

# Adapting Symptom Validity Testing to Evaluate Suspicious Complaints of Amnesia in Medicolegal Evaluations

Richard I. Frederick, PhD, Mark Carter, PhD, and Jeffrey Powel, PhD

Symptom validity testing was adapted to assess suspicious complaints of amnesia. In the adaptation, two-alternative, forced-choice memory questions were generated for subject matter claimed to be forgotten. The number of questions correctly answered was then compared to the expected number of questions to be correctly answered if no knowledge actually existed. Three case studies are presented, two of competency-to-stand-trial evaluatees and one of an insurance medical examinee. In each case, the use of this procedure generated the conclusion that the knowledge claimed to be forgotten was actually remembered; however, not all individuals were classified as malingerers.

Symptom validity testing (SVT)<sup>1,2</sup> is a two-alternative, forced-choice technique designed to investigate suspicious sensory deficits by presenting sensory-discrimination tasks of equivalent difficulty. Pankratze *et al.*<sup>2</sup> concluded that true ability was suppressed when a significant variation from chance was observed. SVT has been adapted to different modalities to demonstrate true ability in patients who

presented with such various symptoms as deafness, anesthesia, and memory deficits.<sup>3-8</sup> In SVT, the significance of variation from expected performance (given no ability) can be evaluated by a computational formula<sup>9</sup>:

$$z = \frac{(x \pm .5) - Np}{\sqrt{Npq}}$$

where  $z$  is the test statistic,  $N$  is the number of discriminations,  $x$  is the number of correct responses,  $p$  is the probability of a correct discrimination given no true ability (.5), and  $q$  is  $1 - p$ . A correction (adding .5 when  $x < Np$ ; subtracting .5 when  $x > Np$ ) is made to  $x$  because it is not a continuous variable. For a one-tailed test, the significant value of  $z$  is 1.65 at  $\alpha = .05$ .

Dr. Frederick and Dr. Carter are affiliated with the Department of Psychology, U.S. Medical Center for Federal Prisoners, Springfield, MO. Dr. Powel is affiliated with Behavioral Medicine Northwest, Seattle, WA. This paper was presented in part at the convention of the American Psychological Association in Toronto, Canada, August 1993. The opinions expressed in this article do not necessarily represent those of the Federal Bureau of Prisons or the U.S. Department of Justice. Address Correspondence to: Richard I. Frederick, PhD, Department of Psychology, U.S. Medical Center for Federal Prisoners, Springfield, MO 65808.

SVT has been adapted to assess feigned short-term memory deficits (the Digit Memory Test [DMT]<sup>7</sup> and the Portland Digit Recognition Test [PDRT]).<sup>4</sup> In these tests, subjects are presented with a five-digit number (stimulus), and after a brief distraction task, the stimulus and another five-digit number (distractor) are presented for discrimination. Using a sufficient number of trials often allows the examiner to infer that short-term memory ability has been suppressed. But no adaptation has been reported for assessing claims of amnesia for remote events. Such an adaptation would be useful in some medicolegal evaluations (e.g., competency-to-stand-trial and insurance medical examinations), because medicolegal evaluatees sometimes present with conveniently selective amnesia. The general consensus is that amnesia in such a context is particularly difficult to disprove.<sup>10</sup>

The results of the DMT and the PDRT sometimes lead a clinician to suspect that an evaluatee presenting with an amnesia claim has deliberately suppressed true ability for memory. Nevertheless, such a conclusion is actually specific only to the test performance. Despite a positive test finding, one may not necessarily conclude that the amnesia is simulated. An alternative conclusion is that an evaluatee with genuine amnesia was only trying to support the amnesia claim by simulating memory problems on testing.<sup>11</sup>

To directly assess suspicious amnesia with SVT, one can incorporate the information that the evaluatee should know if memory is intact into questions to ask the evaluatee. If the evaluatee claims not to know the answer to a question (or gives an in-

correct response), two answer choices are presented, one of which is the correct answer and the other a plausible alternative. The evaluatee is required to "guess" at the correct answer. The following case studies report our use of SVT to determine whether true memory actually existed in individuals who claimed to be unable to remember pertinent information.

