suggesting future directions for policy and research. It recognized, first, the importance of rational though not exclusively economic considerations when explaining a behavior commonly regarded as being pathologically motivated; second, the need to treat gambling, not as a unitary form of behavior, but as a collection of disparate behaviors each with their own distinctive features; third, and as a corollary, the need to pay close attention to situational factors relating to the gambling "event"; fourth, the need to develop explanations of gambling behavior which would make specific reference to factors determining, respectively, likelihood and degree of involvement; fifth, the role of learning in the development of heavy involvement in certain forms of gambling; and last, the scope for both exploiting and controlling gambling behavior through manipulation of people's information-processing activities.

The models of crime presented below also offer a way of synthesizing a diverse range of concepts and findings for the purpose of guiding

policy and research, but they are developed within the context of much more explicit decision making. They are not models in which relationships are expressed either in mathematical terms (as in, e.g., economic models) or in the form of testable propositions (see, e.g., Brantingham and Brantingham's [1978] model of target selection). Nor are they even "decision trees" that attempt to model the successive steps in a complex decision process (see Walsh [1980] for an example relating to burglary). Rather, they are schematic representations of the key decision points in criminal behavior and of the various social, psychological, and environmental factors bearing on the decisions reached. Our models resemble most closely the kind of flow diagrams frequently employed to represent complex social processes—for example, the explanatory models for fear of crime developed by Skogan and Maxfield (1981) and for victimization proneness by Hindelang, Gottfredson, and Garofalo (1978).

The models, which need to be separately developed for each specific form of crime, are not theories in themselves but rather the blueprints for theory. They owe much to early attempts to model aspects of criminal decision making by Brantingham and Brantingham (1978), Brown and Altman (1981), and Walsh (1978, 1980). But these earlier models were largely confined to just one of the criminal decision processes—target selection—and they also depended upon a common-sense explication of the likely decision steps taken by the "rational" criminal. Our models are concerned not just with the decision to commit a particular crime, but also with decisions relating to criminal "readiness" or involvement in crime; and they also take some account of the recent psychological research on cognitive processing.

This research is still at a relatively early stage, and as yet there is only a comparatively small body of criminological data relevant to decision making upon which to draw. Any attempt to develop decision models of crime must at this stage be tentative. Thus our aim is only to provide models that are at present "good enough" to accommodate existing knowledge and to guide research and policy initiatives. Even such "good enough" models, however, have to meet the criticism that they assume too much rationality on the part of the offender. But as the review in Section I has indicated, rationality must be conceived of in broad terms. For instance, even if the choices made or the decision processes themselves are not optimal ones, they may make sense to the offender and represent his best efforts at optimizing outcomes. Moreover, expressive as well as economic goals can, of course, be character-

ized as rational. And lastly, even where the motivation appears to have a pathological component, many of the subsequent planning and decision-making activities (such as choice of victims or targets) may be rational.

#### A. Modeling Criminal Involvement and Criminal Events

There is a fundamental distinction to be made between explaining the involvement of particular individuals in crime and explaining the occurrence of criminal events. Most criminological theorists have been preoccupied with the former problem and have neglected the latter. They have sought to elucidate the social and psychological variables underlying criminal dispositions, on the apparent assumption that this is all that is needed to explain the commission of crime itself. But the existence of a suitably motivated individual goes only part of the way to explaining the occurrence of a criminal event—a host of immediately precipitating, situational factors must also be taken into account. And a further distinction that must be recognized by theorists concerns the various stages of criminal involvement—initial involvement, continuance, and desistance. That these separate stages of involvement may require different explanatory theories, employing a range of different variables, has been made clear by the findings of recent research into criminal careers (see Farrington 1979; Petersilia 1980).

The distinctions between event and involvement have to be maintained when translating traditional perspectives into decision terms. It may be that the concepts of choice or decision are more readily translatable and more fruitful in relation to continuance and desistance than to initial involvement, but to some extent this may depend on the particular offense under consideration. For some offenses, such as shoplifting or certain acts of vandalism, it might be easier to regard the first offense as determined by the multiplicity of factors identified in existing criminological theory and as committed more or less unthinkingly, that is, without a close knowledge or consideration of the implications. But however much people may be propelled by predisposing factors to the point where crime becomes a realistic course of action, it may still be legitimate (or, at least, useful) to see them as having a choice about whether to become involved. Once the offense is committed, however, the individual acquires direct knowledge about the consequences and implications of that behavior; and this knowledge becomes much more salient to future decisions about continuance or desistance. It may also provide the background of experience to render initial involvement in

another crime a considered choice (see Walsh's [1980] discussion of burglary as a training ground for other crimes).

