

On the Relation between Genuine and Simulated Amnesia

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When claims of amnesia are made in legal cases, it is necessary to determine whether they are genuine or simulated. This article assesses current knowledge of the relation between genuine and simulated amnesia and discusses issues that are critical to understanding of the problem. It is argued that there are few well established facts regarding the nature of simulated amnesia, and no evidence that experts can distinguish accurately between genuine and simulated amnesia. Suggestions are made for future research that draw upon recent advances in cognitive psychology, social psychology, and neuropsychology.

Claims of amnesia play an important role in a variety of legal contexts. When a person reports amnesia for a criminal act, the claim may bear upon his or her competency to stand trial (Cocklin, 1981; Koson & Robey, 1973), may be a necessary condition for pleading that the accused behaved in an automatic or involuntary manner during the crime (Gibbens & Williams, 1977), and may be crucial for reaching an accurate psychological diagnosis concerning a defendant (Orne, Dinges, & Orne, 1984; Watkins, 1984). In civil cases, such as those involving personal injury, a claim of chronic amnesia that is attributable to an accident or illness may have a significant influence on the determination of compensation (Benton & Spreen, 1961; Guthkelch, 1980). In addition, claims of amnesia by eyewitnesses regarding a key incident can have important effects on the outcome of both civil and criminal cases (Loftus, 1979; Trankell, 1972; Undeutsch, 1982). In each of these somewhat different situations, however, a similar question must be addressed: Is the claim of amnesia genuine or is it simulated? The answer to this question in an individual case will have a major impact on the outcome of the legal process: If a claim of amnesia is judged to be simulated, it can no longer be used to support a defendant's plea of automatism, will likely result in a reduced

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Behavioral Sciences & the Law, Vol. 4, No. 1: 47-64 (1986)
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CCC 0735-3936/86/010047-18\$04.00

amount of compensation for an allegedly amnesic claimant, and will almost surely discredit the testimony of an eyewitness.

In view of these far-reaching consequences, there can be little doubt that the differentiation of genuine and simulated amnesia represents a major problem in the legal arena. The present article examines the issue of genuine versus simulated amnesia in legal contexts. Specifically, the article has three main objectives: (1) to discuss existing evidence and ideas concerning the relation between genuine and simulated amnesia with a view toward assessing our current scientific understanding of the issue; (2) to examine available evidence concerning experts' ability to detect simulated amnesia; and (3) to delineate and perhaps clarify several key conceptual problems that have not yet been confronted. Evidence is reviewed that directly pertains to simulated amnesia in legal contexts, studies of simulated psychological phenomena in various other domains are discussed, and literature in cognitive psychology and neuropsychology is presented that may provide new and fruitful perspectives on the problem.

MULTIPLE MEANINGS OF THE TERM AMNESIA

It is easy to overlook the fact that the term "amnesia" can be used to describe distinct types of psychological phenomena. At least four distinct types of amnesia can be distinguished: *chronic organic amnesia*, *functional retrograde amnesia*, *multiple personality amnesia*, and *limited amnesia*. *Chronic organic amnesia* refers to pathological forgetting that is associated with a wide variety of neurological dysfunctions, including head injury, encephalitis, ruptured aneurysm, Korsakoff's disease, anoxia, Alzheimer's disease, and others (for review, see Cermak, 1982; Hirst, 1982; Schacter & Crovitz, 1977; Squire, 1982; Whitty & Zangwill, 1977). Afflicted patients typically have severe and persistent difficulties remembering day-to-day events and learning new information (*anterograde amnesia*) and also may have problems remembering facts and events that occurred prior to the onset of the amnesic condition (*retrograde amnesia*). *Functional retrograde amnesia* refers to a memory loss of one's name and personal past that is produced by severe psychological and emotional trauma (Abeles & Schilder, 1935; Kanzer, 1939; Schacter, Wang, Tulving, & Freedman, 1982). *Multiple personality amnesia*, as the term implies, refers to memory deficits observed in patients with multiple personality disease: Any one of the patient's personalities may have little or no access to memories acquired by another (e.g., Ludwig, Brandsma, Wilbur, Bendfeldt, & Jameson, 1972; Prince, 1906). Finally, what I have called *limited amnesia* [Schacter, in press] refers to a pathological inability to remember a specific episode, or small number of episodes, from the recent past. Limited amnesia may be produced by emotional shock, alcoholic intoxication, head injury, or epileptic seizure. Individuals with limited amnesia do not have chronic, anterograde memory impairments; their memory loss is restricted to a specific critical event.

