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## Perceiving the mentally ill : a test of an inferential path model.

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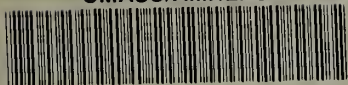
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PERCEIVING THE MENTALLY ILL: A TEST OF  
AN INFERENTIAL PATH MODEL

A Dissertation

By

Ronald H. Doyen

Submitted to the Graduate School of the  
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AN INFERENTIAL PATH MODEL

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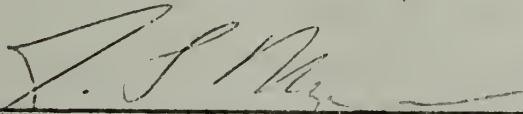
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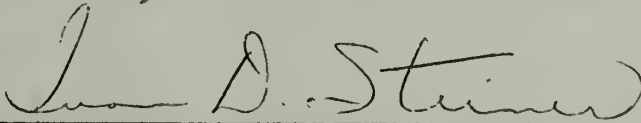
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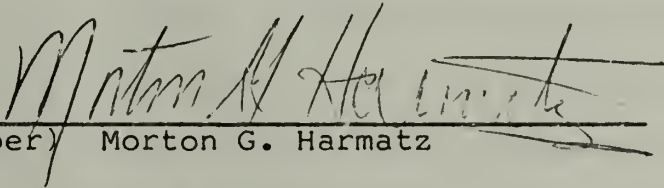
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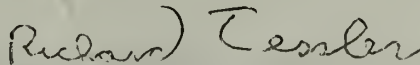
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## ABSTRACT

Perceiving the Mentally Ill: A Test of  
an Inferential Path Model

(May 1976)

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Directed by: Dr. Icek Ajzen

A review of the survey and experimental literature on attitudes toward the mentally ill suggested that, while attitudes have become somewhat more favorable in recent years, the public still maintains quite negative views about the mentally ill. The present study represented an attempt to investigate some of the cognitive processes which might lead to and sustain these views. A modified version of an inferential path model proposed by Kanouse (1971) was tested.

It was hypothesized that subjects would overgeneralize the maladaptive behavior of a mentally ill stimulus person relative to the same behavior performed by a stimulus person diagnosed as not mentally ill. The adaptive behavior of the mentally ill was expected to be undergeneralized relative to that of the not mentally ill. Subjects were expected to find specific, situational explanations for maladaptive behavior more acceptable when the stimulus person was not mentally ill, and to find specific, situational explanations for adaptive behavior more acceptable when the stimulus person was mentally ill. These mediating inferences were hypothesized

to facilitate the attribution of negative general dispositions to the mentally ill and positive general dispositions to the not mentally ill.

The operationalization of the model was not fully adequate to allow proper tests of all of the hypotheses. Nevertheless, the model received partial support. A number of related social perception issues were examined and discussed, including the applicability of Wyer's (1970) subjective probability model to the present research topic, and the order in which information is typically processed.



## TABLE OF CONTENTS

	Page
ACKNOWLEDGMENTS.....	iii
ABSTRACT.....	iv
LIST OF TABLES.....	viii
LIST OF FIGURES.....	x
INTRODUCTION.....	1
Surveys of Attitudes toward the Mentally Ill.....	1
Experimental Studies of Interaction with the Men- tally Ill and Other Stigmatized Groups.....	25
Statement of the Problem.....	39
METHOD.....	50
Overview of Part I.....	50
Subjects.....	53
Construction of the Questionnaire.....	54
Administration of the Questionnaire.....	60
Hypotheses.....	62
Overview of Part II.....	64
Procedure.....	66
RESULTS.....	69
Part I.....	69
Part II.....	78
DISCUSSION.....	97
Findings Relevant to How Information about the Men- tally Ill is Processed.....	97
General Features of the Inferential Path Model.....	106



Applicability of Wyer's Subjective Probability Model.....	115
REFERENCES.....	121
APPENDICES	
Appendix A: Descriptions of Stimulus Persons.....	133
Appendix B: Adaptive and Maladaptive Behavior Items.....	136
Appendix C: Significant Analysis of Variance Effects Involving Sex of Subject.....	141
Appendix D: Correlations between Estimates of P(B) Obtained in Part I and Predicted Values of P(B) Based on Group Data Obtained in Part II....	143

## LIST OF TABLES

Table	Page
1: Probability Judgments for One Maladaptive Behavior Item.....	68
2: Analysis of Variance Summary Table: Estimates of $P(B)$ .....	70
3: Mean Estimates of $P(B)$ for Adaptiveness X Symptoms Interaction among Control Path II Subjects.....	72
4: Correlations between Estimates of $P(G)$ and $P(B)$ among Strong Path Subjects.....	75
5: Correlations between Estimates of $P(E)$ and $P(B)$ among Weak Path Subjects.....	75
6: Adjusted Mean Estimates of $P(B)$ for Path X Symptoms X Diagnosis Interaction.....	77
7: Mean Estimates of $P(B)$ for Adaptiveness X Symptoms Interaction.....	80
8: Mean Estimates of $P(G)$ for Adaptiveness X Diagnosis Interaction.....	81
9: Analysis of Variance Summary Table: Estimates of $P(E)$ .....	82
10: Mean Estimates of $P(E)$ for Adaptiveness X Diagnosis Interaction.....	83
11: Analysis of Variance Summary Table: Estimates of $P(B G)$ .....	84
12: Mean Estimates of $P(B G)$ as a Function of Symptoms, Diagnosis, and Path.....	86
13: Mean Estimates of $P(B G')$ for Path X Diagnosis Interaction.....	87
14: Mean Estimates of $P(B E)$ for Symptoms X Diagnosis Interaction.....	88
15: Mean Estimates of $P(B E')$ for Path X Adaptiveness Interaction.....	88

## Table

## Page

16: Mean Overall Probability Estimates for Several Variables and Comparisons among Them.....	90
17: Correlations between Obtained Estimates of $P(B)$ and Other Variables.....	94
18: Range and Median of Individual Subjects' Correlations between Predicted and Obtained Values of $P(B)$ .....	96

## LIST OF FIGURES

Figure	Page
1: A representation of the version of Kanouse's path model investigated in the present research project.....	51
2: An illustrative example of the inferential steps included in one maladaptive behavior item.....	52

Perceiving the Mentally Ill: A Test of  
an Inferential Path Model

Ronald H. Doyen

University of Massachusetts

The present study is concerned with the general issue of how people perceive the mentally ill. In the first part of the paper previous survey and experimental research on attitudes toward the mentally ill is reviewed. Then, a model which attempts to specify some of the ways in which people process information about the mentally ill is proposed. An empirical test of the model is reported, and a number of related issues are discussed.

Surveys of Attitudes toward the Mentally Ill

Two general types of surveys have been conducted in attempts to investigate public attitudes toward the mentally ill. The first type of survey involves a direct inquiry into attitudes and beliefs regarding mental illness. In the second approach respondents are presented with brief descriptions of individuals exhibiting various "textbook" symptoms of psychiatric disorder. They are then asked to identify the individuals whom they consider mentally ill, and often complete other measures as well. Surveys primarily employing direct attitude assessment will be considered first, and then attention will be directed toward surveys of the second type.

One of the earliest systematic surveys of public attitudes toward the mentally ill was conducted by Ramsey and Seipp (1948). A representative sample of the adult population of Trenton, New Jersey was asked six questions regarding the nature and etiology of mental illness. The majority of those surveyed did not believe that insanity was God's punishment for sin or wrongdoing, and nearly all of the respondents felt that the mentally ill could benefit from treatment. Those of higher educational and occupational status tended to cite emotional and physical difficulties as causes of "insanity," while less educated individuals were more likely to specify environmental or behavioral causes (e.g., overeating, alcoholism, overwork). The former group was more optimistic about recovery, more likely to recommend professional treatment, and less likely to believe it is harmful to be associated with the insane.

In 1950 a study of the mental health attitudes of the residents of Louisville, Kentucky was conducted. The survey, one of a series designed to determine what local citizens thought about problems of city administration, involved structured interviews with a representative sample of the city's adult population (Woodward, 1951). Most respondents viewed mental illness as a condition requiring sympathy and treatment rather than punishment or ridicule. Seventy-five percent felt that there were not enough doctors or



hospitals in Louisville to take care of the mentally ill. Most respondents held generally favorable attitudes toward psychiatric treatment, but indicated that they would seek such help for emotional problems only as a last resort. The family doctor, members of the family, clergymen, and friends were more often mentioned as sources of help.

The results of the Louisville and Trenton surveys have been interpreted as indicating that the public had, by about 1950, largely abandoned the blatant fear and rejection which had characterized attitudes toward the mentally ill in earlier years (Crocetti, Spiro, and Siassi, 1974). The public was described as moving toward a humanitarian and scientific view of the mentally ill (Ramsey and Seipp, 1948). However, more recent evidence suggests that this view was overly optimistic, and that public acceptance of the mentally ill is, even now, of a rather limited nature.

Nunnally (1961) has conducted one of the most thorough and widely known inquiries into public knowledge and opinions about a variety of mental health issues. A sample of Illinois residents representative of the entire United States in terms of sex, race, education, income, and religion was employed. These respondents indicated the extent to which they agreed with over 3,000 statements related to mental health obtained from professional publications, media presentations of mental health material, and extensive interviews



with the public. The data were factor analyzed, and a 50-item questionnaire was designed which measures each of the ten factors which emerged. The factors describe specific beliefs about mental illness, and include the views that the actions and appearance of the mentally ill are distinguishable from those of the normal, that women and the elderly are especially prone to mental illness, that willpower and control of one's morbid thoughts can help one avoid mental problems, and that mental illness is a hopeless condition. Endorsement of these views was quite high among the public, and rather low among mental health professionals. Responses to the 50-item questionnaire led Nunnally to conclude that beliefs about mental illness are not highly structured or highly crystallized. Respondents tended not to have logically coherent opinions, and were quite willing to change them.

To get a more complete picture of public attitudes toward the mentally ill, Nunnally employed a form of the semantic differential scale (Osgood, Suci, and Tannenbaum, 1957). Subjects rated terms such as old man, neurotic man, average man, etc. on a series of 7-point scales. The results of this portion of the study revealed that the mentally ill were viewed quite negatively, and were described as relatively worthless, cold, unpredictable, dangerous, insincere, and dirty. In a recent study employing Nunnally's semantic

differential measures, Olmsted and Durham (1976) found that such beliefs are still quite prevalent among the college students they surveyed.

Cumming and Cumming (1957) surveyed the attitudes of two small towns in Canada in an assessment of the effectiveness of a mental health education campaign. The 6-month campaign, consisting primarily of films and group discussions, proved to be largely ineffective. Using Guttman's scaling techniques, the investigators found that the members of the communities expressed a willingness to live in the same neighborhood with former mental patients, but were not willing to room with them or to have any other close association with them. Further, the community residents felt little responsibility for the condition of the mentally ill, and were quite tolerant of poor hospital conditions and patient isolation.

Cohen and Struening (1962) developed a widely used multi-dimensional scale, Opinions about Mental Illness (OMI), by factor analyzing responses to a pool of Likert-type items. The five factors measured by the OMI include the following:

A: Authoritarianism. Highly correlated with the California F Scale, this factor involves submission to authority, anti-intraception, and a belief that the mentally ill are an inferior group who should be separated from normals

and handled coercively.

B: Benevolence. A sort of kindness to unfortunates based on religious and humanitarian grounds.

C: Mental Hygiene Ideology. Acceptance of the ideas that the mentally ill are willing to work, capable of skilled work, trustworthy, and generally not much different from normal people.

D: Social Restrictiveness. Mental patients are viewed as a threat to society, and should therefore be restricted in their social contacts (e.g., the right to marry, have contact with their children, etc.) both during and after hospitalization.

E: Interpersonal Etiology. The belief that mental illness is caused by unfortunate interpersonal experiences, particularly love deprivation during childhood.

The factor structure of the OMI has been found to be relatively stable across population samples (Struening and Cohen, 1963) and time (Dielman, Stiefel, and Cattell, 1973). Scores on Factors A and D tend to be moderately related, as do scores on Factors B and C. This instrument has been used in a number of studies comparing the attitudes of various groups. One of the most interesting comparative studies examined the attitudes of personnel affiliated with Veterans Administration Psychiatric Hospitals (Cohen and Struening, 1962). Blue-collar workers, including aides and

kitchen workers, were quite Authoritarian and Socially Restrictive, and were not very strong in Benevolence and Mental Hygiene Ideology. Psychologists and social workers presented a mirror image of the blue-collar workers. Clergymen and, to an extent, psychiatrists held attitudes similar to but less extreme than those of the psychologists and social workers. Cohen and Struening (1964, 1965) found that the atmosphere of a hospital is largely determined by the attitudes of nurses and aides and that authoritarian-restrictive atmospheres were associated with lower discharge rates.

In addition to the work of Cohen and Struening, a large number of studies have examined the mental health attitudes of selected populations. The opinions of doctors, lawyers, teachers, nurses, community leaders, and various ethnic groups and nationalities have come under scrutiny. All personnel involved in the delivery of psychological services have been extensively studied, as have mental patients and their families. Detailed consideration of these studies is beyond the scope of this review. Many are discussed by Rabkin (1972, 1974), Sarbin and Manusco (1970), and Crocetti, Spiro, and Siassi (1974). While it is difficult to briefly summarize the findings of such a large body of literature, it may be noted that, with a few exceptions, attitudes of selected groups have not differed substantially



from those of the general public (see, e.g., Sarbin and Manusco, 1970; Rabkin, 1972; Farina and Felner, 1973).

All of the findings discussed thus far are based on surveys, or portions of surveys, in which the respondents were directly asked for their opinions about mental illness and the mentally ill. A second approach is directed toward examining the respondents' reactions to deviant behavior which is usually not explicitly identified as mental illness. Studies of this type will now be considered.

The survey which has served as a model for many subsequent investigations of the perception of deviant behavior was conducted by the National Opinion Research Center of the University of Chicago in 1950 (Star, 1955; discussed in Halpert, 1970). The study involved 3,500 90-minute interviews with a representative cross section of the American public. In the interviews respondents were given brief descriptions of six individuals exhibiting major symptoms of paranoid schizophrenia, simple schizophrenia, alcoholism, an anxiety neurosis, a compulsive phobia, and a childhood character disorder. The interviewees were asked, for each case, whether they thought something was wrong with the person, what was wrong, what could have caused the condition, and whether the person should be considered mentally ill. Seventy-five percent of the respondents regarded the paranoid schizophrenic as mentally ill, but none of the

other individuals was considered mentally ill by more than 34 percent. One-sixth of the respondents did not view any of the cases as mental illness; one-third perceived mental illness only in the paranoid case.

Respondents were also asked for their own definitions of mental illness. Those who included neurotic as well as psychotic symptoms in their definitions tended to perceive mental illness in a greater number of cases than those whose definitions were less inclusive. However, including certain symptoms within one's abstract definition did not necessarily mean that a case exhibiting these symptoms would be identified as mentally ill. For example, only 20 percent of those who included anxiety in their definition labeled the anxiety neurotic mentally ill. Many people stated in their abstract definitions that there are many different kinds and degrees of mental illness, but included only extreme psychosis in their actual working definition. Star concluded that people tend not to regard behavior as proof of mental illness unless there is evidence of a loss of cognitive functioning; a loss of self-control, usually to the point of violence; and inappropriate behavior which is difficult to explain rationally.

The Louisville survey (Woodward, 1951) discussed previously employed case descriptions similar to Star's, with similar results. The unwillingness of the public to view

behavior problems as indicative of mental illness was clearly in evidence. For instance, only two percent identified a schizophrenic girl as mentally ill, and only four percent felt that she should see a psychiatrist. Common sense measures were frequently recommended to help the individuals described. Only seven percent recommended sending a paranoid woman to a mental hospital, yet thirteen percent recommended that the woman's husband stay at home and prove that he loves her, and twenty-one percent said that he should give her a "good-talking-to."

Another previously discussed study (Cumming and Cumming, 1957) yielded findings comparable to those of Star and Woodward. Using Star's original case descriptions, the Cummings found that 69 percent of the respondents considered the paranoid schizophrenic mentally ill, but that each of the other individuals was viewed as mentally ill by only a minority. The percentages of respondents identifying the remaining cases as mentally ill ranged from 36 for the simple schizophrenic to four for the compulsive phobic and the boy with the character disorder.

More recent evidence suggests that the Star cases are now more likely to be viewed as mentally ill. In a study of community leaders in the Washington Heights area of New York City, Dohrenwend, Bernard, and Kolb (1962) found that the percentages of respondents identifying the cases as



mentally ill ranged from 100 for the paranoid schizophrenic to 40 for the compulsive phobic. In a follow-up survey of residents of the same area, Dohrenwend (1966) obtained somewhat lower proportions. Still, 90 percent of those surveyed identified the paranoid schizophrenic as mentally ill, 67 percent the simple schizophrenic, 31 percent the anxiety neurotic, and 24 percent the compulsive phobic. These studies, as well as a similar one by Lemkau and Crocetti (1962) which employed three of the Star vignettes, suggest an increasing tendency for the public to regard deviant behavior as mental illness. Nevertheless, it should be noted that, with the exception of the psychotic cases, the percentages are rarely overwhelming, and are certainly much smaller than one would expect if the public had adopted the professional's diagnostic standards which have been advocated in public mental health education campaigns. Further, Dohrenwend and Chin-Shong (1967) have shown that, with the exception of the paranoid schizophrenic, the Star cases do not strike respondents as having particularly serious problems. Thus, if perceived seriousness may be used as an (inverse) indicator of acceptance of deviant behavior, the recent studies may be viewed as consistent with the proposition that the public continues to be rather tolerant of several kinds of deviant behavior which professionals would diagnose as mental illness.

