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TRANCE LOGIC: ARTIFACT OR ESSENCE OF HYPNOSIS?

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The Pennsylvania State University

The Graduate School

Department of Psychology

Trance Logic: Artifact or Essence of Hypnosis?

A Thesis in

Psychology

by

Joseph E. Peters

Submitted in Partial Fulfillment
of the Requirements
for the Degree of

Doctor of Philosophy

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Date of Approval:

July 29, 1973

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CHAPTER I

INTRODUCTION

Since the beginnings of modern day, hypnosis with Franz Anton Mesmer's theoretical formulations concerning animal magnetism and clinical applications thereof, the entire field of hypnosis and hypnotic research has been characterized by continual controversy and debate over the phenomenon. On the protagonist side of this debate were those persons who maintained that hypnosis is a highly unique state and that hypnotized persons are capable of totally unique and seemingly unexplainable functioning. For example, it was asserted that hypnotized subjects demonstrated increased mental and physical powers and even were supposedly telepathic. The antagonists in this debate were, on the other hand, quick to point out the highly speculative nature of the protagonists assertions and the absence of reliable experimental data from which to draw conclusions. This group tended to characterize the phenomenon as a sham or hoax which was perpetrated by charlatans

Fortunately within recent years, this debate has withdrawn from the arena of idle speculation and arm-chair theorizing and moved into the experimentalists' laboratory. This transition has not led to a quick and easy resolution of the aforementioned controversy but it has been characterized by an increasing concern on the part of investigators with controlled experimentation and conclusions based on observable data. Nevertheless, the controversy continues between those researchers with a "credulous" view toward hypnosis, i.e., those who contend that the hypnotized subject's report of his

experiences may be accepted on faith, and those investigators with a "skeptical" view of hypnotic phenomena, i.e., those who question the hypnotized subject's report and contend that the hypnotized subject is only acting as if the situation were as suggested by the hypnotist (Sutcliff, 1960). As experimental data have continued to accumulate, the consensus of opinion among researchers has tended to shift toward the "skeptical" pole of this controversy. Sutcliff (1961) concludes that hypnotic suggestions are not interchangeable with actual sensory experience. He goes on to point out that the unique aspects of hypnosis appear to lie in the subjective state of the hypnotized subject. However, even on this point there does not exist unanimity of opinion. This point of debate could best be characterized by the formulations of Orne (1959), who contends that the "essence" of hypnosis is to be found in the hypnotized subject's subjective experiences, and the counterformulations by Barber (1969), who argues that the entire concept of a hypnotic state may be unwarranted and indefensible.

Orne (1959) conceptualized hypnotic phenomena according to the following working model: hypnotic behavior is a function of a role-play artifact plus an increased motivation artifact plus the essence of trance. He contended that by experimentally controlling the first two components, namely the role play artifact and the increased motivation artifact, it is possible to evaluate their sufficiency for explaining hypnotic phenomena. Any residual aspects of hypnosis which remain unaccounted for by a consideration of these variables may then be regarded as the essence of hypnosis.

In a research program which has spanned the past 20 years, Orne has found a variety of response patterns which tend to be elicited only from those subjects who are considered to be deeply hypnotized. Consequently, these response patterns are felt to be indicative of the essence of hypnosis. Orne (1959) concluded:

> The principle features of the hypnotic state are seen as changes in the subjective experience which are characterized by (a) discontinuity from normal waking experience, (b) a compulsion to follow the cues given by the hypnotist, (c) a potentiality for experiencing as subjectively real, distortions of perception, memory, or feeling based on 'suggestions' by the hypnotist rather than on objective reality, (d) the ability to tolerate logical inconsistencies that would be disturbing to the individual in the wake state (Orne, 1959), p. 297).

His concept of trance logic relates to parts (c) and (d) above. Specifically, a subject who freely mixes his actual perceptions and suggested perceptions in a manner which ignores everyday logic is demonstrating the phenomena of trance logic. This concept has been discussed and alluded to by Orne in a variety of experimental contexts.

His earliest reference to this type of behavior occurs in an investigation of hypnotic age regression (Orne, 1951). In this report, he discussed the responses of a subject who spoke only German prior to his arrival in the United States during his teens. It was suggested to this subject that he was at his sixth birthday party. After the subject was vividly hallucinating the situation, he was told, "You see your mother, she is speaking to you." He was then asked, "What does she say?" To this the subject responded, "Do you like your present?" As Orne points out, this response is obviously not historically accurate but it does indicate how the subject was

simultaneously responding to his hallucinated environment and the actual hypnotic situation. It was then suggested to the subject that his mother had not asked the question as, "Do you like your present?" Rather, she had said, "Hast du dein Geschenk gern?" This restructuring of the situation caused a momentary confusion for the subject, which was immediately followed by his reverting to the use of German for his responses. The paradoxical nature of his mixture of hallucinated and actual perceptions is evident in the following observations: the subject was repeatedly asked, "Do you understand English when your parents speak it?" And each time the subject answered negatively. This is an example of the behavior to which Orne is referring when he speaks of trance logic or the tolerance of logical inconsistencies that would normally be disturbing to the individual. Specifically in this particular situation, the subject was simultaneously responding to questions posed in English, while denying that he could understand English.