Both functional retrograde amnesia and multiple personality amnesia are encountered relatively infrequently in legal contexts. Evidence concerning simulation of these disorders in criminal cases has been discussed elsewhere (Bradford

& Smith, 1979; Lasky, 1982; Orne, Dinges, & Orne, 1984; Schacter, *in press*; Watkins, 1984), and, therefore, will not be discussed in any detail here. Limited amnesia, by contrast, is encountered quite frequently: Existing data indicate that roughly 30–65% of individuals convicted of homicide claim amnesia for the crime (Bradford & Smith, 1979; Guttmacher, 1955; Hopwood & Snell, 1933; Leitch, 1948; Lynch & Bradford, 1980; O'Connell, 1960). Although comparable data are not available concerning chronic organic amnesia, reports of clinicians (e.g., Guthkelch, 1980; Pankratz, 1983) indicate that claims of chronic memory loss are encountered frequently in compensation cases (instances of chronic organic amnesia are rarely encountered in criminal cases). Therefore, the present article focuses upon the differentiation of genuine versus simulated limited amnesia and chronic organic amnesia.

LIMITED AMNESIA

A number of suggestions have been made by psychologists and psychiatrists regarding the differences between genuine and simulated limited amnesia. For example, Power (1977) contended that reports of a gradual onset and termination of amnesia are likely to be genuine, whereas reports of an abrupt onset and termination are likely to be simulated. Bradford & Smith (1979) suggested that genuine amnesias are somewhat patchy (some aspects of a crime remain accessible to memory) whereas simulated amnesias tend to be absolute. Other investigators have stated that simulated amnesia can be detected by inconsistent or self-contradictory reports upon repeated questioning (Gorman, 1984; Keschner, 1960; Power, 1977; Price & Terhune, 1919; Sadoff, 1974). The foregoing suggestions all focus on the character of the reported amnesia, but some investigators have suggested that variables such as the psychiatric history of the accused and the nature of the crime (i.e., whether it is planned or impulsive) may provide a basis for distinguishing between genuine and simulated amnesia (Bradford & Smith, 1979; Lennox, 1943; Power, 1977; Sadoff, 1974).

It is possible that some or all of these criteria for distinguishing between genuine and simulated limited amnesia are valid. Unfortunately, the criteria are based largely upon uncontrolled clinical observations. The clinical origin of the suggested criteria does not, of course, indicate that they are necessarily incorrect. However, there are good reasons for questioning the usefulness of clinical observations concerning simulated amnesia. The most serious problem is that in the absence of a confession by the allegedly amnesic individual, it is difficult for clinicians to determine definitively which subjects are simulating and which are genuinely amnesic. As Ziskin has pointed out in a more general discussion of clinical detection of deception, “. . . if a patient was successful in fooling [a clinician], they would not know they had been fooled” (1984, p. 41). (For similar concerns, see Bash & Alpert, 1980; Resnick, 1984; Rogers, 1984.) If the true identity of the subjects is not known, then we must remain uncertain regarding the validity of suggestions for distinguishing between genuine and simulated amnesia.

The problem of independently determining the status of an allegedly amnesic individual is also apparent in recent attempts to distinguish objectively between genuine and simulated limited amnesia. Lynch and Bradford (1980) examined various characteristics of 22 defendants who claimed amnesia for their crimes. They classified subjects as either "truthful", "indefinite", or "deceptive", according to the outcome of a polygraphic examination. Lynch and Bradford observed that deceptive subjects exhibited personality disorders more frequently than did truthful subjects, and also had a shorter history of alcohol abuse than did the truthful subjects. However, interpretive difficulties arise because Lynch and Bradford had no means of verifying the status of their subjects independently of the polygraph test and, as is well known, there is a great deal of controversy concerning the validity of polygraphy as a means of detecting deception (e.g., Lykken, 1981). Therefore, we cannot be entirely certain about the actual status of subjects in the Lynch and Bradford study, and must treat their results cautiously.

Similar considerations apply to a study by Parwatikar, Holcomb, and Menninger (1985). They examined two groups of subjects who had been charged with homicide. One group consisted of 24 subjects who claimed amnesia for their crimes; the other consisted of 50 subjects who confessed to their crimes. Based on the personality characteristics of the subjects, as assessed by several subscales of the MMPI, as well as their psychiatric histories, Parwatikar et al attempted to classify subjects with a stepwise discriminant function analysis. They reported that the discriminant analysis classified subjects with a high degree of accuracy, and showed that amnesic subjects tended to exhibit higher levels of depression, hysteria, and hypochondriasis on the MMPI than did subjects who confessed to their crimes. However, Parwatikar et al made the further assumption that the seven allegedly amnesic subjects who were *misclassified* by the discriminant analysis should be regarded as simulators. Since all of these subjects were intoxicated at the time of the crime, Parwatikar et al concluded that ". . . intoxication alone cannot be used to determine those most likely to be experiencing genuine amnesia" (1985, p. 101). Unfortunately, however, we must remain skeptical about this conclusion, because there is no independent evidence that the misclassification of these subjects by the discriminant analysis necessarily indicates that they were simulating (nor is there independent evidence that correct classification by the discriminant analysis necessarily indicates that subjects are genuinely amnesic). More generally, the Parwatikar et al (1985) and Lynch and Bradford (1980) studies highlight a problem inherent in research conducted with actual cases of claimed amnesia for a crime: It is difficult to determine the identity of the subjects—whether they are genuine or simulating—independently of the procedure that is used to assess the claim of amnesia. In the absence of such independent verification (confession by simulators is perhaps the only way to achieve it), it is going to be very difficult to assess objectively the usefulness of a particular technique or procedure.