A number of studies have suggested that the tendency to reject those whose behavior deviates from prescribed norms depends heavily on the extent to which it represents potential harm or irritation to others. Dohrenwend and Chin-Shong (1967) argued that, while psychiatrists judge the seriousness of mental health problems on the basis of "underlying pathology," laymen's evaluations are based on the threat to others. However, Manis, Hunt, Brawerm, and Kercher (1965) found that psychiatrists as well as the general public were strongly influenced by the social visibility of symptoms in deciding which of 20 cases to label mentally ill.

Phillips (1964) found that rejection of the deviant, measured by a social distance scale, was more strongly influenced by the visibility of the deviation than by intrapsychic pathology. For example, a depressed neurotic described as sometimes losing his temper and disturbing others was more strongly rejected than a simple schizophrenic who was quite withdrawn. In an earlier study Phillips (1963) used slightly modified Star case descriptions and a description of a "normal" individual. Five different cases were described as seeking help from five different sources -- no help source, a clergyman, a physician, a psychiatrist, and a mental hospital. The cases were increasingly rejected in the order above. The largest increase in rejection

occurred when the person was described as seeking help from a psychiatrist rather than a physician. Thus, rejection was particularly strong when the help sought could be viewed as an indication that the person suffered from mental illness. In fact, a normal individual who sought help from a mental hospital was rejected more than two neurotics who sought no help. The behavior description variable also had a strong effect on rejection, but did not interact with the help source variable. The paranoid schizophrenic was very strongly rejected, the simple schizophrenic and the two neurotics were moderately rejected, and the normal person elicited little rejection.

The weight of the evidence from surveys investigating the public's perception of deviant behavior suggests that the layman is not particularly disturbed by several kinds of behavior which would be diagnosed as mental illness by professionals. He is unlikely to employ the mental illness label except in rather extreme cases involving psychotic or disruptive behavior. On the surface, these findings seem inconsistent with the negative attitudes generally expressed toward those identified as mentally ill. On the one hand, the mentally ill are strongly rejected; on the other hand, symptoms of mental illness are not viewed particularly unfavorably.

These two general propositions are not consistent with all of the survey data which have been collected, but they do seem to reflect the major trends of most available studies. Limiting conditions for the validity of one or both propositions have been found in a number of studies. Having a mentally ill friend or relative was found to be associated with decreased rejection of individuals described as seeking help from a psychiatrist or mental hospital (Phillips, 1964). Age has had an effect on mental health attitudes in a number of studies, with younger respondents reacting more favorably to those described as mentally ill (Cumming and Cumming, 1957; Freeman, 1961). Case descriptions identifying the deviant person as female elicit consistently less rejection than male case descriptions, whether the cases are identified as mentally ill or not (Phillips, 1964; Crocetti, Spiro, and Siassi, 1974). A large number of studies have examined the impact of the respondent's race, educational level, occupational status, and other demographic variables on his views regarding mental illness. Although the findings are not wholly consistent, many studies have found a stronger tendency to identify deviant behavior as mental illness, as well as more favorable attitudes toward those diagnosed as mentally ill, among higher socioeconomic groups (Dohrenwend and Dohrenwend, 1969). These studies, and many others not cited, make it



clear that the two propositions advanced above do not describe universal human propensities, nor are they intended to do so. As indicated previously, the propositions are offered as summaries of general trends in the survey literature on attitudes toward mental illness.

The two sets of findings have led to considerable confusion in the literature, and various attempts have been made to explain one or both sets on the basis of individual or societal needs. Cumming and Cumming (1957), building on Durkeim's classic sociological theory of punishment, argued that negative attitudes toward the mentally ill serve the function of reaffirming group solidarity. Punishing deviants reassures nondeviant members of society that the prevalent social structure will remain stable. Cumming and Cumming also comment on the refusal of the public to identify the Star case descriptions as mental illness, noting that this may reflect use of the defense mechanism of denial. Star (1957, cited in Crocetti, Spiro, and Siassi, 1974) argued that "mental illness" is interpreted by the public to mean the loss of man's rationality and self-control, two of his most distinctively human qualities. Hence, it is perceived as very fearful and threatening, and is viewed as an appropriate description of behavior only in very extreme cases. Gilbert and Levinson (1956) interpret "custodial" attitudes toward the mentally ill as a reflection

of the underlying psychological needs of the authoritarian personality (Adorno, Frenkel-Brunswick, Levinson, and Sanford, 1950).

Two recent attempts to review and interpret the literature on public opinions about the mentally ill have led their authors to quite different conclusions. Since these works are among the most recent reviews of public mental health attitudes, and since the issues they raise are quite interesting and important, they will be examined in some detail. Two primary areas of disagreement stand out. Sarbin and Manusco (1970, 1972), following a line of reasoning similar to that advanced in the present review, argue that public attitudes toward the mentally ill are perhaps more favorable than in the past, but are still quite negative. On the other hand, Crocetti, Spiro, and Siassi (1974; Crocetti, Spiro, Lemkau, and Siassi, 1972) maintain that there is little evidence that the mentally ill are now strongly rejected. The second area of disagreement involves the desirability of promoting a "sick role" conception of mental illness. Crocetti and his colleagues favor such a conception, while Sarbin and Manusco are opposed. The two areas of disagreement will be considered separately.

In building their case against what they describe as the "theory of rejection" of the mentally ill, Crocetti, Spiro, and Siassi make occasional use of a common but

logically fallacious technique. The technique involves advancing an extreme argument in favor of an opposing point of view, citing evidence inconsistent with that argument, and then concluding that the opposite must be true. Thus, they note that people today tend not to believe that the mentally ill should be "locked up," that mental patients are less strongly rejected than Negroes or German Jews in the 1920s, and that most people who know someone who has been hospitalized because of mental illness do not deny it when asked by an interviewer. Abandonment of the stereotypes and fears of the past is taken to indicate high public acceptance of the mentally ill. In addition, in errors unbecoming to professional researchers, an article by those who have criticized Crocetti's earlier work (Sarbin and Manusco, 1970) has been incorrectly quoted twice within a single paragraph (p. 141). Such errors might lead one to reject out of hand anything these authors have to say. However, much of their reasoning is based on a sounder foundation, and many of their arguments are worthy of consideration.

To a large extent, the controversy about the favorability of attitudes toward the mentally ill results from the use of different criteria for what constitute favorable attitudes. Relying heavily on recent social distance data collected by themselves and others, Crocetti, Spiro, and



Siassi maintain that people now refuse to put much social distance between themselves and the mentally ill. In a survey of a sample of the Baltimore United Auto Workers membership conducted in 1970, the investigators found that 90 percent of the respondents indicated a willingness to work with a former mental patient, 79 percent would not object to rooming with an ex-patient, and 64 percent could imagine themselves falling in love with one. Sarbin and Manusco, while not having the most recent data available at the time of their article, emphasize the percentages of people who are unwilling to have close relationships with the mentally ill. Commenting on an earlier survey (Lemkau and Crocetti, 1962), Sarbin and Manusco suggest that the findings that about half of the Lemkau and Crocetti sample could conceive of rooming with and falling in love with ex-patients are not sufficient to indicate high public acceptance of the mentally ill. It is not clear how they would interpret the evidence of increasing acceptance in the recent survey. It is possible that the appearance of more favorable attitudes is due to increasing sophistication among the general public, as is apparent in recent studies directly inquiring about racial attitudes (Jones, 1972; Ehrlich, 1973). Not wanting to appear prejudiced in their responses to items whose purpose is quite transparent, as social distance items are, respondents may verbalize favorable attitudes.

On the other hand, one may grant that the recent Crocetti, Spiro, and Siassi data reflect genuine increases in the public's willingness to associate with the mentally ill without necessarily accepting their conclusion that rejection of the mentally ill is largely a thing of the past. This view, as they clearly acknowledge, is a minority opinion. While future evidence may support their contentions, most presently available studies do not. Within their own recent survey there is evidence that acceptance of the mentally ill at relatively intimate levels is quite limited. In one study only 24 percent of the respondents indicated that they would definitely be willing to rent a room to a former mental patient, and only 12 percent indicated a definite willingness to have their child marry a former patient. These percentages were raised to only 31 and 18, respectively, when the ex-patient was described to a separate sample as a respectable man with a good job, quite a few friends who find him easy to get along with, and plans to marry a nice young woman. That ex-patienthood is still a stigmatizing condition is evidenced when one examines the proportions of respondents expressing unconditional acceptance of the same individual, from whose description the mention of mental illness had been omitted. Fifty-five percent described themselves as definitely willing to rent a room to this man, and 57 percent were

definitely willing to have their child marry him.

The authors' divergent views regarding the desirability of a "sick role" conception of mental illness follow, in part, from their conclusions about current public attitudes toward the mentally ill. In addition, quite different aspects of the sick role are stressed. Crocetti, Spiro, and Siassi maintain that the public has rather favorable attitudes toward the mentally ill and defines a wide range of its own problems as mental illness. Most people have friends or family members who have been treated for mental disorders, which suggests to them that virtually anyone may be afflicted by such disorders. Crocetti and his co-workers argue that once this notion of universal vulnerability to a condition is accepted by members of a social system, the conception of the condition as deviance becomes untenable within that society. Individuals who believe that they, and those close to them, may become mentally ill find it unnecessary and undesirable to label the mentally ill as deviants deserving negative sanctions for their behavior. Rather, the mentally ill are labeled as "sick," and are to be accorded the rights and privileges of the sick role. Such rights and privileges include sympathy from others, professional treatment for the illness, and temporary relief from one's job and other social responsibilities.

Sarbin and Manusco's analysis differs on almost every point. The public is described as not defining either its own personal problems or the deviant behavior of others as mental illness. The public's tolerance for deviant behavior is believed to be rather high. However, when deviant behavior is identified as mental illness, relatively strong rejection occurs. Sarbin and Manusco note that one of the principal aims of almost all recent mental health education campaigns has been to encourage the public to apply the "mental illness metaphor" to an increasing variety of behavior problems. They argue that it is fortunate that the campaigns have not been very successful, since more widespread usage of the mental illness label might well lead to increased rejection of the deviants so labeled.

Sarbin and Manusco discuss a number of reasons for the public's reluctance to accept the professional's conception of mental illness as it has been presented in public education efforts. Two central reasons for this reluctance are the most important for present purposes. First, the public, like professionals, has difficulty in developing classification rules by which such diverse conditions as paranoid schizophrenia and alcoholism may be considered as manifestations of the same entity, "mental illness." Since it seems illogical to attach the mental illness label to so many conditions with so little in common, the public,

unlike the professionals, reserves the term for rather extreme behavior problems. Secondly, the public is unwilling to accept the "nonperson" status accorded the mentally ill by professionals for almost anyone who has interpersonal and other difficulties. The diagnosed mental patient is viewed as a nonperson in that he cannot manage his own affairs, he is unable to "deal with reality," and he is given little responsibility for designing and implementing solutions to his own problems. These aspects of the sick role which the public sees assigned to the mentally ill make the role unacceptable to them.

Sarbin and Manusco view the public as correctly refusing to categorize diverse behavior problems as mental illness, and as correctly apprehending the basic features of the mentally ill role. For these reasons, and because of what they view as logical fallacies inherent in the mental illness concept as it has evolved, as well as the unfortunate social consequences arising from its promulgation (see, e.g., Szasz, 1961; Sarbin, 1967), Sarbin and Manusco oppose a sick role concept of mental illness.

The empirical basis for the investigators' views has already been discussed, and it will be recalled that the present review reached conclusions about the nature of current attitudes toward the mentally ill quite similar to those of Sarbin and Manusco. Hence, it should be clear that



we do not agree with Crocetti, Spiro, and Siassi's conclusions that the public currently demands that a wide range of behavior problems be defined as mental illness, and insists that individuals suffering from these problems be treated in much the same way as those suffering from physical illness. Still, certain arguments presented in support of their views suggest interesting possibilities. The notion that a condition will cease to be considered as deviance and will begin to be viewed as illness when the public believes in universal vulnerability to the condition is a particularly intriguing sociological hypothesis.

The aspects of the sick role concept stressed by the different authors present a strikingly different picture of what one means by the term "sick role." Crocetti, Spiro, and Siassi emphasize the temporary incapacity of the sick, and their right to sympathy and treatment. Sarbin and Manusco stress the nonperson status of the mentally ill role. The former authors argue that defining behavior problems as illness exempts one from the punitive treatment often given to the deviant. The latter authors propose that such a definition results in even more inhumane treatment than that which would result if the problems were defined as social deviance (and certainly more than if they were not defined as serious problems at all).

The argument that the sick role exempts one from treatment as a deviant was advanced by Goffman (1963) in discussing physical illness. Crocetti, Spiro, and Siassi maintain that a virtually identical role is appropriate for the mentally ill. They note the interrelatedness of physiological and behavioral functioning, and suggest that the public now recognizes the fallacious nature of "Descartes' myth," i.e., that the mind and body are separate entities. Such recognition is believed to make it unnecessary for people to hold one set of attitudes toward physical illness, and another set toward mental illness. Empirical evidence is cited which shows that attitudes toward both types of illness are influenced by the chronicity of the condition, and the extent to which the condition might disturb others.

The Crocetti, Spiro, and Siassi analysis suggests several plausible reasons for assuming some commonality in the roles people are willing to assign to those with physical and mental illness. However, another line of argument (Szasz, 1961; Sarbin, 1967) proposes that a whole complex of attitudes attached to the public view of mental illness makes it difficult for people to assign Goffman's sick role to the behaviorally deviant. For example, the public recognizes that deviant behavior typically has greater social implications than physical illness. Deviant social behavior affects others quite directly, and



often poses more of a threat to a social relationship than physical illness. Further, physical illness tends to be more amenable to diagnosis and treatment, and recovery more complete. And, importantly, an individual is held more responsible for his social behavior than for his biological functions. There are exceptions to these general statements, of course, but they do suggest reasons the public might have for not viewing the sick role as a fully appropriate one for those who adopt deviant solutions to life's problems. Sarbin and Manusco's discussion of nonperson status points out several of the more unfortunate aspects of the particular sick role which has evolved for the diagnosed mentally ill.

#### Experimental Studies of Interactions with the Mentally Ill and Other Stigmatized Groups

The attitude survey has been by far the most common source of information about public views of the mentally ill. Experimental studies involving contact with individuals subjects believe to be mentally ill are a relatively recent development, and have been largely ignored in reviews of the literature on attitudes toward the mentally ill. Rabkin (1972) does discuss a number of studies which show that contact with the mentally ill may result in more favorable attitudes, particularly when combined with a

mental health education program. However, several studies which systematically examine the dynamics of the interaction between a mentally ill or other stigmatized individual and a normal person have been omitted from Rabkin's and other recent literature reviews. Studies of this nature will be examined in this section. Before turning our attention to these studies, however, we shall briefly discuss the nature of the relationship between mental illness and other stigmatizing conditions.

Goffman's (1963) excellent treatment of stigmata assumes that the stigmatized may be divided into two principal categories -- the "discredited" and the "discreditable." A discredited individual is one whose stigma is known to others. Although this is often because the stigma is an apparent physical characteristic, it need not be the case. For example, a divorcee living in a conservative small town might well be discredited within her community. Discreditable people are those whose stigmatizing condition is unknown to those with whom they are interacting. Goffman depicts the discredited and discreditable as having fundamentally different sets of problems in their interactions with others. The discreditable individual's problems are primarily those of "information management," i.e., deciding what information to reveal to whom, when, etc. The discredited person, however, knows that others are aware

of his stigma, and is more concerned with "tension management" when he encounters others.

Different stigmatizing conditions within one of Goffman's two principal categories are, for the most part, treated as uniform in their consequences. Thus, a discredited individual is viewed as having the same fundamental problems whether he is a member of a disliked ethnic group, an amputee, a blind man, or an ex-convict. The assumption that quite similar consequences are associated with a variety of stigmata has a certain intuitive appeal. It seems that people tend to avoid interacting with the stigmatized and to feel uncomfortable when in their presence, regardless of the particular stigma involved. Many stigmatized groups seem to suffer social and economic discrimination. Examining some of the available empirical evidence provides some support for these intuitions. For example, blacks (Ehrlich, 1973; Jones, 1972) and ex-mental patients (Farina and Felner, 1973) both have difficulty in securing employment. Both groups are low in socioeconomic status relative to national norms (Jones, 1972; Braginsky, Braginsky, and Ring, 1969), and both groups are fairly strongly rejected on social distance measures (Harding, et al., 1969; Crocetti, Spiro, and Siassi, 1974). One could almost certainly find other evidence of similarities between blacks and ex-mental patients, and between other pairs of

stigmatized groups. However, other available evidence suggests that the view that the discredited are perceived and treated in a uniform way is an oversimplified notion.