#### B. The Need for Models to Be Crime Specific

The discussion above has anticipated another important requirement of decision models of crime: whether of involvement or of event, these must be specific to particular kinds of crime. Recent preoccupation with offender pathology and the desire to construct general statements about crime, deviancy, and rule breaking have consistently diverted attention from the important differences between types of crime—the people committing them, the nature of the motivations involved, and the behaviors required. Whatever the purposes and merits of academic generalization, it is essential for policy goals that these important distinctions be maintained. And, moreover, it will usually be necessary to make even finer distinctions between crimes than those provided by legal categories. For instance, it will not usually be sufficient to develop models for a broad legal category such as burglary (Repetto 1976). Rather it will be necessary to differentiate at least between commercial and residential burglary (as has already been done in a number of studies) and perhaps even between different kinds of residential and commercial burglaries. For example, burglary in public housing projects will be a quite different problem from burglary in affluent commuter areas, or from burglary in multioccupancy inner-city dwellings. And the same is obviously true of many other crimes, such as vandalism, robbery, rape, and fraud. The degree of specificity required will usually demand close attention to situational factors, especially in event models.

The emphasis on specificity, however, should not be taken as contradicting the fact, established in research on criminal careers, that particular individuals may be involved in a variety of criminal activities. But their involvement in separate activities does not necessarily derive from the same sources, though *in practice* the separate processes of involvement in different crimes may be interrelated. This means that in explaining a particular individual's pattern of criminal activity it may be necessary to draw upon a variety of specific models and perhaps to describe the links between them. However, this is a matter for those interested in the etiology of individual criminality and in related policies—such as rehabilitation and incapacitation—focused upon the individual offender. Whether they be specialists or generalists, our own interest in offenders is primarily restricted to occasions when they are

involved in the offense under consideration. This is because each form of crime is likely to require specific remedies and, by shifting the focus from offender to offense, a range of neglected options is likely to be brought into the policy arena. All our models reflect this focus of interest and our purpose below is to lay out their formal requirements.

### C. *The Example of Residential Burglary*

We have chosen below to illustrate the construction of decision models of crime through the example of residential burglary in a middle-class suburb. Although it might have made more interesting reading to have selected a less obviously instrumental offense, our choice in the end was made for reasons of convenience: knowledge about this offense is relatively well advanced and we have been involved in some of the recently completed research (Clarke and Hooper, in press). This work suggests that the offenders involved are generally rather older and more experienced than those operating in public housing estates, but less sophisticated than those preying on much wealthier residences. Since decision models are for us primarily intended to make criminological theorizing of greater relevance to crime control policies, we believe that practical considerations should play a large part in determining the specificity of the model: the offense modeled should be as specific as current knowledge allows, while at the same time sufficiently common or serious to justify the development of special preventive policies.

In the following pages we will present ~~four models~~—one concerned with the criminal event and the others with the three stages of criminal involvement—since the decision processes for each model are quite different. It may not always be necessary for policy purposes to model all four processes; indeed, as said above, decisions about which models to develop, and at what level of detail, ought to be governed by policy goals. Our present aim is primarily didactic: first, to set out the models in order to identify the links between them; second, to locate and to give some hint of the ways in which existing criminological data might be interpreted within a decision framework; and third, to illustrate how, through development and examination of the models, the most fruitful points of intervention in the criminal decision process might be identified. As our purpose is not to develop fully elaborated decision models of residential burglary, but only to demonstrate their feasibility, we shall not usually indicate where they draw upon empirical findings (which in any case have been mentioned above) and where they rely upon our own armchair theorizing.

One obvious implication of the need for specificity is that the configuration of the models may vary significantly among different kinds of crime. For instance, models involving offenses which appear to depend primarily upon "presented" opportunities (e.g., shoplifting, Carroll and Herz [1981]) will probably be simpler than those (such as residential burglary) involving opportunities that must be "sought" (see Maguire 1980). And these in turn will be simpler than those involving offenses where the opportunities are created or planned (e.g., bank robberies).