In view of the foregoing difficulties, it would be desirable to explore alternative approaches to the problem. In recent research, I have explored one such alternative: creation of a laboratory analogue that permits study of the relation between genuine and simulated "amnesia" in a noncriminal population of college students. This

approach, too, has a significant limitation: We cannot be certain about the generalizability of the results to situations outside of the laboratory. However, in a laboratory study the investigator can randomly assign subjects to conditions (i.e., genuine vs. simulating), and thereby be certain about their status independently of the experimental procedure that is tested. In addition, it is also possible to explore a range of possible criteria for distinguishing between genuine and simulating subjects. These advantages suggest that a laboratory analogue may represent a useful method for analyzing the relation between genuine and simulated amnesia.

Only a brief summary of the laboratory analogue is provided; a detailed description of the logic, procedures, and results is available elsewhere (Schacter, 1986). Two groups of subjects participated in the experiments. In one group, a first experimenter (Experimenter A) exposed subjects to a lifelike episode (i.e., a videotaped documentary) and a second experimenter (Experimenter B) subsequently questioned them about an aspect of the episode that is nearly impossible to recall. This group was intended to represent an analogue of a real-life situation in which a person genuinely cannot remember a specific event. In the second group, Experimenter A exposed subjects to the same lifelike event and told them that Experimenter B would ask some questions about the event. Experimenter A provided subjects with the correct answer to the questions and instructed them to try to convince Experimenter B that they genuinely could not remember the event. (Experimenter B was blind concerning the status of the subjects.) This group was intended to represent an analogue of a real-life situation in which a person simulates amnesia for a specific event.

Experimenter B required subjects in both groups to rate the likelihood that they could remember the forgotten event under various conditions. In cognitive psychology, such ratings are known as *feeling of knowing judgments*. The feeling of knowing is a subjective conviction that one could remember an unrecalled event in the presence of more powerful cues; it is frequently reported by subjects who genuinely cannot remember a recent event (e.g., Hart, 1965; Nelson, 1984; Schacter, 1983; Schacter & Worling, 1985). The feeling of knowing can be assessed in the absence of knowledge about the contents of the unrecalled event, and is, therefore, potentially applicable to actual cases of alleged limited amnesia. To assess feelings of knowing in the genuine and simulating groups, Experimenter B required subjects to rate the likelihood that they could remember the forgotten event if (a) they were given more time to do so, (b) they were provided with hints or cues concerning the event, and (c) they were given the correct answer along with an incorrect alternative on a forced-choice recognition test. The results of the three experiments revealed both similarities and differences between genuine and simulating subjects. On the one hand, both subject groups rated that they would be least likely to remember the event if they were simply given more time, would be more likely to remember if they were given cues or hints, and would be most likely to remember if they were given the two-choice recognition test. On the other hand, the patterns of feeling of knowing ratings did provide a basis for detecting simulators: They expressed less confidence that they could remember the event in the presence of cues or on a recognition test than did genuinely forgetful subjects.

There are a variety of reasons why the feeling of knowing procedure used in this laboratory analogue is not currently applicable to real-life cases of limited amnesia (see Schacter, 1986, in press, for discussion). But these experiments do provide some empirical facts regarding the relation between genuine and simulated forgetting of a specific episode, and they also contain some theoretical implications that will be discussed later in this article.

One further source of potentially useful information concerning simulation of limited amnesia is found in the work of several European psychologists, particularly Trankell (1972) and Undeutsch (1982), who have developed a procedure that they call *statement-reality analysis*. The purpose of the procedure is to distinguish between genuine and fabricated eyewitness testimony by analyzing the content of witness recollection. Both Trankell (1972) and Undeutsch (1982) have suggested a number of criteria that, they claim, provide a basis for distinguishing accurately between genuine and fabricated recollections (e.g., genuine memories contain more sensory and contextual detail than do fabricated ones). Though intriguing, these criteria have not yet been subjected to rigorous experimental test, so that it is difficult to assess their validity. Moreover, these criteria were developed to distinguish between genuine and fabricated *memories*; it is not clear whether they could be used to distinguish between genuine and simulated *amnesia*. Nevertheless, the ideas put forward by Trankell (1972) and Undeutsch (1982) are promising ones that clearly merit systematic experimental investigation.