Kleck, et al. (1968) employed a figure placement task in an investigation of the distance which college students put between themselves and other individuals of various descriptions. Figures representing a friend and a liked professor were placed closest to a figure representing the subject, while one representing a disliked professor was placed farthest away. On this particular rejection measure, a blind person, a Negro, a stranger, and an amputee were more strongly rejected than the friend or liked professor. However, an epileptic and a mental patient elicited significantly greater rejection than any of these groups. The disliked professor evoked still greater distance scores. Lamy (1966) gave subjects a number of statements which they were required to choose as more characteristic of either an ex-mental patient or an ex-convict. The ex-convict was generally viewed more favorably. For example, he was chosen as more reliable in an emergency, more able to deter reinstitutionalization, more responsible as an employee, and less likely to generate tension and anxiety in his family. Freed (1964) compared attitudes toward mental illness, alcoholism, and physical disability. The results showed that the mentally ill were viewed more negatively than the other groups.



There is evidence, then, for both similarities and differences in the way various stigmatized groups are perceived and treated. Experimental studies involving interactions between stigmatized and nonstigmatized individuals do little to clarify the nature of public responses to different types of stigmata. Most of the available studies dealing with a particular stigma have not been sufficiently similar to those dealing with other stigmata to allow meaningful comparisons (see, e.g., Ehrlich, 1973). An exception occurs in the case of the research programs of Farina and Kleck. Each investigator has conducted a series of laboratory studies of interactions between normal subjects and confederates who enact the role of a stigmatized person. Farina and his colleagues have focused primarily on mental illness, while Kleck and his co-workers have dealt almost exclusively with physical stigmata. The major findings of these two research programs, and of other relevant studies, will be briefly reviewed in the remainder of this section. First, findings with respect to the dependent measures which the Kleck and Farina research programs have in common will be discussed. Then, findings of other experimental studies involving interactions with the mentally ill will be reviewed. Finally, a very brief review of Kleck's other findings regarding physical stigmata will be provided, since these studies suggest several variables which could



easily be examined in studies of interactions with the mentally ill.

A few studies have explored the willingness of subjects to interact with the stigmatized. Farina and Ring (1965) had subjects work on a cooperative motor task with an individual whom they believed to be either an ex-mental patient or a normal person. Subjects in the two conditions reported an equal willingness to interact with their partner in the future on a similar sort of task. In a study with "real-life" implications, female employees of a department store were asked to interview a prospective employee, and to evaluate her qualifications and suitability for a job in the interviewer's department. "Ex-patient" interviewees were recommended just as strongly as "normal" applicants (Farina, Felner, and Boudreau, 1973). Kleck, Ono, and Hastorf (1966) examined the willingness of subjects to interact with a physically stigmatized individual on a short-term basis in two separate experiments. In the first experiment subjects terminated a structured interview with a normal other earlier than an interview with a person in a wheelchair. In the second experiment, the physical disability was made more obvious by employing a wheelchair which made the confederate appear to be a left-leg amputee. Other procedural changes made the purpose of the interaction more ambiguous, and the role relationship between the

participants less clear. Under these conditions, there was a tendency for subjects to terminate the interaction with the disabled confederate earlier than the interaction with the normal confederate. However, this tendency was significant only among subjects who reported being uncomfortable during the interaction.

Comparisons of the comfort one feels in interactions with the physically disabled and nondisabled have shown the expected tendency for less comfort to be reported when interacting with the disabled (Kleck, 1966). Galvanic skin response data corroborate this finding (Kleck, Ono, and Hastorf, 1966). However, Farina and Ring (1965) found that subjects reported being no less comfortable working with an ex-patient than with a normal person.

Perceptions of the task performance of the two stigmatized groups have also failed to provide a picture of uniform reactions to the two groups. Farina and Ring (1965) found that subjects who believed they were working with ex-mental patients felt that their partners had hindered their task performance, despite objective evidence to the contrary. Kleck (1969), on the other hand, found a nonsignificant tendency for a disabled confederate's performance on a Japanese paper folding task to be more favorably evaluated than that of a non-disabled confederate.

Farina, Holland, and Ring (1966) found that a confederate who described himself as emotionally disturbed was more severely punished by subjects than a well-adjusted confederate. This finding was especially apparent on a measure of the duration of shocks administered as corrective feedback in a learning task. This measure was viewed by the authors as a subtle indicator of negative affect, and evidence was cited which suggested that subjects were quite unaware of the duration of the shocks they administered. Farina, Sherman, and Allen (1968) employed a similar procedure in a study involving physically disabled confederates. Subjects were found to deliver shocks of less duration to a severely disabled confederate than to a confederate with only a slight disability.

These findings provide further evidence that different stigmata need not be perceived in the same way. The extent to which the inconsistent results cited above were due to differences in experimental situations as opposed to differences in stigmata remains unclear. Attention will now be directed toward other experimental findings regarding the perception of the mentally ill.

Farina and Ring (1965) employed a number of measures not yet discussed. Subjects rated the former mental patient as less able to understand himself and others, less able to get along with others, and more unpredictable than the normal

partner. There were no differences in ratings of the partner's intelligence or motor abilities.

A number of studies suggest that the way a mental patient presents himself to others may have a strong impact on their perception of him. Nunnally (1961) found that a speaker who revealed herself to be an ex-mental patient late in a speech was more effective in enhancing attitudes toward the mentally ill than a speaker who revealed her ex-patient status early in her speech. Gergen and Jones (1963) found that a mentally ill person's unpredictable behavior in a laboratory experiment had a deleterious effect on evaluations of him only when this unpredictability resulted in negative affective consequences (a loud buzz) for the subject. Farina, Felner, and Boudreau (1973) investigated the hypothesis that tense and anxious behavior on the part of a mental patient may be particularly disturbing to others. Tense behavior on the part of a woman described as an ex-patient applying for a job did produce less favorable job recommendations than calm behavior. However, a normal woman who behaved in an anxious manner received equally negative recommendations.

A study by Farina, Holland, and Ring (1966) suggests that the negative consequences of poor emotional adjustment may be reduced when the present problem is attributed to the past misdeeds of others. A confederate who described



himself as poorly adjusted was less severely punished when he described his childhood as pathogenic than when he described his childhood as normal. For the currently well-adjusted confederate, the bad childhood had the opposite effect, with less severe punishment being inflicted in the case of the normal childhood. The latter result was neither expected nor satisfactorily explained.

Two of Farina's studies have examined the importance of a person's belief that another person thinks he possesses a stigma (regardless of whether he actually does) in affecting the way he behaves and is perceived. In the first of these studies (Farina, Allen, and Saul, 1968), one of two subjects (the B subject) in each session was informed that, as part of the experimental procedures, his partner (the A subject) would be led to believe that he was 1) relatively normal, 2) an overt homosexual, or 3) someone with a history of mental illness. In fact, the partner was always given a "normal" description. Thus, any differences in the way the B subject was perceived and treated would presumably be due to changes in his own behavior.

Performance on the cooperative motor task employed was about equal in the Normal and Homosexual conditions, but significantly better in the Mental Illness condition. Additionally, B subjects in the Mental Illness group rated their own task performance as more adequate than did the other



two groups of B subjects. These findings suggested to the authors that the subjects labeled mentally ill may have worked extremely hard on the task and/or motivated their partners to do likewise in order to prove that they were not clumsy, a trait often associated with mental illness. (Homosexual B subjects presumably could not disconfirm their stigma by demonstrating their motoric abilities, since such abilities are believed to be unrelated to homosexuality.)

Data on the participants' tendency to initiate and continue conversations revealed interesting effects. B subjects did not differ on either of these measures. However, A subjects in the Normal condition were more likely to initiate conversations with their partner than either of the other groups of A subjects. Their total talking time was also the greatest. It appears that an individual who believes himself to be discredited in the eyes of others may provide relatively subtle cues which lead others to reject him.

The second study of this nature (Farina, et al., 1971) was an attempt to replicate some of the basic findings outlined above with a subject population possessing a genuine stigma. Hospitalized mental patients were told that they were in a study designed to determine whether people treat mental patients differently from other human beings. Half of the subjects were told that an interviewer had been led

to believe that they were medical-surgical patients, and half were told that the interviewer knew that they were mental patients. The major findings of the study were that subjects in the Medical-Surgical condition talked somewhat more (a marginal effect) and were rated by the confederate interviewer as less tense and anxious than subjects in the Mental Patient condition.

Experimental studies designed to investigate the processes involved in perceiving the mentally ill have shown these processes to be subtle and complex. "Obvious" predictions are not always supported, and unexpected findings are common. The data accumulated thus far are not amenable to easy interpretation. It is clear that much more empirical work is needed in this area. Kleck's studies of physical stigmata suggest several dependent measures which could easily be incorporated in future research.

Kleck (1968) found that the motoric activity of subjects interacting with a "disabled" other was more limited than that of subjects interaction with a "normal" person. Kleck, Ono, and Hastorf (1966) found that subjects interacting with a person they believed to be handicapped distorted their own opinions toward those they believed the handicapped person would find more acceptable. The same investigators found that subjects in the Handicap condition showed less variability in their answers to fixed-

response items than subjects in the No Handicap condition. The physical distance subjects choose to put between themselves and someone who is physically handicapped has been examined in at least two studies (Kleck, 1969; Kleck, et al., 1968). Both investigations found greater personal space preferred in interactions with the handicapped. Comer and Piliavin (1972) have studied the behavior of the physically stigmatized person in the normal-stigmatized interaction. Physically handicapped subjects smiled less in the presence of a normal interviewer than when with another handicapped person. Subjects in the former condition terminated the interaction sooner, showed greater motoric inhibition, and maintained less eye contact than subjects in the latter condition.

Experimental studies involving contact with the stigmatized show considerable promise in helping to elucidate the processes involved in perceiving the stigmatized. Such studies offer several possible advantages over traditional attitude surveys, two of which will be noted. First, it is possible to investigate what happens during an interaction between real people. The subject's perceptions are of a real human being, rather than of someone identified abstractly in a case description, or of someone identified merely by a label such as "mental patient." Second, experimental studies allow the use of behavioral measures.

Such measures, particularly subtle ones, may provide information about such variables as anxiety, feelings of discomfort, and punitiveness which verbal reports do not tap. Despite the potential advantages of experimental interaction studies, one would certainly not want to recommend that surveys of attitudes toward the mentally ill be abandoned. Surveys offer advantages of their own, including the possibility of investigating a greater range of independent and dependent variables, and their lower potential for distorted findings due to extraneous factors.

While it is perhaps too soon to draw many specific conclusions from the experimental interaction studies reviewed above, a number of general summary statements will be offered. The tentative nature of even these general conclusions should be emphasized.

First, the mentally ill are not indiscriminately condemned. It appears that the way they present themselves to others has an important effect on how they are perceived, as do other factors such as their past history and the consequences their behavior produces for others.

The stigmatized person contributes to the "interaction pathology" which is in evidence in normal-stigmatized contacts. While evidence suggests that the behavior of the normal participant is stereotyped and inhibited, the stigmatized person's behavior is not much different. It seems



reasonable to argue that the discomfort and awkwardness each participant experiences help to enhance similar reactions within the other.

For reasons noted earlier, a comparison of reactions to different stigmata is difficult. However, such evidence as does exist is generally consistent with the proposition that mental illness has, if anything, more devastating consequences than several other stigmata which have been studied.

In general, then, the experimental studies provide some additional information about public perceptions of the mentally ill, but do not substantially alter the conclusions drawn earlier in our review of the survey literature. In fact, the experimental findings are generally quite consistent with the notion that a person identified as mentally ill will be evaluated quite negatively by others.

#### Statement of the Problem

A great deal of evidence cited in our literature review indicates that the mentally ill are viewed quite unfavorably. However, little attention has been directed toward an examination of the cognitive processes which lead to and sustain these negative views. In the present study hypotheses are advanced concerning the types of inferences one makes when he has limited knowledge about the behavior of a person who has been diagnosed as mentally ill. A



relatively simple model of information-processing is employed to help explain how a perceiver might arrive at uncharitable interpretations of the behavior of the mentally ill. The proposed model is obviously not intended to provide a complete explanation of the development of the negative public attitudes toward mental illness discussed in our literature review. Rather, it is offered in order to suggest one possible process by which certain information about the mentally ill might lead a person to make different inferences than the same information about a normal person. The present study, then, investigates one aspect of the larger issue of how attitudes toward the mentally ill are developed and maintained.

In a more general sense, the study is concerned with many of the same issues which are of interest to attribution theorists (Jones and Davis, 1965; Kelley, 1967, 1973). A fundamental concern of attribution theory is how a perceiver goes about making causal inferences regarding an actor's behavior. In Kelley's (1967) view, an actor's reactions toward a particular entity may be attributed to something about the entity (e.g., he liked the movie because it was a good movie), to something about the circumstances in which the behavior occurred (e.g., he liked it because he saw it with an attractive woman), or to something about the actor (e.g., he liked the movie because he

tends to like virtually any movie). In Kelley's initial statement of attribution theory (1967), a model was advanced in which the perceiver was depicted as behaving as if a "naive scientist" in his attempts to make sense of his world. Causal attributions were depicted as, for the most part, rational conclusions about the nature of perceived events. For example, if a reaction was found to be more or less unique to a particular person and consistently associated with him, the reaction would be attributed to the person. In order to make a confident causal attribution, a person needs a relatively large amount of information -- he needs to know about what types of reactions occur for various combinations of persons, entities, times, and modalities. Some relevant information is often lacking, of course, and attributions are frequently based on assumptions about what one would find to be true if more complete data were available. Thus, a perceiver might assume that an actor's behavior in one situation is similar to his behavior in other situations, that other people would behave differently in the actor's situation, etc. The present study investigates the kinds of causal assumptions and inferences we make about mentally ill and normal individuals when we have minimal information about their behavior in only a few situations.

Kelley's (1971) paper on causal schemata and Jones and Davis's (1965) paper on the inference of intentions and dispositions attempt to specify some of the factors which will influence the kinds of assumptions the perceiver makes when the information he has is relatively incomplete. While certain aspects of these authors' arguments are consistent with the model of information-processing investigated in the present study, the theoretical rationale for the model comes principally from Kanouse's (1971) recent studies of language and attribution. Of particular relevance is his work on the effects of different paths of inference on the tendency to attribute causality to the person (i.e., to make "general dispositional" inferences). This research will be briefly reviewed before returning to our discussion of the issues examined in the present study.

Kanouse has found that the tendency to agree with a general dispositional interpretation of a person's behavior depends on the intermediate inference one makes. In one of Kanouse's studies subjects were given initial information about a specific action of a hypothetical stimulus person (e.g., "O destroys Reader's Digests"). Subjects were then led to make one of two different intermediate inferences. For some subjects the initial statement was followed by a question designed to lead them to generalize the action described to a larger object class (e.g., "Does

O destroy magazines?"). For other subjects, the intermediate question included a subjective verb which helped to explain the manifest action (e.g., "Does O hate Reader's Digests?"). All subjects were then asked whether they agreed with a general dispositional conclusion (e.g., "Does O hate magazines?"). To recap, subjects were experimentally induced to follow one of two paths of inference, and were then asked to indicate whether or not they agreed with a conclusion which represented a reasonable termination for either path. In what Kanouse termed the "strong path," the action was generalized to a larger object class before being explained by invoking a subjective verb. In the "weak path" the action was explained before being generalized. As might be evident from Kanouse's choice of terminology, the strong path consistently produced higher agreement with the general conclusion than the weak path.

A number of related experiments have helped to elucidate the nature of the obtained path differences. Agreement with the intermediate inference in the strong path tended to be higher than agreement with the intermediate inference in the weak path. However, analysis of covariance showed that the obtained differential agreement with the final conclusion reflected more than the operation of an "agree" response set established in the Strong Path condition.



Path differences have been observed under conditions differing somewhat from those in the example above. Kanouse has summarized the major trends of his inferential path studies by observing that "path differences occur when the intermediate inferences in the two paths differ with respect to their ability to explain or account for the initial evidence sentence" (Kanouse, 1971, p. 141). When one intermediate inference involves a description of a manifest action and the other involves a subjective verb, as in the example above, the differential explanatory power of the intermediate inferences is apparent. Hating Reader's Digests explains destroying them; destroying magazines does not.

In other cases, the relevance of Kanouse's summary statement is less obvious. Consider these two paths:

- A. O tears up Reader's Digests.  
Does O tear up magazines?  
Does O destroy magazines?
- B. O tears up Reader's Digests.  
Does O destroy Reader's Digests?  
Does O destroy magazines?

Path A yielded greater agreement with the conclusion than Path B, even though both intermediate steps contain verbs describing manifest actions. In examining situations of this type, Kanouse found that, when both verbs were manifest, path differences were obtained only when the direction of inference was from a specific verb to a more



general one. It appears that specific actions may be explained by more general actions of the same class. Kanouse argued that general actions often imply superordinate goals which help account for particular behaviors designed to reach those goals. Thus, destroying may explain tearing up because one tears up in order to destroy. That is, "destroy" and other general action verbs may contain more implicit intentionality than specific action verbs like "tear up."

The importance of intentionality was examined more directly in a separate set of experimental conditions. Some subjects were led to generalize an action to a larger object class before explaining the action by invoking an intention (in this case, the simple inference that the person "wanted to" engage in the action). Other subjects explained the action by inferring intentionality before making a generalization. Subjects in the first condition were more likely than those in the second to agree with the conclusion that the person intended to behave in a certain manner with respect to the larger object class (e.g., that the person wanted to destroy magazines).