### D. *Initial Involvement*

Figure 1 represents the process of initial involvement in residential burglary in a middle-class suburb. There are two important decision points: the first (box 7) is the individual's recognition of his "readiness" to commit this particular offense in order to satisfy certain of his needs for money, goods, or excitement. Readiness involves rather more than receptiveness; it implies that the individual has actually contemplated this form of crime as a solution to his needs and has decided that under the right circumstances he would commit the offense. In reaching this decision he will have evaluated other ways of satisfying his needs and this evaluation will naturally be heavily influenced by his previous learning and experience—his moral code, his view of the kind of person he is, his personal and vicarious experiences of crime, and the degree to which he can plan and exercise foresight. These variables in turn are related to various historical and contemporaneous background factors—psychological, familial, and sociodemographic (box 1). It is with the influence of these background factors that traditional criminology has been preoccupied; they have been seen to determine the values, attitudes, and personality traits that dispose the individual to crime. In a decision-making context, however, these background influences are less directly criminogenic; instead they have an orienting function—exposing people to particular problems and particular opportunities and leading them to perceive and evaluate these in particular (criminal) ways. Moreover, the contribution of background factors to the final decision to commit crime would be much moderated by situational and transitory influences; and for certain sorts of crime (e.g., computer fraud) the individual's background might be of much less relevance than his immediate situation.

The second decision (box 8), actually to commit a burglary, is precipitated by some chance event. The individual may suddenly need

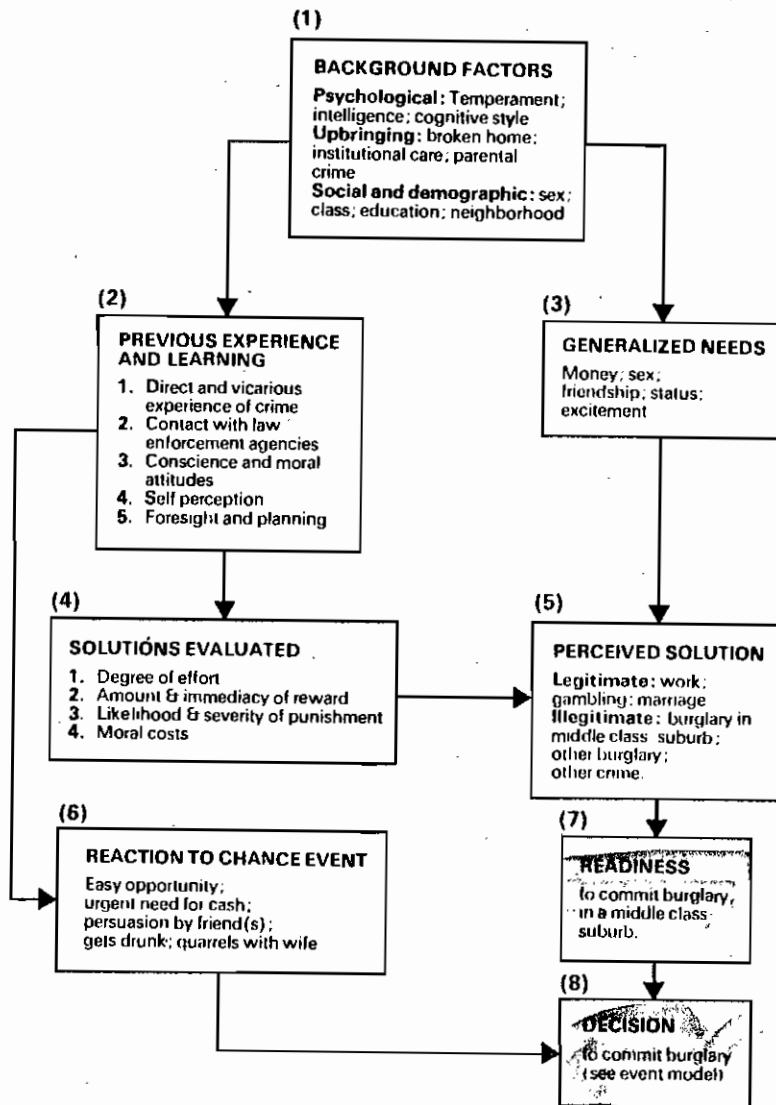


FIG. 1.—Initial involvement model (example: burglary in a middle-class suburb)

money, he may have been drinking with associates who suggest committing a burglary (for many offenses, especially those committed by juveniles, immediate pressure from the peer group is important), or he may perceive an easy opportunity for the offense during the course of his routine activities. In real life, of course, the two decision points may