CHRONIC ORGANIC AMNESIA

As noted earlier, the need to distinguish between genuine and simulated chronic amnesia arises primarily in the context of compensation claims. Although there has not yet been a great deal of research concerning simulation of chronic amnesia, a few experimental studies have been reported. One such study was conducted by Benton and Spreen (1961). They compared the performance of simulators with brain-damaged patients on the Benton Visual Retention Test, in which subjects study a series of geometric designs and then attempt to remember them by drawing each design. Simulators were instructed to try to perform in the manner of a patient who had suffered a head injury in an automobile accident and was experiencing memory problems, fatigue, and attention difficulties. Benton and Spreen found that simulators' overall level of performance was lower than that of actual brain-damaged subjects. They also observed differences in the patterns of errors made by genuine and simulating subjects; simulators tended to make more errors of distortion and fewer errors of perseveration and omission than did actual brain-damaged patients. In a related study, Spreen and Benton (1963) observed a similar pattern of results when subjects were instructed to simulate the performance of a mentally deficient (i.e., mildly retarded) individual: Simulators showed lower overall levels of performance on the visual retention test than did actual retardates and also exhibited a tendency to make more bizarre errors than did retardates.

Although the Benton and Spreen data indicate that simulators tend to exaggerate memory deficits, there was no evidence that the patients who participated in their

studies were severely amnesic. Thus it is possible that the simulators' low level of performance would resemble more closely that of severely amnesic patients. Nevertheless, the general idea that subjects who simulate chronic amnesia may overplay their role by performing more poorly than genuinely amnesic subjects is a promising one that merits experimental investigation. Consistent with this idea, it has been suggested that simulators may perform at below-chance levels on forced-choice memory tests, in which the chance level of performance can be specified (Lezak, 1983; Rey, 1958). Although relevant empirical evidence is meager, the results of two studies address this hypothesis. Pankratz (1983) devised a task that required subjects to remember which of two colored lights had been activated on each of several trials. He found that a patient suspected of simulating memory disorders initially performed at the chance level, and then "gave up" his memory complaint and performed with a high level of accuracy. A second patient performed exceedingly well throughout the task. Thus, there was no evidence of below-chance performance by suspected simulators in this study (see Pankratz, Fausti, & Peed, 1975, for evidence of below-chance performance in a case of simulated deafness). Brandt, Rubinsky, and Lasson (1985) briefly report the results of a study in which college students were instructed to simulate chronic amnesia. On a free-recall test for a list of recently studied words, performance of simulators was similar to that of two groups of memory-disordered patients (head trauma and Huntington's Disease patients). On a two-choice recognition test, the simulating group performed at the chance level, whereas both groups of memory-disordered patients performed above chance. However, only 3 of the 10 simulators performed significantly below chance.

Brandt, Rubinsky, and Lasson also comment upon the case of a patient (L.G.) charged with homicide who claimed amnesia for the crime. When administered a two-choice recognition test for a list of recently studied words, L.G. performed significantly below the chance level. To the extent that such performance can be regarded as a sign of simulation, it raises an interesting question: What does L.G.'s apparent simulation on the word recognition task imply about his alleged amnesia for the crime? Although his recognition test performance does not provide direct evidence that the limited amnesia is also simulated, it may constitute indirect evidence: If L.G. was willing to simulate amnesia on a task unrelated to the crime, he also may have been willing to simulate amnesia for the crime. Alternatively, it is possible that L.G.'s amnesia for the crime was genuine, and that he thought he should also appear amnesic on other tasks in order to buttress the claim. Although we cannot be entirely certain of the correct interpretation in this single case, future studies should explore whether subjects who simulate amnesia for a single, critical episode also tend to appear amnesic in other situations that are unrelated to the crucial episode (for discussion of a similar issue regarding simulation of multiple personality amnesia, see Orne, Dinges, & Orne, 1984 and Watkins, 1984).

Before concluding this section on chronic amnesia, let us consider briefly several studies of simulated hypnotic amnesia that have implications for the present concerns. For a long time hypnosis researchers have been concerned with the prob-

lem of simulation (e.g., Orne, 1959; 1971), and several studies have compared the performance of subjects instructed to simulate hypnotic amnesia with that of genuinely hypnotized subjects. The results of two experiments are of particular interest. Williamsen, Johnson, and Eriksen (1965) found that both hypnotized and simulating subjects performed poorly when tested for recall and recognition of a list of recently studied words. However, they also found that the hypnotized subjects showed a normal *priming effect* (e.g., Cofer, 1967; Cramer, 1966; Tulving, Schacter, & Stark, 1982) when they were given letter fragments of recently studied words (e.g., CHA__ for CHAIR) and were required to complete them. Hypnotized subjects frequently completed the letter fragments with words from the study list, just as nonamnesic control subjects did. Simulators, however, showed no priming effects on the fragment-completion test; they rarely completed letter fragments with study-list words. This finding provides more evidence that simulators tend to overplay their roles, and suggests an as yet unexplored avenue for detecting simulation of chronic organic amnesia. It is now well established that even patients with severe organic amnesia show relatively normal priming effects on tests such as word-fragment completion (e.g., Diamond & Rozin, 1984; Graf, Squire, & Mandler, 1984; Graf & Schacter, 1985; Schacter, 1985; Shimamura & Squire, 1984; Warrington & Weiskrantz, 1968, 1974). In light of these findings and the Williamsen, Johnson, and Eriksen (1965) data, it is worth examining the possibility that subjects who simulate chronic organic amnesia fail to show priming on word-completion tests.