Kanouse's work provides important evidence about some conditions which appear to inhibit general dispositional inferences. If a person explains a specific action by invoking a feeling or intention before generalizing the

action, he is less likely to make a general dispositional inference about the actor than if the action is generalized before being explained. Kanouse emphasizes the explanatory power of verbs conveying implicit affect or intentionality. For present purposes, it should be noted that situational<sup>1</sup> factors may also possess considerable explanatory power (Kelley, 1967; 1973) and might be included within Kanouse's system. It seems consistent with Kanouse's position, and with Kelley's more general statements of attribution theory, to argue that inferring that a person has a disposition to behave in a certain manner only in a certain type of situation will be likely to decrease the probability that the action will be explained in general dispositional terms.

Incorporating situational explanations within Kanouse's path model allows one to test its applicability to a wider range of issues in social perception than would otherwise be possible. The model seems to be most relevant to situations in which one individual observes, or otherwise obtains reliable information about, another person engaging in a

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<sup>1</sup>The term "situational" is defined here in the same manner as in Jones and Nisbett (1971). It refers to attributions of causality to some aspect of the environment, and closely corresponds to Kelley's (1967) use of the term "external." "Entity" and "circumstance" attributions are included within the "external" category. Many situational explanations may be viewed, as Kanouse points out, as relatively non-general dispositional attributions (in the sense that a person has a disposition to behave in a certain manner, but only under limited conditions).

specific action in a specific situation. If we assume that the observer has limited information about the actor, and that he is motivated to make sense of the actor's behavior, it follows that the observer will use a sort of inductive logic in an attempt to explain the behavior in question. That is, the observer will make assumptions about the actor's behavior, intentions, and dispositions in unobserved situations. Kanouse's path model suggests that if the observer assumes that the actor behaves similarly in a wide range of situations, he is likely to infer that the specific behavior he observes is due to a general disposition of the actor. On the other hand, if the observer explains the behavior in situational terms, he will be less likely to attribute the actor's behavior to a general disposition.

The characteristics of an actor should have an important effect on the assumptions and inferences an observer makes. The possession of a stigmatizing condition such as mental illness would seem to be of particular relevance. For example, suppose that I observe a father threatening to injure his son. If I believed the father to be a normal person, it seems likely that I would be relatively charitable in my interpretation of his behavior. Perhaps I would infer that the father had a bad day at work, or that the son had behaved in a particularly mischievous way. However, suppose that I had been informed that the father was once

a patient in a mental hospital. A different "implicit personality theory" might well be employed in my interpretation of his behavior (Schneider, 1973). In this case I would probably be more likely to infer that the father threatened other people in other situations, which might well lead me to infer a negative general disposition on his part (e.g., that he is a dangerous person). If the behavior in question were adaptive rather than maladaptive, my inferences might well be reversed. Thus, I might be inclined to attribute a normal person's gregariousness to his friendly disposition, but to attribute the same behavior on the part of a mental patient to situational factors.

The present research project views many attitudes and beliefs regarding mental illness as general dispositional inferences about the mentally ill person. Beliefs that a person is unpredictable, dangerous, aggressive, or socially inept are examples of undesirable dispositions which are sometimes assigned to the mentally ill. The present line of reasoning argues that the knowledge that a person has been labeled mentally ill will lead an observer to make different inferences than he would make in the absence of this knowledge. The extent to which an observer accepts a general dispositional interpretation of an actor's behavior is hypothesized to depend on the type of mediating inference he makes. The mediating inference is, in turn,

hypothesized to depend on the mental illness label and other factors. The present research was designed to investigate these and other contentions.



## METHOD

A two-part experiment was conducted in order to explore the relevance of Kanouse's path model to the processes involved in perceiving the behavior of the mentally ill. Part I was a relatively straightforward test of the path model. Part II was designed to provide additional information relevant to the path model, and also to explore the applicability of Wyer's (1970) more general subjective probability model to the present problem.

## Overview of Part I

In Part I subjects were provided with brief descriptions of four different individuals -- a person exhibiting neurotic symptoms who had been diagnosed as mentally ill, a person exhibiting similar symptoms who had been diagnosed as not mentally ill, a "normal" person who had been diagnosed as mentally ill, and another normal person who had been diagnosed as not mentally ill. Following each description were two items describing the person's behavior in two different situations.<sup>2</sup> In one of the situations the person was described as engaging in a behavior which pre-test subjects had judged to be indicative of mental health

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<sup>2</sup>For Control Path II subjects, no behavioral description was given, as noted below.

(e.g., initiating a friendly conversation at a local baseball game). In the other situation the person's behavior was maladaptive (e.g., throwing a temper tantrum when one's in-laws were visiting). Each item included one or two probability measures derived from Kanouse's path model. Figures 1 and 2 help to clarify the four different paths which were investigated.

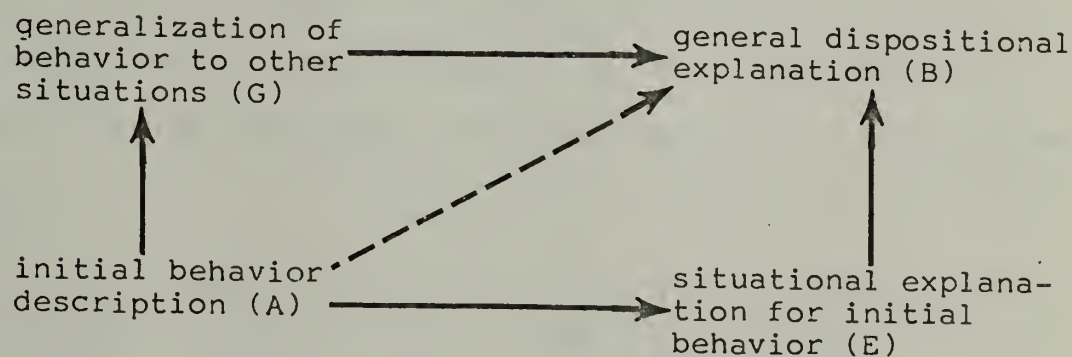


Figure 1. A representation of the version of Kanouse's path model investigated in the present research project.

Two principal paths corresponding to Kanouse's strong and weak paths are of primary interest. The strong path involves inferences from A to G to B, and the weak path involves inferences from A to E to B. For both strong and weak paths, the subjects were given A, the description of the behavior performed in a particular situation. The subjects were then asked to provide their estimates of  $P(G)$  and  $P(E)$  in the Strong and Weak Path conditions, respectively. Both groups gave their estimates of  $P(B)$ .

Two control paths were also employed. In "Control Path I" the subject was given A, and was asked for P(B). Control Path I corresponds to what Kanouse terms a "direct inference." In Control Path II the subject was not given A, and was simply asked for P(B). The two control paths were included to help determine the extent to which agreement with a general dispositional interpretation of the stimulus person's behavior depends on being "led" through a particular path of inference, and the extent to which such agreement depends on knowledge about the stimulus person's initial behavior.

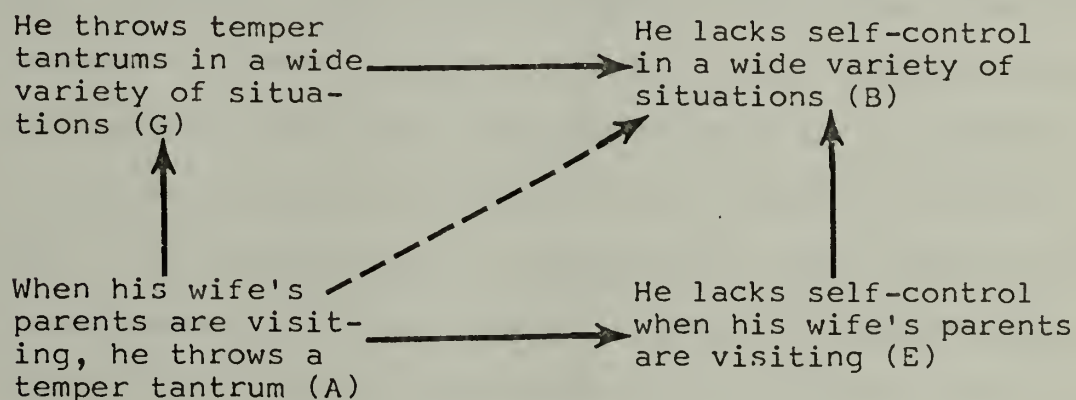


Figure 2. An illustrative example of the inferential steps included in one maladaptive behavior item.

The experimental design involved four fully crossed independent variables. The four levels of the path variable constituted the only between-groups variable. Three within-subjects variables (neurotic symptomatology vs.

normality, diagnosis of mental illness vs. diagnosis of no mental illness, and adaptive vs. maladaptive behavior) were investigated.

### Subjects

In selecting a subject population for our experiment, practical considerations limited the choice to either college or high school students. College students have been used extensively in previous survey and experimental studies of attitudes toward the mentally ill. The general trend of these studies is that college students express moderately more favorable views than the general population (see, e.g., Olmsted and Durham, 1976). In recent years college psychology courses have often included material on the effects of labeling someone as mentally ill. The work of Szasz (1961) and Rosenhan (1973), among others, has become rather widely known on college campuses. Several studies cited by Rabkin (1972) suggest that exposure to psychology courses which deal with such issues results in more favorable attitudes toward the mentally ill. In short, it appears likely that many college students have been sensitized to some of the principal issues investigated in our study, and that they might not be appropriately naive with respect to our experimental manipulations. Since it seemed more likely that high school students would meet the criterion of

experimental naivete, the high school population was selected.

A total of 91 high school students served as subjects in the study. The students took part in the experiment during regular meetings of their social science courses. The subjects were run in groups of 12, 21, 14, 35, and 9. Each subject was randomly assigned to one of the 4 Path conditions using a randomization within blocks procedure, resulting in an initial distribution of 22 subjects in the Control Path II condition and 23 subjects in each of the other Path conditions. However, 8 subjects' questionnaires were not completed appropriately, and their data were not used in the analyses reported in this paper.

After this subject loss, 23 subjects remained in the Weak Path condition, and 20 subjects in each other Path condition. Forty-nine females and 34 males were included in the final sample. The sex distribution within each Path condition was roughly proportional to that of the total sample. The subjects ranged in age from 14 to 20, with the vast majority (78) being 15, 16, or 17.

#### Construction of the Questionnaire

As indicated above, a given subject made judgments using only one type of path. All subjects received the following written instructions:



This questionnaire is designed to investigate the kinds of predictions people make about how different types of people are likely to behave in different situations. You will be given a small amount of information about four different individuals, and will be asked to make predictions about their behavior on the basis of this information. All of the individuals described have recently had their mental health evaluated by mental health professionals, and each description will include a brief summary statement about the results of that evaluation. In addition, other information about the person's interests, job, family, personal problems, etc. will be provided. Following the general information about the person, you will be given a statement about his behavior in one situation. (For Control Path II subjects, the preceding sentence was omitted.) Use all of the information which you have been given in responding to the questions which follow each person's description. Answer each question by marking the point on the scale which best represents your judgment. Be sure to respond on the basis of what you honestly believe about the person, rather than what you think you should believe or what you think the experimenter expects you to say.

Each subject, as noted above, made predictions about the behavior of four different stimulus persons. The descriptions of the stimulus persons included information designed to manipulate the mental illness variable, and additional information designed to manipulate the neurotic symptomatology variable. The mental illness variable was manipulated by simply indicating that the stimulus person had recently been diagnosed as mentally ill, or as not mentally ill.

"Neurotic" descriptions indicated that the person manifested symptoms which have been traditionally associated with a neurotic diagnosis (see, e.g., Diagnostic and Statis-

tical Manual, American Psychiatric Association, 1968).

"Normal" descriptions included information about the person's job, interests, etc. A sample description of a stimulus person (in the neurotic symptoms / not mentally ill condition) is given below.

Harold T. was recently diagnosed as not mentally ill. He becomes very fearful whenever he thinks about being in a tall building, near the top of a mountain, or even at the top of a long ladder. He believes that his fear of heights is basically irrational, but that only seems to make the intense anxiety he experiences harder to accept.

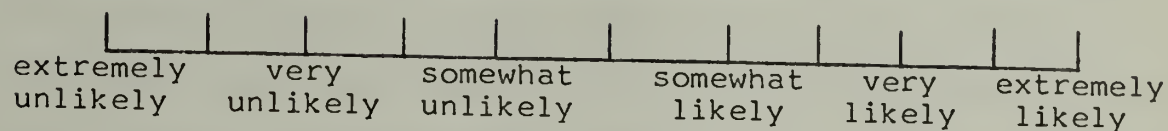
Following the description of a stimulus person, all subjects except those in the Control Path II condition received information about the person's behavior in one situation, followed by one or two probability measures. An example of an "item" (defined here as the description of the specific behavior in one situation and the probability judgment or judgments relevant to that behavioral description) for Strong Path subjects follows:

He throws a temper tantrum when his wife's parents are visiting.

How likely is it that he throws temper tantrums in a wide variety of situations?

extremely	very	somewhat	somewhat	very	extremely		
unlikely	unlikely	unlikely	likely	likely	likely		

How likely is it that he lacks self-control in a wide-variety of situations?



Each subject received one maladaptive behavior item and one adaptive behavior item for each stimulus person. All probability judgments were made on 11-point scales like those above. Subjective probability estimates were obtained by assigning the values 0, .1, .2, etc. to the 11 points of the scale.

A pretest was conducted in order to insure that the adaptive vs. maladaptive behavior variable was manipulated appropriately. Twenty subjects rated a pool of 48 initial behavior descriptions (corresponding to "A" in the path model) on 7-point scales ranging from "mentally unhealthy" (1 on the scale) to "mentally healthy." All of the eight items selected as "adaptive" were in the top one-third of the distribution of mean responses to the 48 items. Six of the eight maladaptive items received mean ratings in the bottom one-third of the distribution, and the remaining two were below the overall median. The eight adaptive items received an average rating of 5.54, and the eight maladaptive items received an average rating of 2.79.

It was also necessary to insure that the items were written in a manner that corresponds to certain assumptions

of the path model. For example, the weak path is presumed to be weak because its mediating inference, E, provides a relatively good explanation for A. Since E explains A, the mediating inference completes the path and makes inferring B unnecessary. On the other hand, in the strong path, the mediating inference G is assumed to offer a rather inadequate explanation for A, making the B inference necessary to complete the path. Thus, the model assumes that E provides a better explanation for A than G provides.

However, E should not be written in a manner which allows one to interpret it as a very general sort of explanation, i.e., one which explains G as well as A quite satisfactorily. If E were interpreted in such a general way, it could be viewed as functionally equivalent to B. In such a situation, E might well stop the chain of inference in the weak path as predicted, but for an unintended reason. Hence, E should be considered a good explanation for A, but a poor explanation for G.

A second pretest was conducted in order to select items which were interpreted as intended. A separate sample of 28 subjects rated 24 items on the basis of how well the different inferential steps explained each other. For each item, subjects indicated how well E explained A, how well G explained A, and how well E explained G on 5-point scales. Two criteria were used in selecting items. First, E had to



explain A better than it explained G. For all 16 items selected, E was viewed as a more satisfactory explanation for A than for G ( $p < .05$  by one-tailed t-test for correlated observations in each case,  $p < .005$  for 14 of 16 comparisons). Second, E had to be viewed as superior to G as an explanation for A. For 15 of the 16 items selected, E was rated as a significantly better explanation ( $p < .025$  in each case). For the remaining item, E and G were considered equally adequate explanations.

As indicated, eight adaptive and eight maladaptive behavior items constituted the final pool of items to be used in the study. This relatively large number of items was included to minimize the probability that the results obtained would be due to idiosyncratic features of the particular maladaptive and adaptive behavior items selected. Following the same reasoning, six neurotic and six normal descriptions were devised. All of the items and descriptions used in the experiment are included in the Appendices.

The specific descriptions and items appearing on a version of the questionnaire were selected randomly from the larger groups. The order in which stimulus persons appeared on the questionnaire was randomized for each subject separately, as was the order of the two items following each stimulus person's description. Following this procedure, a separate version of the questionnaire was created for each



subject. No item or description appeared more than once on a single version of the questionnaire and, overall, all items and descriptions appeared with approximately equal frequency.

#### Administration of the Questionnaire

As noted previously, subjects completed the questionnaire during regularly scheduled meetings of their social science courses. At the beginning of the class period the course instructor introduced the experimenter very briefly and reminded the students that they would be doing "something a little different" in their class that day. The experimenter then indicated that he was involved in a research project at the University of Massachusetts, and that he would appreciate their assistance with his research. He indicated that he would tell them a little about the research project that day, and that he would return to discuss it more fully, including the data they would provide, in approximately three months.

The experimenter then said that he was generally interested in the kinds of predictions people make about the behavior of other people. The subjects were asked to fill out two questionnaires, the first of which was relatively short and the second of which was somewhat longer. (The second questionnaire was used to obtain the data for Part II of the

experiment, and is discussed below.) The experimenter then explained that they would be asked to make some judgments on probability scales, with which some of them might not be familiar. He then proceeded to the blackboard and demonstrated how a weatherman's predictions about the likelihood of rain would be represented on the type of scale used in the experiment. The experimenter then indicated that the students might find that some of the judgments they would be asked to make would be rather easy for them, while others might be very difficult. They were asked to make the best judgments possible on the basis of the information provided.