Another subject in the same investigation also responded in a fashion which is demonstrative of the phenomenon. This subject was also regressed to the age of six. After the suggestion was firmly established, he was told to write the following sentence, "I am conducting an experiment which will assess my psychological capabilities." This he readily did without any spelling errors. Further, his transcribed sentence was printed in an obviously childlike fashion. Again, responding in a logically inconsistent fashion is evident. This subject was spelling words that a child of six cannot, but doing so in a childlike writing style.

Orne (1959) further delineates this type of behavior and discusses the classic examples of this phenomenon. Perhaps the most well known example of trance logic is what Orne refers to as the double hallucination. This behavior was elicited from subjects highly susceptible to hypnosis in the following manner: A hallucination of a seated coexperimenter, an observer other than the hypnotist, was suggested to the subject while the actual experimenter remained outside the subject's visual field. The elicitation of this hallucination was facilitated by the fact that prior to the induction of hypnosis, the actual coexperimenter was seated where the hallucination was suggested to be. After the hallucination was firmly established and the subject was interacting with it as though it were actually the coexperimenter, he was told to turn around and look at the coexperimenter by asking, "Who is that behind you?" Orne reports that highly suggestible subjects, when confronted in such a manner, consistently tended to do a "double take," i.e., look back and forth between the hallucination and the coexperimenter. They would then report that they were perceiving two images of the same person. When questioned regarding this, subjects tended to give bland responses, and although they appeared somewhat confused, they were not seriously disturbed by this situation. Simulating subjects, i.e., subjects insusceptible to hypnosis who are instructed to act as though they are hypnotized and who are treated by an experimenter who is blind regarding their experimental status, either claimed they did not recognize the coexperimenter or simply refused to see anyone behind them. If they did recognize the coexperimenter, they would

then claim that their hallucination had vanished. Orne inquired post-experimentally regarding the simulators' reasons for responding to the suggestion as they had and he obtained a very interesting reply. They reported that logically there was only one coexperimenter and that he could not be in two different places simultaneously. The logical inconsistency in the highly susceptible subjects' responding did not appear consequential to them. They were not bothered by their simultaneous perception of both the actual and hallucinated coexperimenter. Again, tolerance of logical inconsistencies is evident in the responses of the highly susceptible subjects.

Closely related to the double hallucination is the transparent hallucination (Orne, 1959). This indicant of trance logic is observed when a hypnotized subject describes a hallucination of a person sitting in a chair in a manner similar to, "This is very peculiar; I can see Joe sitting in the chair and I can see the chair through him." Orne found that when this type of response was made spontaneously, it was absolutely indicative of a highly suggestible subject. It was not obtained from every highly susceptible subject, but it was never obtained from a simulating subject. This particular response appears to be the most reliable indicant for differentiating highly susceptible and simulating subjects that is presently available.

Orne (1962) discusses two additional hallucinatory contexts within which trance logic behavior can be observed. If a subject is told to hallucinate a picture on the wall, a highly susceptible subject will tend to superimpose his hallucination on another picture, mirror, or even possibly a mere smudge on the wall. Simulating

subjects will tend, however, to report seeing the hallucinated picture on some suitable empty wall space. A final experimental situation which tends to elicit behavior indicative of trance logic involves the utilization of negative hallucinations. Here rather than being told to perceive something which is, in fact, not present, the subject is told not to perceive something that is actually present. Highly susceptible subjects will verbally respond as though the negatively hallucinated object were not present. However, when then instructed to perform some physical action which would bring them into contact with the object, they will tend to avoid it. Even if the situation is structured as a test of the negative hallucination and the subject is instructed to walk "through" the negatively hallucinated object, some subjects will avoid contact with it. As in previous examples, these illustrations note the subject's simultaneous responding to both his actual and suggested environment in a manner which ignores everyday logical considerations.

A concept closely related to Orne's notion of trance logic is the phenomenon of source amnesia. This type of behavior has been observed and reported by Evans (1966; 1971a). Source amnesia is observed as follows: while hypnotized, a subject is presented a datum of esoteric information which he did not previously know; recall amnesia for the hypnotic session is suggested and the subject responds to this suggestion; prior to the removal of the suggestion of recall amnesia, the subject remembers the esoteric information and either does not know how he acquired this information or rationalizes its source. Again, the logical inconsistency in such a

response is clear. The subject has apparently forgotten the entire hypnotic session but, nevertheless, remembers specific information he acquired during the session but forgets or rationalizes the source of this information.