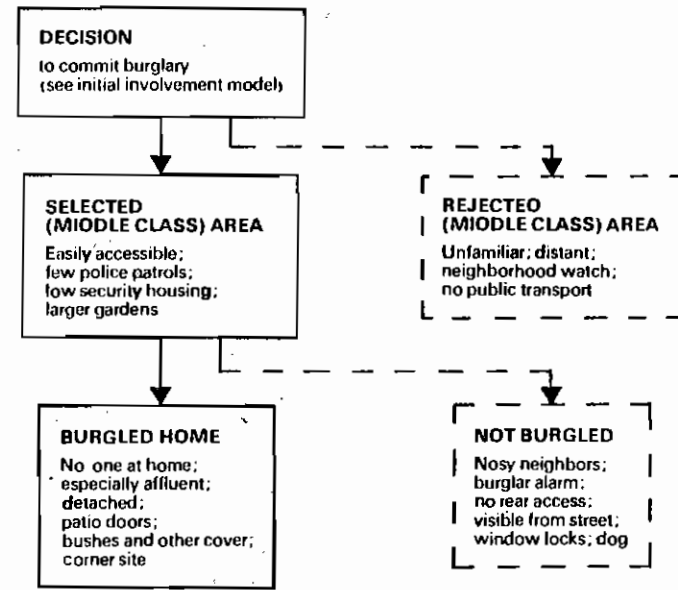


FIG. 2.—Event model (example: burglary in a middle-class suburb)

occur almost simultaneously and the chance event may not only precipitate the decision to burgle, but may also play a part in the perception and evaluation of solutions to generalized needs.

### E. The Criminal Event

Figure 2 depicts the further sequence of decision making that leads to the burglar selecting a particular house. As mentioned above, for some other crimes the sequence will be much lengthier; and the less specific the offense being modeled, the more numerous the alternative choices. For example, should a more general model of burglary be required, a wider range of areas and housing types would have to be included (see Brantingham and Brantingham 1978). In the present case, however, there may be little choice of area in which to work, and in time this decision (and perhaps elements of later decisions) may become routine.

This is, of course, an idealized picture of the burglar's decision making. Where the formal complexity of the decision task is laid out in detail, as in Walsh's (1978, 1980) work, there may be a temptation to assume that it entails equally complex decision making. In real life, however, only patchy and inaccurate information will be available. Under these uncertain circumstances the offender's perceptions, his

previous experience, his fund of criminal lore, and the characteristic features of his information processing become crucial to the decision reached. Moreover, the external situation itself may alter during the time span of the decision sequence. The result is that the decision process may be telescoped, planning may be rudimentary, and there may be last-minute (and perhaps ill-judged) changes of mind. Even this account may overemphasize the deliberative element, since alcohol may cloud judgment. Only research into these aspects of criminal decision making will provide event models sufficiently detailed and accurate to assist policy-making.

#### F. Continuance

Interviews with burglars have shown that in many cases they may commit hundreds of offenses (see, e.g., Maguire 1982); the process of continuing involvement in burglary is represented in figure 3. It is assumed here that, as a result of ~~generally positive reinforcement~~ the frequency of offending increases until it reaches (or subsequently reduces to) some optimum level. But it is possible to conceive of more or less intermittent patterns of involvement for some individuals; and intermittent patterns may be more common for other types of offenses (e.g., those for which ready opportunities occur less frequently). It is unlikely that each time the offender sets out to commit an offense he will actively consider the alternatives, though this will sometimes be necessary as a result of a change in his circumstances or in the conditions under which his burglaries have to be committed. (These possibilities are discussed in more detail in regard to the "desistance" model of fig. 4.)