All subjects were asked to read the written instructions on the first questionnaire, and were encouraged to ask questions if anything was unclear to them. The experimenter then indicated that the students could bring their first questionnaire up to his desk when finished. At that time they could obtain the second questionnaire and complete it after reading the written instructions it contained. It was emphasized that it was important to obtain a second questionnaire containing the same subject number as the first so that the experimenter could keep his records straight.

The administration of both questionnaires took about 35 minutes. When all subjects had completed both questionnaires, the experimenter thanked them again for their help

with his research project and reminded them that he would be back to discuss the research more thoroughly when most of the data had been analyzed.

### Hypotheses

Several hypotheses were advanced. Overall, the strong path should yield greater agreement with the general dispositional inference than any of the other paths. Among subjects in the Strong Path condition, making the intermediate inference should lead to greater agreement with the final inference; hence,  $P(G)$  and  $P(B)$  should be positively correlated. Among Weak Path subjects, making the intermediate inference should inhibit the tendency to make the general dispositional inference; hence,  $P(E)$  and  $P(B)$  should show a negative relationship.

Our review of the literature on attitudes toward the mentally ill shows that the mental illness label typically has a powerful effect on attitudes, while the existence of relatively mild psychiatric symptoms is not particularly disturbing to people. In the present study the two variables were manipulated orthogonally. The mental illness label is hypothesized to have a strong effect on the tendency to make both mediating and general dispositional inferences. Subjects should be more inclined to generalize the maladaptive behavior of mentally ill stimulus persons to unobserved

situations than the same behavior performed by persons who are not mentally ill. This should lead to stronger dispositional attributions when the actor is mentally ill. On the other hand, the adaptive behavior of the mentally ill should be undergeneralized relative to that of the not mentally ill, and should result in weaker dispositional inferences. Situational explanations for adaptive behavior should be more readily accepted when the stimulus person is mentally ill, and situational explanations for maladaptive behavior should be more readily accepted when the stimulus person is not mentally ill.

Predictions regarding the effects of the neurotic symptomatology variable are less easily made. Previous research suggests that this variable should have little effect. However, it also seems plausible to argue that the inferential tendencies subjects exhibit when making judgments about the mentally ill should be enhanced when the person identified as mentally ill displays symptoms which may be interpreted as manifestations of his mental problems. Because there seems to be no a priori way of determining which of these two predictions is more appropriate in the present context, no specific hypotheses about the effects of the neurotic symptomatology variable are offered.



## Overview of Part II

The second part of the experiment was conducted in order to examine several issues related to those investigated in Part I. In the second questionnaire subjects were asked for their estimates of four conditional probabilities:  $P(B|G)$ ,  $P(B|G')$ ,  $P(B|E)$ , and  $P(B|E')$ . The inclusion of these measures allows a more comprehensive examination of the inference process proposed in Part I. For example, in Part I it was argued that general dispositional inferences are likely when a specific behavior is generalized to unobserved situations. However, it is also possible that general dispositional inferences are made even when the perceiver infers that the actor does not behave similarly in other situations. Stated more generally, the issue of the contribution of the intermediate inference to the final inference in a path may be addressed by examining the conditional probability estimates obtained in Part II.

In addition, the conditional estimates provide a further test of the relative strength of the strong and weak paths. In Part I subjects in the Strong Path and Weak Path conditions were, in effect, led through structured paths of inference, but they were free to accept or reject the inferences offered. In Part II the subjects were asked to estimate  $P(B)$  assuming that  $G$  or  $E$ , the intermediate inference,



was valid. These judgments allow a comparison of the power of the strong and weak paths to produce agreement with a general dispositional conclusion when their respective mediating inferences are accepted with a probability approaching unity.

The second experiment was also intended to explore the relevance of Wyer's (1970) subjective probability model to the present research topic. Wyer (1970; Wyer and Goldberg, 1970) has proposed that subjective probabilities combine in a manner predictable from the laws of objective probability, and he has recently reviewed a large body of research relevant to this general contention (Wyer, 1974). Wyer's own conditional probability model has proven to be among the most useful mathematical models tested. The model has been advanced as a general one which describes the nature of relationships among cognitions. It has been applied across several content areas, and has implications for a variety of social perception and attitude change phenomena. The model has been shown to generate very accurate quantitative predictions regarding experimentally created beliefs about hypothetical stimulus persons, and fairly accurate predictions regarding previously formed beliefs about real objects and events.

It is of interest, then, to examine how Wyer's model applies to the judgments of subjects in the present study.

If one assumes that subjects accept the initial behavior description as given [i.e.,  $P(A) = 1$ ], then two equations of relevance to the inferential path model investigated in the present study may be proposed. They are as follows:

$$1) \quad P(B) = P(G)P(B|G) + P(G')P(B|G')$$

$$2) \quad P(B) = P(E)P(B|E) + P(E')P(B|E')$$

Part II included a test of the predictive validity of these two equations.

#### Procedure

As indicated previously, subjects completed the questionnaire for Part II of the experiment immediately after completing the first questionnaire. The written instructions appearing on the second questionnaire were the following:

This questionnaire is very similar to the first one you filled out. You will again be given descriptions of four individuals, and statements about their behavior in certain situations will be provided. Some of the judgments you are asked to make are very much like those on the first questionnaire; others are somewhat different. Some items ask for judgments about the likelihood of certain events if something else is true (e.g., items of the form, "If he gets a good job, how likely is it that he will buy a new car?"). As in the first questionnaire, respond to each item by marking the point on the scale which best represents your judgment. Although some of the judgments you are asked to make may appear quite similar, each one is, in fact, somewhat different from all others. All items should be read carefully, and should be answered in the order in which they appear.

In order to facilitate a comparison of the data obtained in Parts I and II, all subjects received the same four descriptions of stimulus persons which they received in Part I, and the same behavior items. All subjects received A, the initial behavior description, in Part II. Following each item subjects were asked to estimate these probabilities:  $P(B)$ ,  $P(G)$ ,  $P(E)$ ,  $P(B|G)$ ,  $P(B|G')$ ,  $P(B|E)$ , and  $P(B|E')$ . The judgments were made in the order above, using the same type of 11-point scales employed in Part I. Again, subjective probability values were obtained by assigning the values 0, .1, .2, etc. to the 11 points of the scale. Estimates of  $P(G')$  and  $P(E')$  were obtained by simply solving the equations  $P(G') = 1 - P(G)$  and  $P(E') = 1 - P(E)$ . To clarify the nature of the data obtained in the second part of the experiment, the specific probability judgments made in Part II for the maladaptive behavior item described in our discussion of Part I are shown in Table 1.

TABLE 1

Probability Judgments for One  
Maladaptive Behavior Item

JUDGMENTS	QUESTION
A (given)	When his wife's parents are visiting, he throws a temper tantrum. (statement given)
P(B)	How likely is it that he lacks self-control in a wide variety of situations?
P(G)	How likely is it that he throws temper tantrums in a wide variety of situations?
P(E)	How likely is it that he lacks self-control when his wife's parents are visiting?
P(B G)	If he throws temper tantrums in a wide variety of situations, how likely is it that he lacks self-control in a wide variety of situations?
P(B G')	If he does not throw temper tantrums in a wide variety of situations, how likely is it that he lacks self-control in a wide variety of situations?
P(B E)	If he lacks self-control when his wife's parents are visiting, how likely is it that he lacks self-control in a wide variety of situations?
P(B E')	If he does not lack self-control when his wife's parents are visiting, how likely is it that he lacks self-control in a wide variety of situations?

## RESULTS

## Part I

Probability of B. In order to examine the effects of the independent variables on estimates of the probability of B, a 4 (path of inference) X 2 (adaptive vs. maladaptive behavior) X 2 (diagnosis of mental illness vs. diagnosis of no mental illness) X 2 (neurotic symptomatology vs. normal symptomatology) analysis of variance was conducted.<sup>3</sup> The Path variable was a between-groups factor, while the other three variables were within-subjects factors. In the remainder of this paper the variables will be referred to as Path, Adaptiveness, Diagnosis, and Symptoms.

The analysis of variance (summarized in Table 2) revealed several effects. First, a Path main effect was obtained. Multiple comparisons of the overall means for the four Path conditions showed that probability estimates were highest among subjects in the Control Path I condition. Their overall estimate of the likelihood of B, a general dispositional interpretation of the stimulus person's behavior, was .624,

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<sup>3</sup>Initially, the analyses of variance reported in this paper included sex of the subject as an independent variable. Since this variable had little effect on any of the dependent variables, the data were collapsed across this variable. The few significant effects involving sex are presented in Appendix C.



TABLE 2

Analysis of Variance Summary Table:  
Estimates of P(B)

Source	df	Mean Square	F
Mean	1	20200.89	
Path (P)	3	54.53	9.27**
Error	79	5.88	
Adaptiveness (A)	1	43.21	7.26*
AP	3	1.14	.19
Error	79	5.95	
Symptoms (S)	1	.11	.03
SP	3	.73	.21
Error	79	3.48	
AS	1	75.11	13.51**
ASP	3	22.58	4.06*
Error	79	5.56	
Diagnosis (D)	1	1.08	.33
DP	3	4.75	1.43
Error	79	3.31	
AD	1	6.02	1.23
ADP	3	.32	.07
Error	79	4.89	
SD	1	2.70	.68
SDP	3	4.36	1.10
Error	79	3.98	
ASD	1	.51	.09
ASDP	3	4.72	.82
Error	79	5.79	

\*p < .01, \*\*p < .001

which differed significantly from each of the other means.<sup>4</sup> These means were .543, .560, and .483, for the Strong, Weak, and Control Path II conditions, respectively. The only other significant comparison of means indicated that Weak Path subjects' estimates of  $P(B)$  were higher than those of subjects in the Control Path II condition.

As one might expect, subjects who were provided with no description of a person's initial behavior in one situation (Control Path II subjects) were unlikely to make a general dispositional attribution about the person. However, unexpectedly, the introduction of information about a person's behavior in one situation resulted in stronger dispositional attributions than in any other Path condition. It is also of interest to note that, contrary to our prediction, Strong Path subjects' estimates of  $P(B)$  were no higher than those of Weak Path subjects.

The Adaptiveness main effect indicates that, overall, subjects were more likely to interpret adaptive behavior as reflecting a general disposition than maladaptive behavior. In order to clarify the nature of the obtained Adaptiveness X Symptoms X Path interaction, tests of the simple interaction of Adaptiveness and Symptoms were conducted separately

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<sup>4</sup>Unless otherwise indicated, all multiple and individual comparisons of means reported in this paper are based on the Tukey B test (Winer, 1962), employing an alpha level of .05.

for each path. These analyses revealed that the only significant Adaptiveness X Symptoms interaction occurred in the Control Path II condition. It should be re-emphasized that Control Path II subjects did not receive the initial behavior descriptions and, hence, the Adaptiveness manipulation for them involved essentially a description of a positive or negative disposition. The interaction may be viewed as an indication of how subjects tend to attribute positive and negative dispositions as a function of the type of symptoms a stimulus person manifests. Multiple comparisons revealed that positive dispositions were more strongly attributed when the person's symptoms were normal than when his symptoms were neurotic in nature. Stronger attributions of negative dispositions occurred when neurotic symptoms were exhibited. The means for this interaction are shown in Table 3.

TABLE 3

Mean Estimates of P(B) for Adaptiveness X Symptoms  
Interaction among Control Path II Subjects

SYMPTOMS	ADAPTIVENESS	
	Adaptive	Maladaptive
Neurotic	.425 (a)	.535 (b)
Normal	.600 (c)	.370 (d)

significant individual comparisons: a vs. c,  
b vs. d, c vs. d

Intermediate Inferences. It was important to determine whether the two Path conditions involving intermediate steps differed with respect to the strength of their intermediate inferences. Kanouse had found that subjects were more likely to agree with the intermediate inference in his strong path than with the intermediate inference in his weak path. In the present study, as in Kanouse's work, it was desirable to rule out the possibility that any effects of Path on estimates of  $P(B)$  might be due to an "agree" response set produced by unintentionally creating stronger intermediate inferences in one path.

In order to evaluate the possibility that Strong Path subjects' estimates of  $P(G)$  might differ from Weak Path subjects' estimates of  $P(E)$ , and to examine the effects of the other independent variables on these intermediate inferences, an analysis of variance was performed. Strong Path subjects' estimates of  $P(G)$  and Weak Path subjects' estimates of  $P(E)$  were treated as a single dependent variable, "intermediate inference." The Path variable was a between-groups independent variable, and Adaptiveness, Symptoms, and Diagnosis were within-subjects variables. The only significant effect obtained in this analysis was a Path main effect ( $F = 8.48$ ,  $df = 1, 41$ ,  $p < .01$ ). For Strong Path subjects, the overall estimate of  $P(G)$ , a generalization of the initial behavior to unobserved situations, was .504. Weak Path subjects'

overall estimate of  $P(E)$ , an explanation of the initial behavior in rather specific terms, was .614. This effect is in the opposite direction to that obtained by Kanouse.

Relationships between Intermediate and Final Inferences.

It was anticipated that making the intermediate inference in the Strong Path would facilitate making the final inference; thus  $P(G)$  and  $P(B)$  were predicted to be positively correlated. On the other hand, inferring  $E$  was hypothesized to reduce the probability of inferring  $B$ ; thus  $P(E)$  and  $P(B)$  were expected to be negatively correlated. As noted previously, an individual subject made probability estimates for a total of eight different stimulus combinations (e.g., one "stimulus combination" would be a person exhibiting neurotic symptoms who had been diagnosed as not mentally ill engaging in an adaptive behavior). Thus it was possible to compute the correlation between the intermediate and final inferences separately for each different stimulus combination. These correlations, for both the Strong and Weak Path conditions, are presented in Table 4 and 5. As is evident from the tables, all of the obtained correlations were positive. Three of the eight correlations for Strong Path subjects were significant, while six of the Weak Path Correlations were significant.

In addition to these correlations, a correlation between a subject's average (mean for eight stimulus combinations) estimates of the intermediate and final inferences was com-



TABLE 4

Correlations between Estimates of P(G) and P(B)  
among Strong Path Subjects

ADAPTIVENESS	DIAGNOSIS	SYMPTOMS	
		Neurotic	Normal
Adaptive	Mentally Ill	.639**	.430
	Not Mentally Ill	.354	.551*
Maladaptive	Mentally Ill	.305	.474*
	Not Mentally Ill	.424	.139

\* $p < .05$ , \*\* $p < .01$ ,  $df = 18$  for each correlation

TABLE 5

Correlations between Estimates of P(E) and P(B)  
among Weak Path Subjects

ADAPTIVENESS	DIAGNOSIS	SYMPTOMS	
		Neurotic	Normal
Adaptive	Mentally Ill	.276	.537**
	Not Mentally Ill	.322	.715**
Maladaptive	Mentally Ill	.739**	.469**
	Not Mentally Ill	.489*	.558**

\* $p < .05$ , \*\* $p < .01$ ,  $df = 21$  for each correlation

puted for each Path condition. The obtained correlation coefficients were .808 ( $p < .01$ ,  $df = 18$ ) for Strong Path subjects and .599 ( $p < .01$ ,  $df = 21$ ) for Weak Path subjects. These two correlations were compared using the  $r$ -to- $Z$  transformation (Hays, 1963), and were found to not differ significantly. In addition, for each stimulus combination, the Strong and Weak Path correlations were compared using this statistical test. None of the eight comparisons was significant. In general, these correlational data suggest that the intermediate inferences in both paths tend to facilitate the final inference.

Analysis of Covariance. Since both  $P(G)$  and  $P(E)$  were found to be correlated with  $P(B)$ , and since the overall estimate of  $P(E)$  was higher than that of  $P(G)$ , an analysis of covariance was conducted in order to examine the effects of the independent variables on  $P(B)$  after equating the strength of the intermediate inferences in the Strong and Weak Paths.<sup>5</sup> In this analysis, Path was a between-groups variable, and Adaptiveness, Symptoms, and Diagnosis were within-subjects variables. The intermediate inference was the covariate,

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<sup>5</sup>Evans and Anastasio (1968) have proposed that analysis of covariance is not appropriate when a treatment has an effect on the covariate. Others (e.g., Spratt, 1970; Myers, 1972) have suggested that the technique is still appropriate, but that extreme care must be used in interpreting the results of such an analysis. Since Path did have an effect on the probability of an intermediate inference, the results of the present analysis were interpreted quite cautiously.

and P(B) was the dependent variable. This analysis revealed only one significant effect, a Path X Symptoms X Diagnosis interaction. The adjusted means for this interaction are shown in Table 6. The pattern of means suggests that Strong Path subjects were somewhat more likely to attribute behavior to a general disposition of the actor when the actor's symptoms and diagnosis were consistent.

TABLE 6  
Adjusted Mean Estimates of P(B) for Path X  
Symptoms X Diagnosis Interaction

PATH	DIAGNOSIS	SYMPTOMS	
		Neurotic	Normal
Strong	Mentally Ill	.605	.550
	Not Mentally Ill	.543	.602
Weak	Mentally Ill	.559	.527
	Not Mentally Ill	.543	.554

The adjusted overall means for the two Path conditions differed only slightly from those obtained in the original analysis of variance. The Strong Path adjusted mean was .569, and that for the Weak Path was .538. These two values did not differ significantly ( $F = 2.57$ ,  $df = 1, 40$ ,  $p > .10$ ). Thus, the fact that the two paths did not elicit differential estimates of P(B) does not appear to be attributable to the

difference in the strength of their intermediate inferences.