A second finding that raises a similar point concerns the phenomenon of *source amnesia*. Evans and Thorn (1966) told hypnotized subjects little known facts, and later asked the subjects questions concerning these facts. They found that hypnotized subjects sometimes provided the correct answers, thereby indicating that they had retained the newly acquired fact. However, the subjects could not remember when or where they acquired the new facts and explicitly denied that the experimenter was the source of the information. Simulating patients, by contrast, overplayed their role; they failed to remember the facts as well as the sources (Evans, 1979). Recent evidence indicates that patients with severe organic memory disorders also exhibit source amnesia. They retain some new, experimenter-imparted facts over a brief delay, but do not remember how they acquired them (Schacter, Harbluk, & McLachlan, 1984). Would subjects who are simulating organic amnesia exhibit source amnesia, or would they fail to "remember" any new facts, as simulators did in the hypnosis studies? The question merits experimental investigation.

A third series of possibly relevant hypnosis studies have focussed on the phenomenon of *disorganized recall*. Several studies have reported that hypnotized subjects tend to recall items from a recently studied word list in a random or disorganized manner, whereas nonhypnotized subjects organize recall along temporal or categorical dimensions (e.g., Evans & Kihlstrom, 1973; Spanos & Bodorik, 1977). Recent research by Spanos and his colleagues has shown that subjects attempting to simulate hypnotic amnesia do not show disorganized recall (Spanos, Radtke-Bodorik, & Stam, 1980; Spanos, Radtke, Bertrand, Addie, & Drummand,

1982; however, see also Wagstaff, 1982). Although we do not know whether patients with chronic organic amnesia show disorganized recall of the kind observed in hypnotized subjects, it is worth exploring the possibility that presence or absence of disorganized recall provides a basis for distinguishing between genuine and simulated organic amnesia.

SUMMARY OF STUDIES ON LIMITED AMNESIA AND CHRONIC AMNESIA

It seems safe to conclude that our scientific understanding of the relation between genuine and simulated amnesia is primitive. Though some controlled studies have been reported, the empirical evidence is scanty and sorely in need of replication. Perhaps the sole generalization that can be made on the basis of existing literature is that simulators tend to overplay their role and perform more poorly on some tests than do patients with documented memory problems. However, even this rather vague notion must be tempered by several limitations of existing literature. First, studies of chronic amnesia have not yet compared simulators' performance with that of patients with different degrees or types of memory impairment, and there has been virtually no experimental study of patients with limited amnesia. Second, almost all of the experimental evidence is based upon differences between groups of subjects. Although studies at the group level are appropriate and necessary for building a firm knowledge base about simulated amnesia, such results do not enable one to make strong inferences about the status of individuals. Yet inferences of this kind are precisely what is required when a person claims amnesia in a legal context. To make reliable inferences about individuals, it would be necessary to demonstrate that genuine and simulating subjects are characterized by nonoverlapping distributions of scores on a critical measure. However, in the cited studies of limited amnesia and chronic amnesia, genuine and simulating subjects showed considerable overlap on measures that, nevertheless, yielded group differences. A third and related point is that a good deal of the existing evidence is derived from studies of subjects who were not involved in legal cases. More controlled studies of subjects who are involved in legal actions are needed, even though such studies will have to overcome the difficult methodological problems that were discussed earlier.

CAN EXPERTS DETECT SIMULATED AMNESIA?

In spite of the fact that the research literature does not yet provide a basis for making firm decisions about whether individual subjects are genuine amnesics or are simulators, it is still possible that expert psychologists and psychiatrists, by virtue of their extensive clinical experience with actual cases of alleged amnesia in legal contexts, have acquired knowledge and skills that enable them to distinguish accurately between genuine and simulating subjects. Because experts' opinions are critically important in reaching a decision regarding an individual's status in legal cases, one might expect that objective data exist concerning experts' ability

to detect simulated amnesia. Inspection of the literature, however, reveals that such data are lacking.