More important to represent in the continuing involvement model are the gradually changing conditions and personal circumstances that confirm the offender in his readiness to commit burglary. The diagram summarizes three categories of relevant variables. The first concerns an increase in ~~professionalism~~ pride in improved skills and knowledge; successive reductions of risk and an improvement in haul through planning and careful selection of targets; and the acquisition of reliable fencing contacts. The second reflects some concomitant changes in life-style: a recognition of increased financial dependence on burglary; a choice of legitimate work to facilitate burglary; enjoyment of "life in the fast lane"; the devaluation of ordinary work; and the development of excuses and justifications for criminal behavior. Third, there will be changes in the offender's network of peers and associates and his rela-

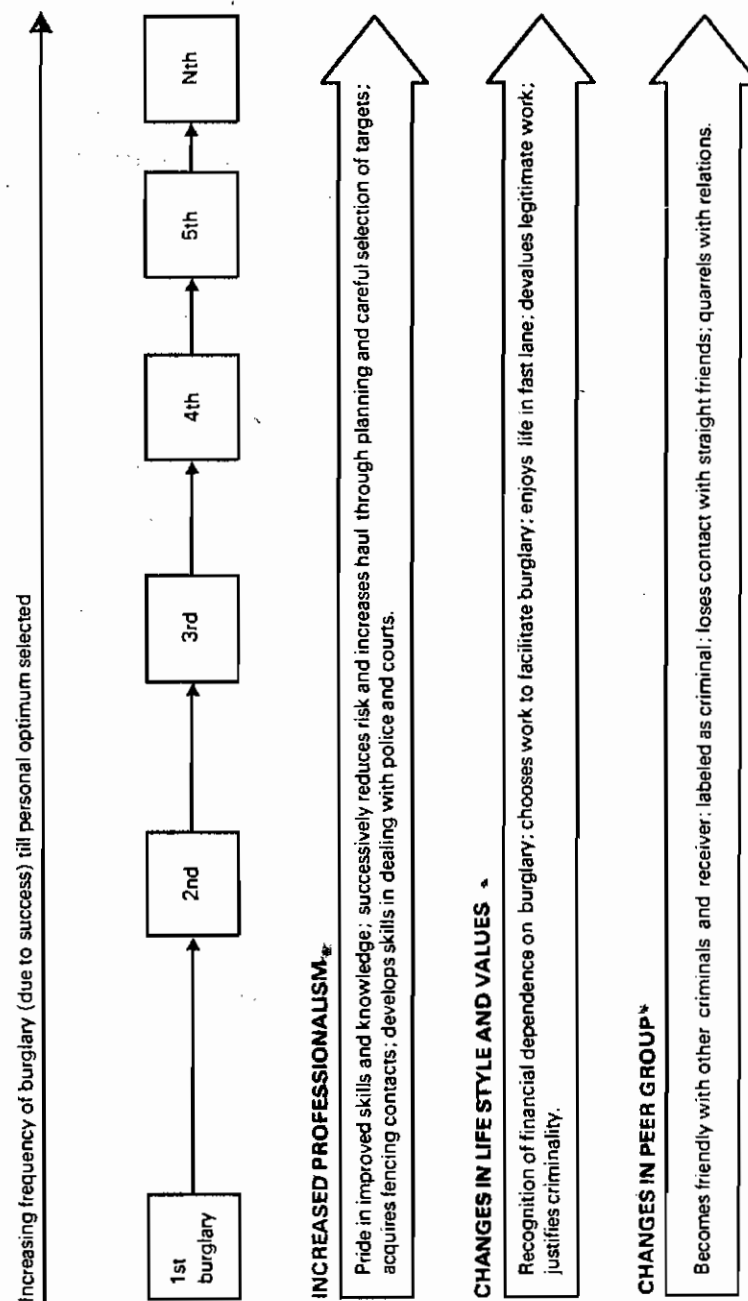


FIG. 3.—Continuing involvement model (example: burglary in a middle-class suburb)