### Case Study 1

A male in his early twenties was involved in an automobile accident in another country after his arrest but before the arraignment. The evaluatee and his family claimed that he had been unconscious for an extended period of time, hospitalized, and upon release "was like a little boy and had no memory." He was referred for an evaluation of his competency to stand trial two years after the accident. Physical examination revealed no significant abnormalities, but a computed tomography (CT) scan without contrast revealed the presence of bilateral burr holes (indicating that surgery had occurred). An electroencephalogram revealed "rather prominent right temporal sharp [and] frontal slow activity at 5 per second." The initial evaluating psychologist noted inconsistencies in clinical presentation and reported symptoms, observed exaggeration of responses in testing and interview, but noted that some behavior in his daily living was consistent with a dementia. The psychologist diagnosed dementia, secondary to traumatic head injury, but also stated that he had not been able to rule out malingering. The court found the evaluatee incompetent and ordered four months of inpatient treatment to restore competency.

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During the next four months, more examples of inconsistencies in clinical presentation and observed daily behavior were noted. For example, the evaluatee often complained of an inability to read, but he was sometimes seen reading popular books of fiction. At times, he claimed he could not remember even his own name. Several screening tests (e.g., the Rey 15-Item Memory Test<sup>12</sup>) indicated his memory impairment was dissimulated. Despite this evidence that his abilities had been suppressed on psychological testing, there was still no direct evidence that his amnesia also was faked.

Documented information about the evaluatee that he would know if his amnesia were faked was collected. Much of the information concerned routine aspects of his existence such as the type and color of his truck; names, location, and ages of family members; and salient details of the charges against him, but without any questions that would require an admission or inference of guilt. That is, questions about the crime were typically phrased in this manner: "What do the police say about. . . ." Forty-two questions were generated. He answered 11 questions correctly on initial inquiry. Of the remaining 31 questions, he "guessed" correctly only nine times ( $z = -2.16$ , one-tailed;  $p < .02$ ). We concluded that his memory was intact and had been consciously suppressed to avoid prosecution.

### Case Study 2

A male in his late twenties was ordered for a competency evaluation. He had been shot in the head with a .38 caliber bullet 16 months before the evaluation while in-

involved in a separate criminal activity. He still had bullet fragments in his left temporal region and a contrast CT scan revealed notable lucency of the hippocampus, which, according to the evaluating neurologist, could account for a loss of memory ability. Furthermore, he was involved in a high-speed motor vehicle accident during the current offense and had reportedly passed into unconsciousness soon after the arrest. Nevertheless, a neurological examination one day after the arrest revealed much uncooperativeness with the assessment. In particular, the neurologist noted what appeared to be a voluntarily produced strabismus. He was referred for a competency evaluation after he was "unable" to control his drooling at the initial hearing.

He initially appeared unable to easily comprehend spoken language, his speech was garbled and slow, and his ambulation was marked by imbalance and slowness. All his directly observed fine and gross motor skills were slow and imprecise. But when observed in a locked cell by camera, his movements were faster and appropriately organized. He was placed on an open ward and continued to appear dazed and confused when directly observed. However, he was indirectly observed playing card games without impairment. He was also seen shooting pool without difficulty while laughing and talking normally. When confronted about these inconsistencies, he began to cry and protest that even though he could speak and walk without significant impairment, he still could not remember his past and thought he would not be believed without the accompanying motor impairment.

In interviews, he would often claim not to remember information provided to him only a few minutes earlier. During one interview, the police report was produced and he was told it contained information that he should know before standing trial on the charge against him. The entire report was reviewed with him. At each point of pertinent information, he was told that he would be questioned on that information the next day.

Fifty-nine questions were generated. He was reinterviewed the next day (18 hours later). He correctly answered three questions on initial inquiry. He correctly "guessed" only 13 answers on the remaining 56 questions ( $z = -3.88, p < .0001$ ), which indicates that true memory existed. Because his objectively biased performance was considered a deliberate attempt to avoid prosecution, he was classified as malingering.