Some pertinent evidence is provided by the laboratory experiments concerning genuine versus simulated limited amnesia discussed earlier (Schacter, 1986). Subjects in those experiments were required to think out loud for several minutes and to verbalize what went through their minds as they attempted to retrieve the forgotten event. The protocols of the retrieval attempts were transcribed and given to expert judges, including two experienced forensic psychiatrists, two clinical neuropsychologists with experience assessing genuine and simulated memory loss, and two experimental psychologists whose research is concerned with human memory. The judges were given appropriate background information concerning the nature of the experiment, and were instructed to classify each subject as either genuine or simulating on the basis of his or her verbal protocol. Judges also were asked to indicate whether they were *sure*, *fairly sure*, or *guessing* about each classification.

In each of two experiments the judges classified 53% of subjects accurately, which does not differ significantly from the chance expectation of 50%. Moreover, none of the individual judges achieved an above-chance level of classification, even when they indicated that they were sure that they had made a correct classification.

It is possible that the judges' poor performance is attributable to some aspect of the experimental procedure. For example, judges might have performed more accurately had they viewed tapes of subjects or interviewed them; and they might not have expressed unwarranted certainty in the accuracy of their choices in an actual legal case. Although these possibilities cannot be refuted, the results of this experiment are consistent with the outcome of other studies in which experts have attempted to detect simulated psychological deficits. Heaton, Smith, Lehman, and Vogt (1978) gave an extensive battery of neuropsychological tests to 16 head-injured patients and to 16 simulators. Protocols of the test results were distributed to 10 clinical neuropsychologists for blind assessment. Classification accuracy of the judges was at near-chance levels, ranging from 50% to 68% correct, and there was only a weak correlation between confidence and accuracy of the experts' classifications. Alpert, Fox, and Kahn (1980) gave Rorschach protocols of psychotic patients and simulating subjects to Fellows of the Society for Personality Assessment, who ". . . are considered as a group to probably represent the highest existing level of Rorschach proficiency" (Alpert, Fox, & Kahn, p. 116). These experts did not distinguish between psychotic and simulating subjects (however, see Seamons, Howell, Carlisle, & Roe, 1981). Similar findings were reported in the well known and controversial study of Rosenhahn (1973), which showed that simulated psychiatric symptoms frequently go undetected in a hospital setting. Orne (1971), in his penetrating analysis of simulated hypnosis, noted that "Several distinguished colleagues, well-known for their clinical skills, insisted that simulating Ss could easily be distinguished from hypnotized individuals by experienced clinicians" (p. 190). However, when these clinicians examined genuine and simulating subjects in a blind test of the kind developed by Orne (1959), ". . . they

found themselves unable to make accurate and reliable differentiation on the basis of their clinical judgment during a single session'' (1971, p. 190).

Although much further work needs to be done, the foregoing observations suggest that the failure of experts to distinguish between genuine and simulating subjects in the Schacter (1986) experiments is not an isolated or idiosyncratic phenomenon. Consistent with this observation, research with nonexperts has revealed that people are not particularly skilled at detecting deception in others: In most studies, detection rates are only marginally above the chance levels (DePaulo, 1981; Hocking, Bauchner, Kiminski, & Miller, 1979; Miller, Bauchner, Hocking, Fantes, Kaminski, & Brandt, 1981). Moreover, there is also evidence that subjects frequently express unwarranted certainty in their judgments of deception; even high-confidence judgments concerning deception are often inaccurate (Hocking, 1977; Littlepage & Pineault, 1979). The fact that both experts and nonexperts have difficulty detecting simulation and deception of various kinds highlights the need to be cautious regarding testimony concerning simulated amnesia in legal cases.

CONCEPTUAL ISSUES AND PROBLEMS

A striking feature of the literature concerning simulated amnesia is the absence of conceptual and theoretical analyses concerning key assumptions, issues, and problems. Though a variety of criteria have been suggested for distinguishing between genuine and simulating subjects, and some pertinent data have been reported, broader issues concerning the basis of simulation attempts and strategies for detecting them have rarely been confronted. The specific issues focused on here concern the nature of the beliefs and knowledge that simulators possess concerning the specific kind of amnesia that they seek to portray, and the nature of the corresponding beliefs and knowledge that examining experts possess concerning those same kinds of amnesia.

Simulators' Beliefs about Amnesia

A question that is fundamental to the understanding of the relation between genuine and simulated amnesia concerns the underlying basis of a simulation attempt: How does a person go about portraying memory loss when he or she is not genuinely amnesic? It seems reasonable to suggest that simulators draw upon whatever intuitions, beliefs, and knowledge they possess concerning a particular form of amnesia in order to play their role as convincingly as possible. In cognitive psychology, the term *metamemory* has been used to describe the intuitions and beliefs that people possess about various characteristics of mnemonic function (e.g., Flavell & Wellman, 1977). Although research concerning metamemory in adults has barely begun (most work on metamemory has been done with children), some studies have provided information concerning people's beliefs concerning attributes of their own and others' memory function (e.g., Herrmann, 1982; Schulster, 1981). However, no studies have as yet examined people's intuitions and

knowledge about the various kinds of amnesia, so we cannot yet say very much about the nature of these beliefs or the ways in which they are acquired.