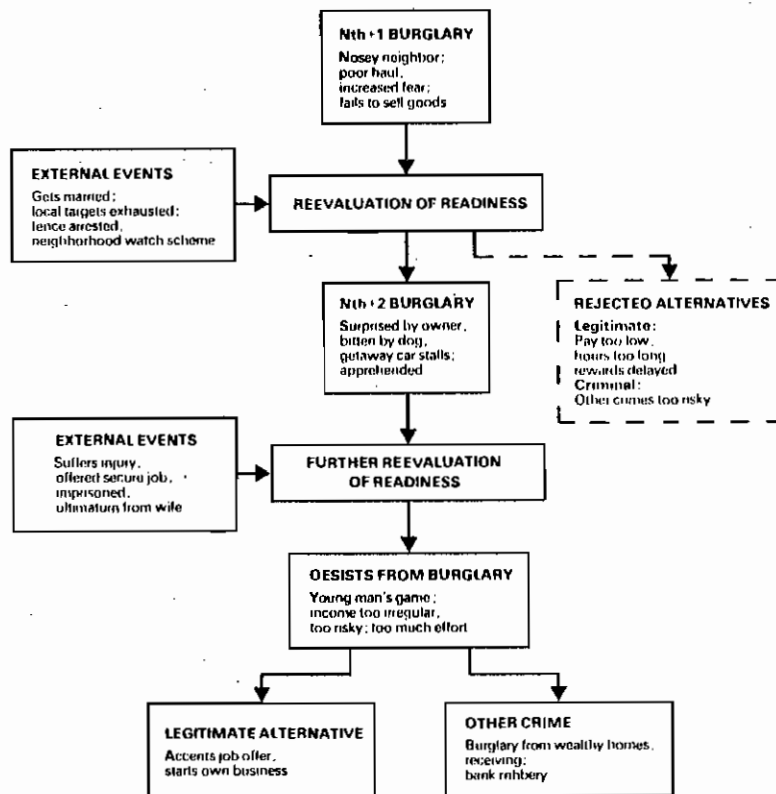


FIG. 4.—Desistance model (example: burglary in a middle-class suburb)

relationship to the "straight" world. These trends may be accelerated by criminal convictions as opportunities to obtain legitimate work decrease and as ties to family and relations are weakened.

This picture is premised upon a more open criminal self-identification. There will be, however, many other offenses (e.g., certain sexual crimes) that are more encapsulated and hidden by the offender from everyone he knows.

### G. Desistance

It is in respect of the subject of figure 4 in particular—desistance from burglary—that paucity of relevant criminological information is especially evident. While the work of, for example, Parker (1974), Greenberg (1977), West (1978), Trasler (1979), Maguire (1982), and

West (1982) provides some understanding of the process of desistance, empirical data, whether relating to groups or individuals and in respect of particular sorts of crime, are very scanty. Nevertheless, there is sufficient information to provide in figure 4 an illustration of the offender's decision processes as he begins a renewed evaluation of alternatives to burglary. This follows aversive experiences during the course of offending and changes in his personal circumstances (age, marital status, financial requirements) and the neighborhood and community context in which he operates (changes of policing, depletion of potential targets). These result in his abandoning burglary in favor of some alternative solution either legitimate or criminal. While desistance may imply the cessation of all criminal activity, in other cases it may simply represent displacement to some other target (commercial premises rather than houses) or to another form of crime. Desistance is, in any case, not necessarily permanent and may simply be part of a continuing process of lulls in the offending of persistent criminals (West 1963) or even, perhaps, of a more casual drifting in and out of particular crimes.

### II. Some General Observations

The decision models illustrated above should be seen as temporary, incomplete, and subject to continual revision as fresh research becomes available. Even now they could probably be improved by the explicit specification of linkages within and between models. Moreover, accepting the "good enough" criterion governing their development, they are still open to two general criticisms. On the one hand, it might be argued that the benefits of a decision approach have been oversold by selecting a crime such as burglary, which has clear instrumental goals and requires planning and foresight. However, the decision elements in many other forms of crime—such as fraud or traffic offenses (see Brown [1981] for the latter)—may be even more salient. And, as our earlier review suggests, a decision approach is applicable to all forms of crime, even apparently impulsive or irrational ones. On the other hand, considering the aptness of residential burglary for treatment in decision terms, one might have expected the resulting models to be better articulated and less dependent upon anecdotal evidence. Moreover, given the amount of further empirical data required to make even the burglary models adequate, can it be realistic to suggest that such models have to be developed for all the different kinds of crime? The answer must be that since the models are intended to assist policy-making, pragmatic considerations should be preeminent: the harm caused by



the particular crime under consideration must be considered sufficient to justify the investment in research.

### III. Conclusions

During the course of this discussion a number of deficiencies in current criminological theorizing have been identified. Many of these flow from two underlying assumptions: that offenders are different from other people and that crime is a unitary phenomenon. Hence, the preoccupation with the issue of initial involvement in crime and the failure to develop explanations for specific kinds of offending. Moreover, explanatory theories have characteristically been confined to a limited selection of variables derived from one or another of criminology's contributory disciplines; and none of the dominant theories has taken adequate account of situational variables. A decision-making approach, however, stresses the rational elements in criminal behavior and requires explanations to be specific to particular forms of crime. It also demands that attention be paid to the crucial distinction between criminal involvement (at its various stages) and criminal events. By doing so it provides a framework that can accommodate the full range of potentially relevant variables (including situational ones) and the various competing but partial theories.