The other differences between the results of the initial analysis of variance and the analysis of covariance are inconsequential. The covariance analysis did not yield a significant Adaptiveness main effect, nor a significant Adaptiveness X Symptoms interaction. However, it should be recalled that the only significant simple Adaptiveness X Symptoms interaction effect occurred in the Control Path II condition. The covariance results, of course, have no bearing on this finding.

#### Path II

In Part II all subjects were exposed to equivalent stimuli, regardless of their Path condition in Part I. Each subject received the same descriptions of stimulus persons as he received in Part I, and was exposed to the same eight behavior descriptions. [As discussed previously, the initial behavior descriptions (A) were not received by Control Path II subjects in Part I.] In Part II all subjects received A, the description of the person's initial behavior. For each item, the subjects made seven probability judgments, in the following order:  $P(B)$ ,  $P(G)$ ,  $P(E)$ ,  $P(B|G)$ ,  $P(B|G')$ ,  $P(B|E)$ , and  $P(B|E')$ . It may be helpful to refer to the specific probability judgments made for one maladaptive behavior item, provided in Table 1.



Since the Path variable was not manipulated in Part II, any effects it had on these probability estimates may be attributed to carry-over effects from Part I. A 4 (Path) X 2 (Adaptiveness) X 2 (Symptoms) X 2 (Diagnosis) analysis of variance was performed for each of the seven probability judgments. As in Part I Path was a between-groups variable and the other three variables were within-subjects variables.

P(B). The analysis of variance for P(B) revealed two main effects. A main effect for Adaptiveness ( $F = 19.13$ ,  $df = 1, 79$ ,  $p < .001$ ) showed that general dispositional interpretations of adaptive behavior were more likely than general dispositional interpretations of maladaptive behavior. A Path main effect ( $F = 3.44$ ,  $df = 3, 79$ ,  $p < .025$ ) was also obtained. Overall estimates of P(B) were .548, .592, .640, and .636 for the Strong, Weak, Control I, and Control II conditions, respectively. Multiple comparisons of these means revealed only two significant differences. The Strong Path mean was lower than either of the Control Path means. It may be noted that this general array of means is similar to that obtained in Part I, with the exception of the Control Path II mean, which is substantially higher. This increase appears to be due to the fact that Control Path II subjects were, unlike the other groups, exposed to A, the initial behavior description, for the first time in Part II. Taken together with the results obtained in Part I, the effects of Path on P(B) in



Part II suggest that exposure to a path involving an intermediate inference may inhibit one's tendency to interpret behavior in general dispositional terms.

In addition to the two main effects discussed above, an Adaptiveness X Symptoms interaction was obtained ( $F = 5.34$ ,  $df = 1, 79$ ,  $p < .025$ ). The means for this interaction are presented in Table 7. Multiple comparisons of these means showed that when a stimulus person exhibited neurotic symptoms, subjects were inclined to attribute both his adaptive and maladaptive behavior to a general disposition on his part. However, when the person's symptoms were normal, general dispositional interpretations were much less likely when the behavior he engaged in was maladaptive.

TABLE 7

Mean Estimates of P(B) for Adaptiveness X  
Symptoms Interaction

SYMPTOMS	ADAPTIVENESS	
	Adaptive	Maladaptive
Neurotic	.624 (a)	.592 (b)
Normal	.649 (c)	.551 (d)

significant individual comparisons: a vs. d,  
b vs. c, c vs. d

P(G). The analysis of variance of estimates of P(G) revealed only one significant effect. An Adaptiveness main effect ( $F = 9.94$ ,  $df = 1,79$ ,  $p < .005$ ) showed that estimates of P(G) were higher when the behavior the stimulus person engaged in was adaptive.

The Adaptiveness X Diagnosis interaction did not reach significance ( $F = 3.28$ ,  $df = 1,79$ ,  $p < .08$ ), but is of particular theoretical interest and warrants further discussion. The means for this interaction are presented in Table 8. The Tukey B multiple comparison technique revealed three significant differences. The mean for the maladaptive / not mentally ill cell was lower than the other three means. Subjects were relatively unlikely to say that the maladaptive behavior of a person who had been diagnosed as not mentally ill would generalize to other situations.

TABLE 8

Mean Estimates of P(G) for Adaptiveness X  
Diagnosis Interaction

DIAGNOSIS	ADAPTIVENESS	
	Adaptive	Maladaptive
Mentally Ill	.577 (a)	.556 (b)
Not Mentally Ill	.576 (c)	.509 (d)

significant individual comparisons: a vs. d,  
b vs. d, c vs. d

TABLE 9

Analysis of Variance Summary Table:  
Estimates of P(E)

Source	df	Mean Square	F
Mean	1	27894.23	
Path (P)	3	46.83	5.89***
Error	79	7.95	
Adaptiveness (A)	1	33.69	10.12**
AP	3	1.84	.55
Error	79	3.33	
Symptoms	1	.08	.02
SP	3	2.06	.56
Error	79	3.65	
AS	1	2.71	1.02
ASP	3	.21	.08
Error	79	2.66	
Diagnosis (D)	1	11.47	3.56
DP	3	4.82	1.49
Error	79	3.22	
AD	1	13.85	4.99*
ADP	3	.51	.18
Error	79	2.78	
SD	1	.43	.17
SDP	3	.90	.36
Error	79	2.50	
ASD	1	2.23	.89
ASDP	3	4.24	1.70
Error	79	2.50	

\* $p < .05$ , \*\* $p < .005$ , \*\*\* $p < .001$

P(E). The summary table for the P(E) analysis of variance is presented in Table 9. An Adaptiveness main effect was again obtained. Estimates of the probability of E, a rather

specific explanation of the stimulus person's initial behavior, were higher when the behavior engaged in was adaptive rather than maladaptive. A main effect of Path was also obtained. The means for the Strong Path, Weak Path, Control Path I, and Control Path II conditions were .593, .626, .719, and .660, respectively. The Control Path I mean was significantly higher than either the Strong or Weak Path means.

The means for the Adaptiveness X Diagnosis interaction are shown in Table 10. The significant interaction term is attributable to the low mean in the maladaptive / mentally ill cell. Subjects were relatively unlikely to accept a specific, situational explanation for the maladaptive behavior of a person diagnosed as mentally ill.

TABLE 10

Mean Estimates of P(E) for Adaptiveness X  
Diagnosis Interaction

DIAGNOSIS	ADAPTIVENESS	
	Adaptive	Maladaptive
Mentally Ill	.672 (a)	.598 (b)
Not Mentally Ill	.671 (c)	.654 (d)

significant individual comparisons: a vs. b,  
b vs. c, b vs. d

TABLE 11

Analysis of Variance Summary Table:  
Estimates of  $P(B|G)$

Source	df	Mean Square	F
Mean	1	29040.43	
Path (P)	3	22.62	2.41
Error	79	9.39	
Adaptiveness (A)	1	40.28	14.13**
AP	3	.50	.18
Error	79	2.85	
Symptoms (S)	1	5.11	1.95
SP	3	.56	.21
Error	79	2.62	
AS	1	5.45	1.88
ASP	3	1.06	.37
Error	79	2.90	
Diagnosis (D)	1	12.16	3.66
DP	3	7.50	2.26
Error	79	3.32	
AD	1	2.10	.77
ADP	3	2.14	.78
Error	79	2.74	
SD	1	24.07	8.54*
SDP	3	15.93	5.65**
Error	79	2.82	
ASD	1	1.14	.42
ASDP	3	1.47	.54
Error	79	2.71	

\* $p < .005$ , \*\* $p < .001$

$P(B|G)$ . The analysis of variance of subjects' estimates of  $P(B|G)$ , the probability of B given that G is true, is summarized in Table 11. Again, an Adaptiveness main effect was



obtained. Estimates of  $P(B|G)$  were higher when the person's behavior was adaptive than when it was maladaptive.

A proper interpretation of the overall Symptoms X Diagnosis interaction depends on a careful analysis of the three-way Path X Symptoms X Diagnosis interaction. The means for both the three-way interaction and the overall two-way interaction are presented in Table 12. Multiple comparisons of the means for the two-way interaction revealed that the normal / not mentally ill mean was significantly higher than any of the other three means.

An examination of the simple Symptoms X Diagnosis interactions at each level of the Path variable revealed two significant interaction terms, for Control Path I subjects ( $F = 11.95$ ,  $df = 1,19$ ,  $p < .005$ ) and for Control Path II subjects ( $F = 5.42$ ,  $df = 1,19$ ,  $p < .05$ ). Multiple comparisons suggest that each of these interactions is due to an elevated mean in the normal / not mentally ill cell.

The significant overall Symptoms X Diagnosis interaction is traceable, then, to two particularly high means in the two Control conditions. Subjects in these two conditions were quite likely to attribute a normal / not mentally ill person's general tendency to behave in a particular way to a general disposition on his part.

$P(B|G')$ . The analysis of variance for  $P(B|G')$  yielded only one significant effect, a Path X Diagnosis interaction

TABLE 12

Mean Estimates of  $P(B|G)$  as a Function  
of Symptoms, Diagnosis, and Path

PATH	DIAGNOSIS	SYMPTOMS	
		Neurotic	Normal
Strong	Mentally Ill	.628	.623
	Not Mentally Ill	.578	.628
Weak	Mentally Ill	.620	.685
	Not Mentally Ill	.680	.661
Control I	Mentally Ill	.725	.655
	Not Mentally Ill	.660	.780
Control II	Mentally Ill	.665	.593
	Not Mentally Ill	.675	.748
All	Mentally Ill	.658	.640
	Not Mentally Ill	.649	.702

( $F = 3.68$ ,  $df = 3, 79$ ,  $p < .025$ ). The means for this interaction are presented in Table 13. In order to elucidate the nature of this interaction a test of the simple main effect

of Diagnosis was conducted for each of the four paths. Only the Control Path I main effect was significant ( $F = 13.49$ ,  $df = 1,19$ ,  $p < .005$ ). Subjects in this condition were relatively unwilling to accept a dispositional interpretation for a "not mentally ill" person's behavior in one situation when that behavior did not generalize to other situations.

TABLE 13

Mean Estimates of  $P(B|G')$  for  
Path X Diagnosis Interaction

PATH	DIAGNOSIS	
	Mentally Ill	Not Mentally Ill
Strong	.430	.463
Weak	.416	.413
Control I	.413	.325
Control II	.409	.364

$P(B|E)$ . The analysis of variance for this variable yielded two significant effects. An Adaptiveness main effect ( $F = 8.24$ ,  $df = 1,79$ ,  $p < .005$ ) showed that estimates of  $P(B|E)$  were higher when the stimulus person's behavior was adaptive than when his behavior was maladaptive. The means for the other significant effect, the Symptoms X Diagnosis interaction ( $F = 5.44$ ,  $df = 1,79$ ,  $p < .025$ ) are presented in Table 14. The pattern of means seems to suggest that subjects were more

TABLE 14

Mean Estimates of  $P(B|E)$  for Symptoms X  
Diagnosis Interaction

DIAGNOSIS	SYMPTOMS	
	Neurotic	Normal
Mentally Ill	.602	.577
Not Mentally Ill	.576	.604

significant individual comparisons: none

willing to generalize an explanation for behavior when the person's symptoms and diagnosis were consistent. However, none of the individual comparisons of means was significant.

TABLE 15

Mean Estimates of  $P(B|E')$  for Path X  
Adaptiveness Interaction

PATH	ADAPTIVENESS	
	Adaptive	Maladaptive
Strong	.390	.444
Weak	.416	.440
Control I	.331	.443
Control II	.430	.393

P(B|E'). The analysis of variance for  $P(B|E')$  revealed a significant Adaptiveness main effect ( $F = 6.25$ ,  $df = 1,79$ ,  $p < .025$ ). Higher estimates of  $P(B|E')$  were obtained when the person's behavior was maladaptive. In addition, a Path X Adaptiveness interaction was obtained ( $F = 4.06$ ,  $df = 3,79$ ,  $p < .01$ ). The means for this interaction are shown in Table 15. The simple main effect of Adaptiveness was examined for each path condition, and two significant effects were obtained. Strong Path and Control Path I subjects' estimates of  $P(B|E')$  were higher for maladaptive behavior items than for adaptive behavior items. Thus the significant Adaptiveness main effect is primarily attributable to these two groups.

Comparisons of Probability Estimates for Different Dependent Variables. A number of issues of interest may be addressed by examining subjects' overall probability estimates for the dependent variables employed in Part II. The mean probabilities obtained for these dependent measures are presented in Table 16. The significance of the difference between particular pairs of means was evaluated by means of correlated t-tests.<sup>6</sup> The t-ratios for individual comparisons of relevance to the present discussion are also included in Table 16.

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<sup>6</sup>The correlation between variables used in computing a t-ratio for a given comparison was based on 32 pairs of mean probability judgments (see p. 92). Hence, the appropriate number of degrees of freedom for each comparison is 31.



TABLE 16

Mean Overall Probability Estimates for Several Variables and Comparisons among Them

Variable	Mean	Comparison	t
P(B)	.604	P(E) vs. P(G)	10.99*
P(G)	.555	P(E') vs. P(G)	11.76*
P(G')	.445	P(G') vs. P(E)	11.76*
P(E)	.649	P(B G) vs. P(B G')	13.95*
P(E')	.351	P(B E) vs. P(B E')	13.43*
P(B G)	.662	P(B G) vs. P(B)	6.64*
P(B G')	.404	P(B E) vs. P(B)	1.51
P(B E)	.590	P(B G) vs. P(B E)	8.13*
P(B E')	.411		

\*two-tailed  $p < .001$ ,  $df = 31$

As noted previously, in data obtained in Part I estimates of P(E) were substantially higher than estimates of P(G). It is of interest, then, to compare the probability estimates of these variables obtained in Part II. As shown in Table 16, estimates of P(E) in Part II were significantly higher than estimates of P(G). A consideration of alternative interpretations of this finding will be deferred to the Discussion section of this paper.

Another issue of concern is whether inferring that one of the intermediate steps in the path model is not valid is

psychologically equivalent to inferring that the other intermediate step is valid. For example, it might be argued that acceptance of E, a specific situational explanation for an actor's initial behavior, is equivalent to acceptance of G', an inference that his behavior does not generalize to other situations. If E and G' are psychologically equivalent, one would expect that subjects would assign equal probabilities to them. Similarly, it might be proposed that acceptance of the notion that the actor's behavior generalizes to other situations is equivalent to inferring that a situational explanation for his behavior is not valid. If this were the case, then estimates of the probability of G and the probability of E' should not differ.

Since G' and E' were not measured directly, but rather were obtained by subtraction, it should be clear that if one of the relationships described above holds, the other necessarily follows [i.e., if  $P(E) = P(G')$ , then  $P(G) = P(E')$ ]. It should also be noted that finding equal probabilities for two inferences would not clearly establish their psychological equivalency, but would merely be consistent with an equivalency hypothesis. As is evident from Table 16, the data obtained in our study were not consistent with such an hypothesis.

A final area of concern is the effect of the conditional statements on estimates of the probability of B. Table 16 shows that estimates of  $P(B|G)$  were considerably higher than

estimates of  $P(B|G')$ , and that estimates of  $P(B|E)$  were much higher than estimates of  $P(B|E')$ . These comparisons offer strong evidence that B was viewed as much more likely when either of the intermediate inferences was described as true rather than false. Table 16 also shows that estimates of  $P(B|G)$  were higher than those of  $P(B)$  or of  $P(B|E)$ . In addition, the  $P(B|E)$  mean did not differ from the  $P(B)$  mean. These comparisons offer some indirect support for the notion that the Strong Path leads to stronger dispositional inferences than the Weak Path.

Prediction of  $P(B)$  Using Wyer's Subjective Probability Model. Two equations based on Wyer's conditional model of information processing were used to predict the values of  $P(B)$  obtained in Part II. The two equations are as follows:

$$1) \quad P(B) = P(G)P(B|G) + P(G')P(B|G')$$

$$2) \quad P(B) = P(E)P(B|E) + P(E')P(B|E')$$

The accuracy of the predictions generated by these equations was assessed at both the group and individual levels.

The group predictions were based on the mean probability estimates made by subjects in each of the four different Path conditions for each of eight different stimulus combinations. Thus, there were a total of 32 predicted and obtained means, with each mean being based on an  $n$  of 20 (for three Path conditions) or 23 (for the Weak Path condition).<sup>7</sup> The correlation between the predicted  $P(B)$  based on Equation 1 and the

obtained  $P(B)$  was .661. For Equation 2, the predicted and obtained values correlated .608. Both of these correlations were significant ( $p < .01$ ,  $df = 30$  in each case), and they suggest that the model predicts reasonably well at the group level. However, as shown in Table 17, the full equations predict no more accurately than several of the elements or products of elements making up the equations.

If the Path variable manipulated in Part I had a strong effect on subjects' responses in Part II one might expect that Equation 1, based on elements relevant to the Strong Path, would predict Strong Path subjects' estimates of  $P(B)$  more accurately than those of Weak Path subjects. Following similar reasoning, Equation 2 might be expected to predict  $P(B)$  more accurately for Weak Path subjects than for Strong Path subjects. A computation of the correlations between predicted and obtained mean estimates of  $P(B)$  based on Equation 1 revealed  $r$ s of .534 and .924 for the Strong and Weak Path conditions, respectively. These two values did not differ significantly. The obtained correlation coefficients for Equation 2 were  $-.367$  and  $.629$  for the Strong and Weak Path conditions, respectively. Although the large discrepancy in

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<sup>7</sup>The relationship between these predicted values and subjects' estimates of  $P(B)$  in Part I was also examined. The relevant data are presented in Appendix D.