Despite the lack of well established facts, the notion that simulators draw upon their beliefs and knowledge concerning amnesia in order to "perform" has been recognized by several investigators (e.g., Benton & Spreen, 1961; Brandt, Rubinsky, & Lasson, 1985; Orne, 1971; Orne, Dinges, & Orne, 1984). Moreover, the general idea that simulation of psychological deficits can be conceptualized in terms of the beliefs and knowledge that subjects possess about the role that they wish to play has been endorsed by investigators in a variety of domains (Anthony, 1976; Keschner, 1960; Kroger & Turnbull, 1975; Ossipov, 1944). Although we do not as yet have any direct evidence that subjects who simulate amnesia rely on their metamnemonic beliefs concerning the phenomenon, several studies of feigned psychological deficits demonstrate the importance of the subjects' knowledge concerning the simulated phenomenon. For example, Alpert, Fox, and Kahn (1980) found that college students who were exposed to a 25-minute tape concerning characteristics of paranoid schizophrenia simulated schizophrenia more successfully than did a group that was not given any information about the phenomenon. Kroger and Turnbull (1975) examined college students' ability to simulate various social roles on the MMPI. In an initial experiment, they found that students successfully simulated the MMPI profile of an air force officer, but not that of a creative artist. Kroger and Turnbull suggested that the students possessed accurate beliefs about the former role, but not about the latter. Consistent with this notion, they found that students could successfully simulate the MMPI profile of a creative artist when they were provided with an accurate description of an artist's characteristics. Relevant evidence is also provided by research concerning the effect of item subtlety on simulation of the MMPI. Several studies have found that simulators tend to overendorse "obvious" items (which concern psychological characteristics that appear pathological even to a naive subject), thereby suggesting that subjects' beliefs concerning the attributes of psychopathology guided their simulation attempts (Anthony, 1971; Buckhart, Christian, & Gynther, 1978; Grow, McVaugh, & Eno, 1980).

In view of this evidence that simulators draw upon their beliefs and knowledge about a psychological phenomenon in order to play their role, we can offer speculative interpretations of some experimental evidence discussed earlier. For example, the finding that subjects simulating hypnosis fail to show source amnesia (Evans, 1979) and priming effects on a fragment-completion test (Williamsen, Johnson, & Eriskon, 1965) implies a failure of metamemory: Simulators may have believed that genuinely amnesic subjects would not show evidence of retention on *any* memory test. The finding of Brandt, Rubinsky, and Lasson (1985) that simulators performed more poorly than memory-disordered patients on a recognition test suggests a similar conclusion. Along the same lines, simulators in the Schacter (1986) experiments who provided low feeling of knowing ratings apparently did not know, and could not infer, that genuinely forgetful subjects would remain quite confident that they could remember the event if they were given an appropriate hint. At the same time, however, it should be kept in mind that there were con-

ditions in each of the foregoing experiments in which simulators performed indistinguishably from genuinely amnesic subjects. According to the logic suggested here, this observation indicates that simulators possessed accurate beliefs concerning certain aspects of genuine amnesia and forgetting. The critical question, of course, concerns the reasons why people possess accurate beliefs about some aspects of amnesia, but not about others. As suggested earlier, however, an empirically based answer to this question cannot yet be given, and we can only call for systematic research that addresses it.

Experts' Beliefs about Genuine and Simulated Amnesia

In view of the foregoing considerations, it would be expected that experts can detect simulated amnesia when they have access to specialized knowledge concerning a particular form of memory loss that is not available to simulators and is not intuitively obvious to them. To what extent is such "privileged knowledge" available to experts? Based on the literature discussed thus far, there appear to be some experimentally established phenomena associated with chronic anterograde amnesia, such as spared priming effects and source amnesia, that may not be intuitively obvious to simulators. In addition, there is some reason to believe that recently documented differences among etiologically distinct patient groups (e.g., head injury vs. Korsakoff's disease) would be unknown to simulators (cf. Brandt, Rubinsky, & Lasson, 1985). If studies that examine characteristics of these phenomena in genuine and simulating subjects can provide firm criteria for determining the status of individual subjects, then experts will be able to gain access to "privileged" knowledge concerning amnesia that is not available to simulators. The situation is somewhat less promising regarding limited amnesia because, as noted earlier, there have been few studies of the phenomenon, and there is a corresponding absence of established counterintuitive facts about it.