### Discussion

There are due process implications arising from any procedure that generates evidence against an evaluatee. If it can be established that an evaluatee actually remembers an event as reported by police, a prosecutor may be more willing to go to trial than to "make a deal." Sadoff<sup>13</sup> encouraged the use of a sodium amytal interview to evaluate suspicious amnesia. The forced-choice procedure is much less invasive, but may be no less problematic than "truth serum" interviews. This technique shares many characteristics with the guilty knowledge test, a type of polygraph interview technique.<sup>14, 15</sup> Careless use of this adaptation to SVT could produce evidence of guilt. Clinicians should

avoid inadvertently generating evidence that is material to matters other than mental capacities. The defendant should be informed of the potential uses of evaluation findings prior to beginning the evaluation. In these two cases, we clearly stated that the evaluation report was to be given to the judge, who would distribute it to the prosecutor and defense attorney. Before proceeding with the forced-choice interviews, the evaluatees were told that the interview was intended to better assess their memory ability and they were often encouraged to give their best effort.

We have found it difficult to find consistent alternatives (wrong answer choices) that appear as plausible as the correct answer choices. But, in some cases, a correct answer can actually appear *less* likely to be true than an incorrect answer to a truly naive subject. For instance, consider a male bank robbery suspect who was reported to have worn a dress as a disguise. If truly naive subjects are asked, "Do the police say you wore a dress or pants?", most will consider "pants" to be the far more likely answer ( $q > .5$ ). Such a question would bias the  $z$  test toward an implication of suppression. Clinicians should avoid structuring forced-choice questions so that correct answers are "implausible," resulting in  $p < .5$ . Instead, test questions, if they cannot reasonably approximate  $p = .5$  and  $q = .5$ , should not be used or should be structured so that  $p > .5$  and  $q < .5$ , making the  $z$  test more conservative.

Although these evaluatees were sometimes observed engaging in behavior that was inconsistent with the severity of impairment they reported on other occa-

sions, such inconsistencies were not sufficient to fully establish that the amnesia was being faked. Just as malingering screening tests, including the PDRT and the DMT, can detect suppressed performance, the evaluatee can always claim that the performance was suppressed or the impairment overreported only to satisfy the evaluator that a real amnesia is real. When SVT is used for historical information and a positive result is obtained, the evaluator can now conclude that the memories really exist. Nevertheless, as seen in the next case study, the reason the memory is suppressed still must be evaluated within the context of the evaluation.

### **Case Study 3**

A male in his late forties was referred for a neuropsychological evaluation 12 months after he fell from a ceiling onto a hard surface. Upon hospital discharge two weeks after the injury, his diagnoses included left epidural hematoma, left temporal bone fracture, left zygomatic arch fracture, and left 6th and 7th nerve paresis (gradually resolving). Procedures had included a temporal craniotomy and evacuation. He suffered a fracture to his right arm and sustained permanent loss of range of motion in both arms, which he could not raise above his head. Within the first month of being discharged to a rehabilitation unit, he was agitated, with compromised orientation and attention. By one month after the injury, memory functioning seemed intact, although he continued to have deficits in organizational skills, emotional lability, postural control, and there was also evidence of paranoid and jealous behavior. At two months post

trauma, the patient was admitted to a psychiatric unit because of escalating agitation, confusion, and threatening behavior. By three months after the injury, he was observed to somaticize physical complaints and to "embroider somewhat on the physical disabilities he [did] have." He was quite emotionally labile and cried freely during the evaluation when talking about losses. Most notable was his report of complete and total loss of all personal information predating the onset of the injury without accompanying anterograde amnesia.

Despite deficits on neuropsychological tests that were consistent with his objectively verifiable injuries and his consistent presentation in the clinical setting, his complaints of a global memory deficit remained suspicious. A forced-choice test was constructed based on overlearned historical information and significant personal family information provided by a family member. The questions were phrased in "true or false" format. Some examples of the historical questions included: "People have gone over Niagra Falls in a barrel"; "Prohibition was to stop nude bathing"; and "Hitler was famous for his humanitarian acts and service to others." Fifty-two questions were prepared. He correctly answered only 15 ( $z = -2.91, p < .002$ ).

His orthopedic, psychiatric, and subtle cognitive deficits alone were sufficient to maintain his disability status. No extra money could be obtained by the global amnesia; however, there was no way to ascertain if the patient truly appreciated that fact. Consequently, it was not possible to rule out financial gain as an incen-

tive to appear impaired. Although his performance on the forced-choice remote memory test indicated that his memories were intact, it could not identify the motivation to "suppress" his ability. The clinician in this case decided that the amnesia was psychogenic and the unconscious motivation to appear amnesic was to maintain the emotional support and nurturance he now received from his family.