TABLE 17

Correlations between Obtained Estimates  
of  $P(B)$  and Other Variables

Variable	r
predicted $P(B)$ based on Wyer Equation 1	.661*
predicted $P(B)$ based on Wyer Equation 2	.608*
$P(G)P(B G)$	.788*
$P(E)P(B E)$	.776*
$P(G)$	.767*
$P(E)$	.795*
$P(B G)$	.677*
$P(B E)$	.455*
$P(G')P(B G')$	-.723*
$P(E')P(B E')$	-.686*
$P(B G')$	-.119
$P(B E')$	-.327

\* $p < .01$ ,  $df = 30$

these correlations suggests that Equation 2 predicts better for the Weak Path group, each correlation is based on only eight pairs of means and the two values do not differ significantly.

In Part II each subject made probability judgments for eight different stimulus combinations. Thus, using one



of Wyer's equations, it was possible to derive a predicted estimate of  $P(B)$  for each of the eight stimulus combinations, and to compute the correlation between the predicted and obtained values for a given subject. Individual correlations based on each Wyer equation were computed for all subjects. For Equation 1, the individual correlations ranged from  $-.916$  to  $1.00$ . The median individual correlation for all 83 subjects was  $.478$ . Only 16 of the 83 individual correlations based on Equation 1 were significant ( $p < .05$ ,  $df = 6$ ). For Equation 2, the individual correlations ranged from  $-.728$  to  $.943$ . The median correlation was  $.417$ . Thirteen individual correlations based on this equation were significant. Thus, the predictive power of Wyer's equations at the individual level was relatively low, perhaps because of the small number of pairs of predicted and obtained values used to compute these correlations.

In order to investigate the possibility that the Wyer equations might predict individual estimates of  $P(B)$  with differential accuracy for subjects exposed to different paths in Part I, the range and median of the correlations for subjects in each Path condition were obtained. These data are presented in Table 18. No statistical analyses of these data were performed. However, there appears to be little indication that the predictive accuracy of either equation varies as a function of the subjects' Path condition in Part I.

TABLE 18

Range and Median of Individual Subjects' Correlations  
between Predicted and Obtained Values of P(B)

PATH	EQUATION 1		EQUATION 2	
	Range	Median	Range	Median
Strong	-.352 to .811	.415	-.396 to .871	.434
Weak	-.631 to 1.000	.438	-.728 to .943	.341
Control I	-.587 to .911	.591	-.249 to .814	.443
Control II	-.916 to .833	.456	-.494 to .918	.452

## DISCUSSION

### Findings Relevant to How Information about the Mentally Ill Is Processed

A number of hypotheses were advanced regarding the expected effects of the mental illness label. It was predicted that when a stimulus person had been diagnosed as mentally ill, subjects would overgeneralize his maladaptive behavior and undergeneralize his adaptive behavior relative to that of a stimulus person labeled as not mentally ill. In addition, subjects were expected to be more likely to explain the adaptive behavior of the mentally ill in situational terms than the same behavior performed by someone who was described as not mentally ill. Situational explanations for maladaptive behavior were predicted to be more likely when the stimulus person was not mentally ill. These intermediate inferences were hypothesized to offer a partial explanation for the well-established finding that people tend to attribute negative dispositions to the mentally ill.

These predictions were based on the assumptions that the generalization of behavior to unobserved situations would facilitate the explanation of that behavior in general dispositional terms, and that the explanation of the same behavior in situational terms would inhibit a general dispositional

inference. These assumptions correspond to the prediction that the intermediate inferences in the strong and weak paths would be differentially linked to the final dispositional inference. Since the predictions regarding the effects of the mental illness label depend on the validity of these assumed links, this issue will be examined before returning to our discussion of the mental illness predictions. It was anticipated that the presumed tendency for the intermediate inference in the strong path to facilitate the final inference would be reflected in a high positive correlation between probability estimates for these two inferences. Such a correlation was obtained. Since the intermediate inference in the weak path was expected to inhibit the final inference, a negative correlation between the probability estimates for these inferences was expected. However, a relatively high positive correlation was obtained.

These correlational data are consistent with an hypothesis that the intermediate inferences in both paths facilitate the final inference. However, as is inherent in the nature of correlational data, these results do not establish a causal connection between the two inferences in a given path. In our study, there are other available data which bear on this issue. Subjects in the Control Path I condition were not exposed to either intermediate inference, yet their estimates of the probability of the final inference (i.e.,

the only inference for them) were higher than those of the subjects exposed to either path involving an intermediate inference. This suggests that the intermediate inferences may have had an inhibiting rather than a facilitative effect on the final inference. The correlational data cited above, which appear to be inconsistent with this interpretation, may in fact suggest that both the intermediate and final inferences were caused by the information contained in the initial behavior descriptions. The low estimates of  $P(B)$  found in the Control Path II condition, in which no initial behavior descriptions were presented, support this interpretation. However, the estimates of conditional probabilities obtained in Part II are not entirely congruent with this interpretation. The finding that  $P(B|G)$  was higher than either  $P(B|E)$  or  $P(B)$  suggests that the intermediate inference in the strong path had a facilitative effect on the final inference. And, although one would not want to place great weight on this finding, the analysis of covariance showed that estimates of  $P(B)$  in the Strong Path condition were nonsignificantly higher than those in the Weak Path condition when the strength of the intermediate inferences in the two paths was statistically equated.

Taken together, then, the available data do not present a consistent picture. It seems reasonable to conclude that there is no unambiguous evidence which suggests that the



intermediate inference in the weak path facilitates the final inference. With respect to the strong path, there is some evidence that the intermediate inference has a facilitative effect on the final inference. However, in the most direct tests of this hypothesis [i.e., the  $P(B)$  analyses of variance and covariance in Part I], the two paths involving intermediate inferences did not differ significantly, and both of them proved to be weaker than the path involving a direct inference.

The implications of these path differences will be explored more fully in the next section. For present purposes, it is sufficient to note that the tests of the hypotheses regarding the effects of the mental illness variable were not entirely adequate because of deficiencies in the operationalization of the model tested in this study.

In examining the data obtained in Part I there is no evidence which clearly supports the hypotheses about the effects of the Diagnosis variable. However, the Adaptiveness X Diagnosis interactions for subjects' estimates of  $P(G)$  and  $P(E)$  in Part II do support our hypotheses. Subjects were unwilling to generalize the maladaptive behavior of a person diagnosed as not mentally ill to unobserved situations. They were also unwilling to accept situational explanations for the maladaptive behavior of a person who had been diagnosed as mentally ill.

Although no specific predictions were made about the effects of the Symptoms variable, several effects of interest were obtained. The Adaptiveness X Symptoms interactions obtained in the analyses of estimates of  $P(B)$  for both parts of the experiment generally show that subjects tended to attribute positive and negative general dispositions with about equal frequency to neurotic stimulus persons. However, negative dispositions were much less strongly attributed than positive dispositions when the stimulus person manifested normal symptoms.

The finding that the Adaptiveness X Symptoms interaction was particularly strong among subjects in the Control Path II condition is of particular interest. Subjects in this condition were not exposed to the initial behavior descriptions, and their attributions of general dispositions tended to conform more closely to stereotypic judgments than those of other subjects (i.e., negative dispositions were quite strongly attributed to neurotic persons and positive dispositions to normal persons). This suggests that the information that a person had engaged in a specific behavior lessened the impact of the Symptoms manipulation. It appears that subjects may have most strongly used the information about the person's symptoms to make inferences about his dispositions when little other information was available. This line of reasoning is similar to that advanced by

Crocetti, Spiro, and Siassi (1974). These authors suggest that stereotypical views regarding the stigmatized tend to be elicited when the perceiver receives little or no information about the person other than that relating to his stigma. This pattern of information may, quite reasonably, suggest to the respondent that the information about the person's stigmatizing condition should be weighted quite heavily. This sort of argument would suggest that the Diagnosis manipulation might have yielded similar, stereotypical responses in the Control Path II condition. However, the failure to obtain such an effect may be due to the relative strength of the Diagnosis and Symptoms variables. We shall discuss this issue below.

The Symptoms X Diagnosis interactions obtained for subjects' estimates of  $P(B|G)$  and  $P(B|E)$  were not strong effects, but each showed a moderate tendency for subjects to make higher probability estimates when the person's symptoms and diagnosis were consistent (e.g., normal symptoms / not mentally ill diagnosis). This suggests that the information contained in one variable may lead to a more confident judgment when supporting evidence from another variable is available. This notion is intuitively plausible, and is consistent with a number of information processing approaches (see Wyer, 1974). However, it is somewhat surprising that the nature of the two-way interaction did not depend on the

Adaptiveness variable. This variable may be viewed as providing another consistent or inconsistent source of information for the subject, and might have been expected to interact with the Symptoms and Diagnosis variables. Perhaps the fact that the judgments requested were conditional probabilities is relevant. Since the conditional estimates require subjects to assume that the intermediate inference is valid, they might effectively eliminate the possibility for subjects to consider issues which normally might bear on their judgment (e.g., "Is he the kind of person who would generally engage in this kind of maladaptive behavior?").

On the basis of our literature review, one might have expected the Diagnosis variable to have had much stronger effects than the Symptoms variable in our study. In fact, each variable was involved in a few, moderately strong effects. Thus, the overall impact of the two variables was quite comparable, and our data do not appear to be consistent with the proposition that the mental illness label is much more disturbing to people than neurotic symptoms. However, our failure to support this proposition may have been due to the methodological limitations of our study, rather than to the validity of the proposition. Two possible methodological problems of possible relevance to this issue are discussed below.



The first possible limitation involves the relative strength of the Symptoms and Diagnosis manipulations. The interpretation of the relative impact of two variables depends on the relative strength of their manipulations. This is very hard to evaluate, since it is often difficult to compare the two variables on a single, appropriate dimension. With this in mind, one may speculate that, if anything, the Diagnosis variable in our study may have been less strongly manipulated. We chose to manipulate this variable in a straightforward, direct manner by simply indicating that the person had been diagnosed as mentally ill or as not mentally ill. However, this particular manipulation may have been relatively weak in two senses. First, the brevity of the diagnosis information may have caused it to be overshadowed by the more lengthy symptoms information. Secondly, the description of a person as "not mentally ill" may be viewed as faint praise, and may not have been as dramatically different from a "mentally ill" diagnosis as would have been desirable.

A second possible methodological limitation involves the characteristics of our subjects. The average age of the high school students we used was approximately sixteen. Adelson (1975) has recently reviewed some literature which suggests that the individual's capacity to deal effectively with abstract political concepts (e.g., political parties, education,



the church) is not fully developed until he is approximately eighteen. Between the ages of twelve and eighteen a steady shift away from the usage of concrete referents (e.g., a particular school, the jail) to more abstract referents is observed. In our study, the diagnosis information required subjects to interpret the behavior of an individual described by an abstract term (mentally ill or not mentally ill). The Symptoms manipulation involved the presentation of much more specific information about a particular individual's idiosyncratic features. The symptoms information might be more easily processed at a lower level of abstraction than the diagnosis information. In Abelson's (1976) terms, the symptoms information could be processed episodically. It seems likely that sixteen-year-olds manifest a greater preference for episodic processing than do adults. The apparent lack of impact of the Diagnosis variable in our study relative to previous research may be due to the fact that our subjects were cognitively unprepared to process information at the level of abstraction the manipulation required, rather than to the weakness of the manipulation.

The Adaptiveness main effects which were found for every dependent measure except  $P(B|G')$  were quite strong. They appear to reflect the well-known "positivity bias" found in several areas of social perception research (see, e.g., Burnstein, 1969; Sears and Whitney, 1972), and are of little

particular relevance to the major issues investigated in our study.

In general, the inferential path model tested seems to show moderate promise as a device for helping to suggest one process by which people might arrive at negative dispositional attributions about the mentally ill. The unintended features of the model as operationalized in our study did not allow an unambiguous test of our hypotheses regarding differential information processing as a function of the mental illness label and other variables. In spite of this, we obtained support for several of our predictions. The general features of the model and its implications for more general social inference processes are discussed in the next section.

#### General Features of the Inferential Path Model

We have already discussed the fact that both of the paths involving intermediate inferences yielded lower estimates of  $P(B)$  than the direct inference path. This unexpected finding, as noted previously, makes it difficult to assess the validity of our predictions of differential information processing as a function of the mental illness label. However, in spite of this difficulty, the finding is potentially a very interesting one. Two possible explanations for this result will now be offered.

The first explanation is based on the assumption that the intermediate inferences sensitized subjects to the possibility that the stimulus person's initial behavior might not be best explained in general dispositional terms. For subjects in the Weak Path condition, the inclusion of E might well have raised the possibility that the stimulus person's disposition to behave in a certain way was limited to a particular type of situation. For Strong Path subjects the inclusion of G may have led them to consider the possibility that the initial behavior would not generalize to unobserved situations. If these respective cognitions were particularly salient for these subjects as a result of their exposure to the intermediate inferences in their paths, then their greater caution in assigning general dispositions to actors may be explained on the basis of the salience of these cognitions.

For Strong Path subjects the intermediate inference may have functioned similarly to McArthur's (1972) high distinctiveness manipulation, in the sense of conveying information that the person's behavior should not be generalized across stimuli. If this speculation is valid, then our results are consistent with McArthur's finding that high distinctiveness inhibited attributions of causality to the person.

Of course, the inclusion of the intermediate steps might have increased the salience of other cognitions as well as

those mentioned above. Some such cognitions might be expected to enhance the probability of a general dispositional attribution (e.g., the cognition that the person's behavior might generalize across stimuli). The explanation advanced, then, depends on the assumption that cognitions associated with enhanced attribution to the person were made less salient by our intermediate inferences than cognitions associated with decreased attribution to the person. This assumption is consistent with an intuitive analysis of subjects' experiences in the different conditions. In the Control Path I condition subjects received the initial behavior description (A) and were asked for a judgment of the probability that the stimulus person had a general disposition which was related to that behavior [ $P(B)$ ]. Since B was always plausibly related to A, and since no other inferential possibility was presented, the subjects assigned relatively high probabilities to B. In the Strong and Weak Path conditions, however, the information presented was more complex, and suggested many inferential possibilities. This may have led these subjects to question the simple inference, "A suggests B." It appears that the complexity of the information presented may have led subjects toward greater caution in their interpretations of it.

A second interpretation of the finding that estimates of  $P(B)$  were higher in the Control Path I condition than in either



experimental condition is based on the subject's need to explain the initial evidence sentence he receives. According to this interpretation the subject's principal motivation is to explain A, and the paths involving two inferences give him two opportunities to do so. If the intermediate and final steps in the experimental paths are considered as basically independent alternative explanations for A, then the attribution of a certain amount of causality to one possible source would lessen the need to attribute causality to the other source. In the Strong and Weak Path conditions, G and E, respectively, might be viewed as absorbing some of the causality which would be attributed to B if they were not presented. Control Path I subjects' estimates of  $P(B)$  would be expected to be higher, since only one causal explanation for A was presented to them.

Although this explanation might seem to be relevant to only the Weak Path condition, in which E was known to be considered a very good explanation for A, it is also applicable to the Strong Path condition. Even though G was not considered as adequate an explanation for A as E was, it nevertheless was considered as having a certain amount of explanatory value. (The average "G" was rated by pretest subjects as about midway between "fair" and "good" as an explanation for A.)



The effects of the Path variable on subjects' judgments in Part II are difficult to summarize or interpret. However, in general they seem to indicate that subjects exposed to one of the experimental path conditions in Part I were more cautious in their judgments in Part II, and less influenced by the independent variables. Such a tendency is generally consistent with the first interpretation offered above, in the sense that subjects who were required to "think more" by being exposed to more complex information in Part I appeared to exercise somewhat greater caution throughout the experiment.

Another major finding regarding the nature of the path model which has not yet been fully explored is that subjects' overall estimates of  $P(E)$  were consistently higher than their estimates of  $P(G)$ . One possible interpretation of this finding is relatively trivial theoretically, in that it is based on the wording of the stimulus materials. The question designed to measure  $P(G)$  asked subjects about the generalization of behavior to "a wide variety of situations." In retrospect, this phrase may have been too strong. However, the phrase was chosen in order to eliminate the ambiguity which other phrases such as simply "other situations" were shown to have in pilot testing. More extensive tests of the effects of various wordings could be conducted quite easily.

A more interesting explanation for the finding is based on the assumption that people's need to explain phenomena is a pervasive motivational force. The assumption that people are motivated to make sense of their social world is, of course, a central one of long-standing in social perception research (cf., Hastorf, Schneider, and Polefka, 1970). In their well-known study, Heider and Simmel (1944) showed that subjects were quite willing to assume that even the relationships among inanimate geometrical forms presented in a film were causal in nature. Several interesting studies have recently suggested that an orientation toward interpreting events in causal terms may prevent one from using all of the information available to him in a rational manner (e.g., Tversky and Kahneman, 1971; Kahneman and Tversky, 1973). If we assume that there is a bias toward inferences of causality, then the greater probabilities subjects assigned to E than to G in our study are consistent with such a bias. As discussed previously, the items in our study were selected so that E was viewed as a more adequate explanation for A than G was. The data from our study may be viewed as consistent with a general proposition that there is a pervasive tendency to associate cognitions which are causally linked.