#### A. Policy

These advantages for explanation also hold for analysis of policy. Instead of defining the search for effective policy in terms of coping with broad problems such as juvenile delinquency or the rise in crime, the decision models encourage a policy focus upon the specific crimes, such as school vandalism, joy riding, rape by strangers, and pub violence, which may be giving rise to the broader concerns. Breaking down larger problems into more clearly defined constituent parts usually affords a greater prospect of effective action. But the distinctions between crimes need to be finer, not only than those of existing theory (e.g., between instrumental and expressive offenses, or between predatory and violent offenses) but also than those provided by legal categories. In addition, the more comprehensive view of the determinants of crime provided by the interlocking decision models of involvement and event identifies a broader range of both policy options and possible points for intervention. Options can then be prioritized in relation to the specific offense under consideration in terms of practicality, immediacy of effect, and cost effectiveness. For example, the appropriate

involvement and event models for joy riding (theft of vehicles for personal use) might suggest a variety of measures, including increased leisure provision for juveniles at risk, community service for convicted offenders, "lock-your-car" campaigns, and the provision of better public transport. The most cost-effective method might turn out to be the improvement of vehicle security, since the assumption of rationality underlying the decision perspective supports measures that either increase (or seem to the offender to increase) the costs and effort of offending or decrease the rewards. The costs of this improved security would need to be carefully assessed; they should be weighed against the costs of the offense—these latter being broadly defined to include personal inconvenience and waste of police time—and any possible costs incurred by displacement.

Both the crime-specific focus for policy and the decision perspective are likely to favor more narrowly defined situational or deterrent measures by, for example, enabling the limits of displacement to be more clearly specified. While there is much unrealized potential for such measures (see Clarke 1983), there are dangers in going too far down this road. For example, different crime problems are sometimes concentrated together in the same localities and this may suggest coordinated action. It may also be the case that the best chance of apprehending individuals involved in certain particularly vicious criminal behavior—multiple rapes, for instance—lies in crackdowns on certain other offenses such as "curb crawling" or "cruising" by men in automobiles looking for prostitutes.

This latter point relates directly to the issue how far offenders are generalists rather than specialists, which is at the heart of questions about the policy value of the decision models. There is certainly evidence from the criminal careers research cited above that many of the most recidivist offenders are generalists. But it is not entirely clear to what extent they may specialize in certain forms of crime at particular times. It seems likely that the more closely offenses are defined, the more they will be found to be committed by characteristic offender types. Thus children involved in vandalism of schools may be different from those who assault teachers or, indeed, who vandalize other targets. To the extent that their special characteristics, in particular the motives and reasons underlying their conduct, can be identified and described, it may be possible to suggest more carefully tailored forms of intervention. Catchall interventions for loosely defined offender groups are unlikely to achieve their objectives.

There are other ways in which the decision approach helps to account for the limited effectiveness of current treatment efforts. Programs tend to pay too much attention to modifying the influence of "disposing" variables and in doing so take too little account of the **posttreatment environment**, including the offender's current social and economic situation, the role of chance events, and the specific opportunities open to him for crime. To be successful, treatment must take more account of these contemporaneous influences. Where the pressures and inducements are primarily economic, the measures needed are ones likely to increase the attractions and possibilities of conformity, such as programs that give the offender new skills or ways of earning a living. These programs must be based not only on a more careful analysis of the particular needs and circumstances of the target group, but also of the market for labor: it may be, for example, that work programs are of limited effectiveness for those already in work or for those able to earn considerably more money by illegitimate means.

As for incapacitation, the relevance of decision models lies in the fact that they demand a detailed understanding of continuance and desistance. In particular more needs to be known about offenders' reasons for switching crimes or for engaging in a variety of different crimes at a particular time. Knowledge of this kind will help to determine the feasibility of identifying suitable target groups for containment.