### General Discussion

Several issues apply to the use of SVT in this context. The number of questions generated for the interview should be greater than 25 for appropriate use of the z test.<sup>9</sup> This requires careful investigation before the forced-choice questioning in order to establish the data for which amnesia or forgetting is claimed. The number of questions can be increased by incremental questioning. That is, many sequential questions can be asked about a single aspect of history with a little creativity. For instance, the interview can include questions about the race, sex, and physical characteristics of victims, weapons used, and threatening words stated, amount of money stolen, escape route, and circumstances of arrest.

The position of correct answers should be assigned so that a pattern of correct answer positioning is not discernible. In some circumstances, the evaluatee will give an incorrect answer to the initial inquiry which had been chosen *a priori* by the examiner as a plausible incorrect answer for the forced-choice question. Consequently, the examiner should sometimes prepare two plausible incorrect answers and substitute the spoiled answer imperceptibly

for the forced-choice phase of that question. Consistent with SVT, the evaluatee should be told whether the answer was correct after each question. According to Pankratz,<sup>8</sup> this induces a sense of doing too well in the evaluatee, who may decide (inaccurately) to further suppress ability to enhance believability. Questions should be arranged so that feedback on initial questions will not provide knowledge about the answers for later questions.

Some evaluatees will not score below chance, even if they are faking amnesia. Performance that is not significantly different from chance responding should be considered indeterminate and should not be taken as evidence that the amnesia is real.

### Conclusion

SVT allows for a direct evaluation of whether a real amnesia exists. It goes a step beyond the inferences that previously were required when psychological testing indicated that memory ability had been suppressed. The use of SVT in this manner does not require empirical validation. The procedure is inherently valid: performance below chance most likely indicates the presence of memory. But a clinician must still make decisions about the genesis and meaning of a performance that is below chance. As demonstrated in these case studies, the context of the evaluation, the consistency of presentation, and the apparent incentives to suppress recall must be considered as carefully as the performance itself in deciding whether a significantly poor performance resulted from conscious deliberation, unconscious

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motivation, or from the statistical anomaly of extremely unlucky guessing.

### References

1. Pankratz L. Symptom validity testing and symptom retraining: procedures for the assessment and treatment of functional sensory deficits. *J Consult Clin Psychol* 47:409-410, 1979
2. Pankratz L, Fausti SA, Peed S. A forced-choice technique to evaluate deafness in the hysterical or malingering patient. *J Consult Clin Psychol* 43:421-2, 1975
3. Bickart WT, Meyer RG, Connell DK. The symptom validity test as a measure of feigned short-term memory deficit. Presented at the meeting of the American Psychology-Law Society, Williamsburg, VA, March 1990
4. Binder LM. Malingering following minor head trauma. *Clin Neuropsychologist*, 4:25-36, 1990
5. Binder LM, Pankratz L. Neuropsychological evidence of a factitious memory complaint. *J Clin Exp Neuropsychol*, 9:167-71, 1987
6. Houghton PM, Lewsley A, Wilson M, Williams RG. A forced-choice procedure to detect feigned or exaggerated hearing loss. *Br J Audiol* 13:135-8, 1979
7. Hiscock M, Hiscock CK. Refining the forced-choice method for the detection of malingering. *J Clin Exper Neuropsychol* 11:967-74, 1989
8. Pankratz L. A new technique for the assessment and modification of feigned memory deficit. *Percept Mot Skills* 57:367-72, 1983
9. Siegel S. *Nonparametric statistics*. New York: McGraw-Hill, 1956
10. Wiggins EC, Brandt J. The detection of simulated amnesia. *Law Hum Behav* 12:57-78, 1988
11. Schacter DL. On the relation between genuine and simulated amnesia. *Behav Sci Law* 4:47-64, 1986
12. Rogers R, Harrell EH, Liff CD. Feigning neuropsychological impairment: a critical review of methodological and clinical considerations. *Clin Psychol Rev* 13:255-74, 1993
13. Sadoff RL. Evaluation of amnesia in criminal-legal situations. *J Forensic Sci* 19:98-101, 1974
14. Lykken, DT. The validity of the guilty knowledge technique: the effects of faking. *J Appl Psychol* 44:258-62, 1960
15. Bashore TR, Rapp PE. Are there alternatives to traditional polygraph techniques? *Psychol Bull* 113:3-22, 1993