In view of these considerations, it seems reasonable to argue that in many legal cases that require differentiation between genuine and simulated forgetting, experts are forced to rely on beliefs about amnesia that are derived from their own experiences in the clinic or in everyday life. It is possible, however, that such experientially based beliefs about amnesia may be in some instances quite similar to those held by simulators. If such were the case, experts would frequently be unable to detect simulated amnesia, because the characteristics of amnesia that would "seem genuine" to simulators, and thus would be incorporated into their performances, also would "seem genuine" to experts. Therefore, a proper understanding of real-life situations that entail detection of simulated amnesia requires an analysis of the relation between experts' and simulators' beliefs about amnesia.

This general notion has not yet been discussed in the literature. To make explicit some of the implications of the idea, Table I indicates four possible situations involving an expert and a defendant who claims amnesia. Each hypothetical situation is defined in terms of the actual status of the defendant (genuine or simulating), and the relation between the characteristics of the defendant's report of

TABLE I Hypothetical Scenarios Involving an Examining Expert and a Defendant Who Claims Amnesia

Actual Status of Defendant	Relation of Defendant's Report to Expert's Beliefs about Amnesia	Decision about Simulation
Simulator	Mismatch	Correct Detection
Simulator	Match	False Negative
Genuine	Match	Correct Rejection
Genuine	Mismatch	False Positive

amnesia on the one hand, and the expert's beliefs regarding the characteristics of amnesia on the other. For each of the four different situations, the expert's decision about whether or not the subject is a simulator is depicted in the terminology of signal detection theory: correct detection or hit (expert correctly states that defendant is a simulator), false negative (expert incorrectly states that defendant is not a simulator), correct rejection (expert correctly states that defendant is not a simulator), and false positive (expert incorrectly states that defendant is a simulator).

To illustrate the key aspects of each situation, let us assume that the defendant has reported limited amnesia for a violent crime. In the first situation depicted in Table I, the defendant is a simulator whose report of amnesia, which reflects his or her metamnemonic beliefs about the phenomenon, does not match the beliefs held by the expert. For example, suppose that the simulator believes that a genuinely amnesic individual would claim a complete blank for the episode in which a criminal act was committed, and thus reports total amnesia; the expert, however, believes that a genuinely amnesic defendant would report a patchy or partial amnesia. Under these circumstances, the expert will likely conclude correctly that the defendant is a simulator. If, however, the simulator were to report a partial amnesia, which *matches* the expert's beliefs, then the expert may be incorrectly led to conclude that the amnesia is genuine, as indicated by the false negative outcome in Table I.

The third and fourth situations depicted in Table I involve a genuinely amnesic defendant. To continue with the foregoing example, if such a defendant reported partial amnesia for a crime, the expert would be led to conclude correctly that the defendant is not a simulator (correct rejection) because of the match between the subject's report and the expert's beliefs. However, if this defendant claimed total amnesia for a crime, the expert would be led to the erroneous conclusion that the subject is a simulator (false positive) because of the *mismatch* between the report and the expert's beliefs. Since it is not known what proportion of genuinely amnesic individuals claim total vs. partial amnesia for a crime and, more generally, since little information exists concerning the relative frequency with which different characteristics of genuine limited amnesia occur, it can be assumed that false positive errors similar to the one described in this hypothetical example occur in some proportion of legal cases involving amnesia.

In view of these considerations, it seems clear that a good deal of research is needed that investigates systematically the nature of experts' and defendants' beliefs about amnesia. For example, if an expert claimed to be certain that an individual was simulating amnesia, yet had been led astray by a mismatch between his or her own beliefs and the characteristics of a claim by a genuinely amnesic individual, an inappropriate judgment about the defendant could be made. Since there is reason to believe that experts may sometimes express confidence about incorrect decisions concerning amnesia (Schacter, 1986), and since high confidence statements can have a major impact in the courtroom (Wells & Murray, 1984), this scenario is not an entirely fanciful one (for discussion of similar issues regarding eyewitness testimony, see Deffenbacher & Loftus, 1982; Wells, 1984; Wells & Lindsay, 1983; Yarmey & Jones, 1983).

CONCLUDING COMMENTS

Despite its importance in a variety of legal contexts, the relation between genuine and simulated amnesia remains poorly understood. The relevant literature consists largely of uncontrolled observations and scattered empirical studies; a sustained, systematic experimental attack on the issue has not yet emerged. The mounting of such an attack will require contributions from diverse fields, including the cognitive and neuropsychological study of memory, social psychology of deception, and psychopathology of criminal behavior and malingering. Studies that draw upon methods and findings from each of these fields should improve our scientific understanding of the relation between genuine and simulated amnesia, and thereby provide a basis for constructing and implementing rigorously tested techniques that can distinguish accurately between genuine and simulated amnesia in actual legal cases.

This article was supported by a Special Research Program Grant from the Connaught Fund, University of Toronto, and by Grant No. U0361 from the Natural Sciences and Engineering Research Council of Canada. I thank Mary Damianakis and Carol A. Macdonald for help with the preparation of the manuscript.

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