### *B. Research*

The decision approach suggests three important directions for research: the **mounting of further crime-specific studies**, the **devotion of more attention to the offender's perspective when criminal careers are studied**, and the **elucidation of decision processes at the point of offending**. Some notable examples of crime-specific research have been quoted in this essay. But there is much more scope for work of this kind, particularly if, as our analysis seems to require, finer distinctions between crimes are adopted. As for offenders' perspectives on their careers, examples of the sorts of information needed have already been given. A question of central importance concerns the part played in desistance by changes in personal circumstances as compared with being arrested and sentenced. For example, an understanding of the impact of law enforcement and criminal justice systems will require study of the offenders' sources of information and the way in which the information is evaluated. It cannot be assumed that offenders' views of

the system and its measures bear a close relation to those of policymakers. It will be important to ask, for example, whether the official information is reaching its targets, whether the message is consistent, and whether it is believed. The need to understand the processing of information is also salient to modeling decision processes at the point of offending. More knowledge is needed, in particular, about the heuristic devices employed in assessing costs and payoffs, about how anxieties concerning the morality of the act and the risk of apprehension are dealt with (e.g., through shutoff mechanisms and techniques of neutralization) and about the effect of alcohol (see Bennett and Wright, *in press*), of anger, or, indeed, of other emotions.

Getting the questions right will help to determine the appropriate methodologies, and our preceding discussion has illustrated the wealth of available techniques to acquire the necessary information—participant observation, retrospective interviews, experimental studies of decision making, ecological mapping, crime site surveys, and "process tracing" *in vivo* or by using films and photographs. For some offenses, such as residential burglary, there may already be enough data to attempt a detailed simulation of the decision process.

Each of these methods makes certain theoretical assumptions and has its characteristic limitations. For example, the use of interviews and introspection to investigate criminal decision making may reveal more about people's post hoc commonsense or self-serving explanations for their behavior than about either the processes involved or the factors actually taken into account (Nisbett and Wilson 1977). Again, it should not be assumed that decision making in the real world can be easily simulated in the laboratory (see Ebbesen and Konecni 1980). Given the complexities of the issues and the dearth of information, triangulation of methods is essential, though any technique that enables criminal choices to be studied as they occur in naturalistic settings (see Payne's [1980] advocacy of process tracing) may be especially valuable.

The separation in the discussion above among theoretical formulations, policy, and research is, of course, artificial. In successful policy-relevant programs of research, there must be a dynamic interplay among theories, empirical studies, and policy implications. In particular, ongoing research should have a powerful feed-back effect upon the construction of models. And the impact of decision modeling on the structure of research is every bit as important as the policy applications discussed above.

### C. Final Remarks

In conclusion, two general points seem worth emphasizing. First, the models have been developed primarily for the limited purposes of improving crime control policies and developing policy-relevant research. Such models have only to be "good enough"; they may not necessarily be the most appropriate or satisfactory for more comprehensive explanations of criminal behavior—though it seems likely that a decision approach might provide a useful starting point even for academic purposes. For example, Box (1981) has developed a sophisticated initial involvement model, based on control theory, which contains decision elements; while Glaser's (1979) more general "differential anticipation" theory incorporates elements of a decision approach within a hybrid involvement-event framework.

Second, decision models of crime might appear to imply the sort of "soft" determinism or modified classicism advocated by Matza (1964), namely, that while choices may be constrained, some leeway to choose still exists. And a criminology that makes use of such voluntaristic concepts might seem to have foresaken its traditional determinism.

A fuller discussion of this issue is beyond the scope of this essay (but see Glaser 1976; Schafer 1976). It is possible, however, to take a more pragmatic stance: while it is true that the concept of choice is likely to prove useful for generating and providing a framework for decision-making data, the resulting information supplies as many clues about determinants of behavior as it does about reasons and motives. This, in turn, enables both voluntaristic and deterministic models of offending to be elaborated further; it may be too soon, for example, to discount the sophisticated noneognitive accounts suggested by radical behaviorism (Skinner 1964, 1978). Perhaps, as Glaser (1976) implies, voluntaristic and deterministic assumptions are always best regarded as alternative heuristic devices for generating and organizing data. Under such circumstances it would not be surprising if the usefulness of their respective contributions to the task in hand—the more effective control of crime—appeared to vary from time to time. We believe, then, that decision-making concepts can be used for the purposes of constructing "good enough" theories without necessarily being firmly committed to a particular position in the free will/determinism debate—or to any consequential implications for crime control (Cressey 1979) or criminal justice (Norrie 1983). Indeed, the resulting policies remain, as before, the outcome of an uneasy blend of deterministic and neoclassical assumptions.

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