A final issue related to the features of our inferential path model is the sequence in which information is processed. Initially we proposed that subjects in the experi-

mental path conditions would process information in a sequential fashion. For example, in the Strong Path condition subjects were expected to use the information provided about the characteristics of the actor and the behavior he performed to make inferences about how likely it was that behavior would generalize to other situations. If the subject concluded that the behavior was highly likely to generalize, then that inference was expected to lead to an attribution of causality to a general disposition of the actor.

It is interesting to compare this hypothesized inferential sequence with one proposed by McArthur (1972). As one part of her study McArthur investigated subjects' expectations for stimulus generalization (i.e., their estimates of the probability that a response to one stimulus would occur in the presence of another, specifically mentioned stimulus). One hypothesis she investigated was that low consensus information (i.e., the information that few people respond the way the actor does to a certain stimulus) would lead to attributions of causality to the person, which would then lead to the expectation that he would behave similarly in the presence of other stimuli. Although the two studies differed in a number of respects, and McArthur's consensus variable is not of particular relevance to our major concerns, the contradiction in the inferential sequences proposed is apparent. McArthur suggested that attributions of causality

to the person would lead to the expectation that behavior would generalize; we proposed the opposite sequence.

McArthur found virtually no evidence which supported her hypothesis. However, the evidence from our study relevant to this issue is only partially consistent with our hypothesis. In Part II, when subjects were asked to assume that the stimulus person's behavior generalized, they were very likely to attribute it to a general disposition of the actor. However, in Part I there was little evidence to support the hypothesis that the generalization of behavior facilitated its explanation in general dispositional terms. In addition, we found little evidence that explaining behavior in situational terms either inhibited or enhanced the probability of a general dispositional inference.

The data obtained in both studies, then, provide little evidence that subjects spontaneously process information in either proposed sequence. More adequate tests of the present model would certainly be appropriate, particularly in view of the unintended differences in the strength of the intermediate inferences in the two experimental paths. McArthur's hypothesized sequence of processing seems worthy of further investigation also. In short, both sequences seem logical, and intuitively it seems that people "ought to" process information in accord with one or both of them.



However, in the absence of further research designed to clarify the issue, it seems appropriate to at least raise the possibility that neither hypothesized sequence describes the way people typically process information. It seems reasonable to assume that information about behavior is used to make various kinds of inferences, including the types of generalizations and explanations we investigated. However, it may be that these inferences are made more on the basis of parallel rather than serial processing (Neisser, 1967). For example, the information that a neurotic person diagnosed as mentally ill threw a temper tantrum when his wife's parents were visiting might lead to a number of inferences, made with varying degrees of confidence. A perceiver might consider it quite plausible that the actor lacked self-control when in the presence of his in-laws, equally plausible that he lacked self-control in many different situations, and highly likely that he would throw temper tantrums in various kinds of situations. He might view these inferences as reflecting possibilities which are primarily independent of one another, although he could conceive of ways in which each might be either consistent or inconsistent with the others. The extent to which such complex contingencies are considered by individuals in most information processing situations is unclear. One model which represents an attempt to examine the more complex inferences which people make is



that of Wyer (1970). The relevance of his model to the present research topic is discussed in the following section.

#### Applicability of Wyer's Subjective Probability Model

The results of our study showed that the predictive accuracy of both Wyer equations at the group level was substantially better than chance, but well below that obtained in some of Wyer's own work (e.g., Wyer, 1970, 1973). Wyer (1974) has reviewed a number of studies which show that his subjective probability model predicts newly formed beliefs about hypothetical individuals more accurately than previously formed beliefs about real people. The stimulus persons in the present study were implicitly hypothetical, and were clearly not real people with whom the subjects had interacted. On this basis, one might have expected that the Wyer equations would have predicted subjects' responses with higher accuracy. However, at least two factors seem likely to have attenuated the relationship between predicted and obtained values in the present study.

First, while subjects did not have well-formed beliefs about the specific stimulus persons they made judgments about in our study, it seems reasonable to assume that their beliefs about the categories of persons the stimulus persons represented were quite well-formed prior to the experiment. Mental illness is a complex emotional issue which is likely

to arouse many previous cognitive associations and beliefs in most people. The influence of these "extraneous" beliefs on subjects' judgments is undoubtedly more powerful than when one deals with more innocuous material.

Secondly, in Wyer's work, the predicted and obtained values used in assessing the predictive validity of an equation at the group level are typically calculated on the basis of the relevant mean probability estimates for all subjects comprising the group. Within a given group, all of the subjects have generally been exposed to identical stimuli. In the present study a similar procedure was followed, but subjects constituting a group for whom means were calculated were not exposed to identical stimuli. Rather, they were exposed to stimuli designed to represent a particular combination of independent variables (e.g., a person who had been diagnosed as mentally ill, exhibited neurotic symptoms, and had engaged in an adaptive behavior). The fact that the specific content of the stimulus materials received by members of a group varied among members would be expected to result in less uniform probability estimates than would be obtained if the stimuli were identical. In effect, an additional source of error of measurement was introduced into our study which should logically be expected to lower the predictive accuracy of the equations tested.

In view of these considerations, the predictive utility of Wyer's equations at the group level in our study seems relatively high. However, it is to be recalled that the full equations predicted subjects' estimates of  $P(B)$  no more accurately than several of the individual terms or products of terms making up the equations. Of particular interest is the fact that the first components of both equations [ $P(G)P(B|G)$  for Equation 1, and  $P(E)P(B|E)$  for Equation 2] were very strongly correlated with obtained estimates of  $P(B)$ . Including the second components of the equations did not enhance the relationship between predicted and obtained values; in fact, the correlations based on the full equations were somewhat lower than those based on the first components. A recent study by Wyer (1975) suggests a possible reason for this finding. In this study Wyer employed a functional measurement technique (Anderson, 1970), which provides the most sophisticated test to date of whether the relationships among the probabilities making up the model are those implied by the model. One implication of the model is that both conditional probabilities in Wyer's equations should be positively related to obtained estimates of  $P(B)$ .

In Wyer's study subjects were provided with information designed to experimentally manipulate the conditional probabilities, and the expected relationships were obtained. In our study  $P(B|G)$  and  $P(B|E)$  were positively correlated with

obtained estimates of  $P(B)$ , as would be expected if the model is valid. However,  $P(B|G')$  and  $P(B|E')$  were found to be unrelated to  $P(B)$ . This is inconsistent with the model, and appears to account for the reduced predictive validity of the Wyer equations when the second components were included. The psychological significance of this explanation is unclear, however. Perhaps it reflects the fact that subjects do not process information about the likelihood of  $B$  given that an intermediate inference is known to be false in making their initial estimates of  $P(B)$ . It is possible that the only contingencies involving the intermediate inference which they process are those which involve the assumption that the intermediate step is at least moderately likely.

It is of interest to note that, although Wyer's functional measurement study differed in many respects from the present study, one of his major findings was consistent with our results. Wyer found that the terms of the first component of his equation were related to all other terms and components in the manner implied by his subjective probability model. However, the conditional probability in the second component of his equation did not show the expected relationships. The error in predicting obtained values of  $P(B)$  was attributable to the second conditional. Since the error of estimate was quite small in this study, Wyer argued that the proposed equation did not need to be modified. However, he



indicated that a slightly altered model involving differential weighting of the second component of his equation enhanced predictability somewhat. For present purposes, it is sufficient to note that the limitations of the model found in the present study and in Wyer's study were both due to the same component.

The present study provides further evidence that Wyer's subjective probability model is a quite general one which may be profitably applied to a variety of research issues. Our study represents an extension of the model in two ways. A new content area, attitudes toward the mentally ill, was explored. In addition, the cognitions involved in the experiment included generalizations and explanations of specific behaviors, rather than the more typically investigated judgments of attraction, similarity, or the probability of the occurrence of various specific events.

Although the model predicts reasonably well at the group level, the problems associated with its second component suggest that it does not accurately describe the manner in which information is processed. The large variability in the correlations between predicted and obtained estimates of  $P(B)$  for individual subjects suggests that, while the model may be descriptive for some subjects, for a large majority it does not appear to be. Perhaps the greatest value of the model is as a heuristic device which can stimulate researchers to



consider issues which would otherwise be ignored. For example, in the present study, the conditional probability estimates provided a great deal of valuable information which enhanced our understanding of the inferential path model which was of primary interest. It is unlikely that these conditional probabilities would have been measured if Wyer's model had not been considered as the experiment was being designed.

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## APPENDIX A

## Descriptions of Stimulus Persons

Symptoms -- Normal

Diagnosis -- Not mentally ill (For mentally ill diagnosis, "not" omitted from first sentence)

Dan P. was recently diagnosed as not mentally ill. He enjoys gardening in his spare time. He plants nearly  $\frac{1}{4}$  acre every spring with vegetables and flowers. Dan spends many hours tending his plants and sells some of his produce at a roadside garden stand.

Frank T. was recently diagnosed as not mentally ill. He has a strong interest in old automobiles. He has restored two cars recently. He would like to sell one of them and buy another car to restore. Much of Frank's spare time is spent reading about, looking at, and working on old cars.

Jim L. was recently diagnosed as not mentally ill. He is very interested in sports. He spends most of his leisure time participating in various athletic programs himself or watching sports programs on television. Jim hopes to be able to attend the 1976 Olympic Games as a spectator.

Joe M. was recently diagnosed as not mentally ill. He enjoys music a great deal. He plays the piano by ear and has recently bought an electric organ for his home. He attends the opera or ballet at least once a month, and is considering learning to play either the guitar or flute.

Robert W. was recently diagnosed as not mentally ill. He works full-time in his father's hardware store. He has been there for several years and hopes to take over the business completely within five years. Robert has recently expanded the sporting goods section and hired two new part-time employees.

Tom A. was recently diagnosed as not mentally ill. He works as an insurance salesman. He sells life, automobile, and home insurance, but focuses primarily on life insurance. Tom works very hard at his job, and typically devotes about sixty hours a week to it.



## Symptoms -- Neurotic

Diagnosis -- Not mentally ill (For mentally ill diagnosis, "not" omitted from first sentence)

David J. was recently diagnosed as not mentally ill. He is unhappy with his life. He feels extremely tense about a lot of things, but can't define very specifically what would make him feel better. Every once in a while David experiences a strong feeling that something terrible is about to happen, but it never does.

Doug J. was recently diagnosed as not mentally ill. He is very seriously concerned about his physical health. He tends to see many minor bodily sensations as possible signs of serious organic problems. Doug has spent a great deal of money on medical expenses, and has given up many of his usual social activities because of his health problems.

Roger D. was recently diagnosed as not mentally ill. He is sometimes overwhelmed by a desire to hit his father. One particular fantasy continually recurs in his mind, in which he becomes very angry and strikes his father at a family gathering. This scene is very disturbing to Roger, but sometimes he just can't get it out of his mind and can't concentrate on any other thoughts.

Paul M. was recently diagnosed as not mentally ill. He worries a lot about little things. He often finds himself feeling very anxious without really knowing why. Paul can't sleep nights, brooding about the past and worrying about things that might go wrong.

Harold T. was recently diagnosed as not mentally ill. He is afraid of heights. Harold becomes very fearful whenever he thinks about being in a tall building, near the summit of a mountain, or even at the top of a long ladder. He believes that his fear of heights is basically irrational, but that only seems to make the intense anxiety he experiences harder to accept.

Martin B. was recently diagnosed as not mentally ill. He is frequently depressed. He cannot concentrate on his work, has little self-confidence, and has difficulty sleeping. Martin sees the world as too difficult to cope with, and tends to exaggerate his personal shortcomings and setbacks.

## APPENDIX B

Adaptive and Maladaptive Behavior Items

The first eight items are adaptive behavior items; the second eight are maladaptive. The form of the items for the different Path conditions is as follows:

#### Strong Path

A

How likely is it that G?

How likely is it that B?

#### Weak Path

A

How likely is it that E?

How likely is it that B?

#### Control Path I

A

How likely is it that B?

#### Control Path II

How likely is it that B?

#### Item 1

He initiates a pleasant conversation with an acquaintance he runs into at a local baseball game. (A)

He initiates pleasant conversations in a wide variety of situations. (G)

He enjoys people when at local recreational activities. (E)

He enjoys people in a wide variety of situations. (B)

#### Item 2

When a volunteer from the local community chest comes to his door, he donates a substantial amount of money. (A)

He donates substantial amounts of money in a wide variety of situations. (G)

He is a generous person when personally asked for a donation to a local charity. (E)

He is a generous person in a wide variety of situations. (B)

## Item 3

He relaxes at home with his family on weekends. (A)  
He relaxes in a wide variety of situations. (G)  
He is comfortable when at home with his family. (E)  
He is comfortable in a wide variety of situations. (B)

## Item 4

He sees a neighbor out shoveling snow, and helps complete the job. (A)  
He helps people in a wide variety of situations. (G)  
He is a considerate person when he sees a neighbor who needs help. (E)  
He is a considerate person in a wide variety of situations. (B)

## Item 5

He goes to bed early when he feels a cold coming on. (A)  
He goes to bed early in a wide variety of situations. (G)  
He is concerned about maintaining good health when he feels bad. (E)  
He is concerned about maintaining good health in a wide variety of situations. (B)

## Item 6

While having dinner with friends, he notices that a particular topic of conversation is upsetting to his wife, and he changes the subject. (A)  
He steers the conversation away from upsetting topics in a wide variety of situations. (G)  
He is responsive to his wife's feelings in social situations. (E)  
He is responsive to people's feelings in a wide variety of situations. (B)

## Item 7

He plays football with his daughters after a good day at work. (A)  
He plays games with his daughters in a wide variety of situations. (G)  
He enjoys playing games when he is in a good mood. (E)  
He enjoys playing games in a wide variety of situations. (B)

## Item 8

He writes a letter to the editor of a local newspaper about the local race for mayor. (A)  
He writes letters to the editor about a wide variety of public issues. (G)  
He is deeply concerned about the local mayoral race. (E)  
He is deeply concerned about a wide variety of public issues. (B)

## Item 9

At an exciting basketball game he remains almost motionless. (A)  
He remains almost motionless in a wide variety of situations. (G)  
He is apathetic about basketball games. (E)  
He is apathetic in a wide variety of situations. (B)

## Item 10

He threatens his son with physical injury if he doesn't shape up. (A)  
He threatens people in a wide variety of situations. (G)  
He is cruel to his children when angry with them. (E)  
He is cruel in a wide variety of situations. (B)

## Item 11

On the way to the grocery store, he takes the money he planned to spend on food and buys himself a new tape recorder. (A)  
He spends grocery money on other things in a wide variety of situations. (G)  
He has little control of his impulses when it comes to handling finances. (E)  
He has little control of his impulses in a wide variety of situations. (G)

## Item 12

Upset by reports regarding current political events, he calls the police and reports (falsely) that a bomb is scheduled to go off in a public building. (A)  
He makes false bomb reports in a wide variety of situations. (G)  
He is spiteful toward others when upset by political conditions. (E)  
He is spiteful toward others in a wide variety of situations. (B)



## Item 13

When his wife's parents are visiting, he throws a temper tantrum. (A)

He throws temper tantrums in a wide variety of situations. (G)

He lacks self-control when his wife's parents are visiting. (E)

He lacks self-control in a wide variety of situations. (B)

## Item 14

He goes to a bar, gets drunk, and gets into a fight with someone. (A)

He gets into fights in a wide variety of situations. (G)

He is aggressive when drunk. (E)

He is aggressive in a wide variety of situations. (B)

## Item 15

He is introduced to a person at a party, and insults his new acquaintance. (A)

He insults people in a wide variety of situations. (G)

He is socially awkward when he meets new people at parties. (E)

He is socially awkward in a wide variety of situations. (B)

## Item 16

He sees someone he dislikes, and asks a series of embarrassing personal questions. (A)

He asks embarrassing personal questions in a wide variety of situations. (G)

He is rude when he encounters someone he dislikes. (E)

He is rude in a wide variety of situations. (B)

APPENDIX C

Significant Analysis of Variance Effects  
Involving Sex of Subject

Significant Analysis of Variance Effects  
Involving Sex of Subject

DEPENDENT VARIABLE	EFFECT*	F	df	p <
P(G), Part II	ADPH	4.76	3,75	.0005
P(E), Part II	DH	4.09	1,75	.05
P(B G), Part II	DH	4.61	1,75	.05
P(B G), Part II	ASDH	4.41	1,75	.05

\*A = Adaptiveness, D = Diagnosis, P = Path, H = Sex of Subject, S = Symptoms

## APPENDIX D

Correlations between Estimates of  $P(B)$  Obtained  
in Part I and Predicted Values of  $P(B)$  Based  
on Group Data Obtained in Part II

Correlations between Estimates of P(B) Obtained  
in Part I and Predicted Values of P(B) Based  
on Group Data Obtained in Part II

EQUATION*	PATH		
	All Paths	Strong Path	Weak Path
Equation 1	.471 (df=30)	.753 (df=6)	.743 (df=6)
Equation 2	.445 (df=30)	.155 (df=6)	.902 (df=6)

\*see body of paper