It should be noted that in reporting his observations relative to his notion of trance logic, Orne has done so informally and anecdotally. Often these observations were made with one individual subject (Orne, 1951) or were reported in such a fashion as not to permit rigorous interpretations regarding the delimiting parameters of the phenomenon (Orne, 1959; 1962). Thus the phenomenon has been observed and described but has not been rigorously explored. Clearly additional work needs to be done in this area to explore more fully the phenomenon.

A recent paper by Johnson, Maher, and Barber (1972) purports to investigate the transparent hallucination and the double hallucination indices of trance logic. In this inquiry a basic 2 x 3 design was employed with level of suggestibility being the first factor and treatment condition being the second. The two levels of suggestibility were high and low suggestible, and the three treatment conditions were hypnotic induction (real), hypnotic induction (simulation, i.e., subjects were told to fake being hypnotized and were run by an experimenter who was blind to their experimental status), and imagination control. Additionally, a high suggestible group which received training was run in the hypnotic induction (real) condition. Subjects in all experimental conditions were tested on the behaviors indicative of both the transparent and the double hallucination. A small subsequent inquiry was conducted employing very

highly suggestible or somnambulistic subjects and highly suggestible simulating subjects. Again trance logic relevant behaviors were assessed. On the basis of their analysis of the resulting data, these authors conclude that trance logic is not a uniquely defining characteristic of hypnosis. In fact, they report that no subject in their study spontaneously described her hallucination as transparent. Similarly, these authors found that the double hallucination index of trance logic was not uniquely characteristic of highly suggestible hypnotic subjects who were subjected to a hypnotic induction. In sum, Johnson, Maher, and Barber (1972) contend that those investigators searching for the essence of hypnosis must follow lines of research other than inquires into trance logic.

Hilgard (1972) offers a critique of both the methodology and data analysis of the Johnson, Maher, and Barber (1972) study. Methodologically, Hilgard contends that: 1) subjects in this study were not adequately screened for their responsiveness or unresponsiveness to hypnotic suggestions; 2) adequate criteria for hallucinations were not utilized; 3) training procedures were inadequate; 4) the logic underlying the use of simulating controls was not followed; 5) methods of inquiry were less than optimal; 6) suggestions used to elicit hallucinations were not appropriate; and 7) the imagination control is highly problematical. Further, he argues that the original data analyses were inappropriate essentially because only those subjects who reported hallucinations should have been included in the analysis. On the basis of a recomputation of the original data according to his criteria, Hilgard (1972) concludes that the results of the aforementioned study relative to

trance logic are essentially indeterminate but that the trends in the data appear to support Orne's findings.

Obviously, further research needs to be done in an effort to ascertain more fully the delimiting parameters of trance logic phenomena. The present investigation is an attempt to explore further this phenomena and fill the current gap of knowledge in this area of hypnotic research.

CHAPTER II

METHODOLOGICAL CONSIDERATIONS

Methodological problems have been a major hindrance to hypnotic research throughout the years. The question of "What constitutes an appropriate control condition to which the hypnotic condition may be compared?" has never been adequately resolved. Optimally, one would run the same group of subjects in two sessions which differed only in the presence or absence of a hypnotic induction. Data from the hypnotic condition would then be compared to data from the non-hypnotic condition and any observed differences would be attributed to hypnosis. However, the deficiencies in such a procedure have been noted by many authors. Specifically, the demand characteristics of the investigation can result in the inadvertant biasing of the results on the part of the subject, experimenter, or both (Barber, 1969; Orne, 1971). It has consequently proved necessary for investigators to devise and utilize other experimental paradigms for the study of hypnotic phenomena. The solutions proposed to this dilemma are as diverse as the investigators who propose them. For example, Sutcliff (1960; 1961) proposed a complex experimental design involving eight unique experimental conditions which are replicated for susceptible and insusceptible subjects. The complete implementation of his design requires 16 independent subject groups and eight independent hypnotists for various hypnotic conditions. He argues that such a design would increase the number of definitive conclusions which could be drawn from one's experimentation. Barber (1967; 1969) strongly argues against traditional uncontrolled hypnotic research.

He contends that research is needed which controls such variables as: 1) pre-existing differences in suggestibility among subjects; 2) wording of instructions and experimenter's tone of voice; 3) relationship between subject and hypnotist; 4) subjects' motivation; 5) definition of the situation (Barber, 1967, p. 471). This writer asserts that if such research were conducted, the entire notion of a hypnotic state may be found to be unnecessary as an explanatory construct for traditional hypnotic phenomena.

The real-simulator design developed by Orne (1959; 1971) has been selected for the present investigation. This design consists essentially of a comparison of the performance of two highly select subject groups. The real group is composed of those individuals who are found to be highly responsive to suggestions in a hypnotic situation. The simulating group, on the other hand, is composed of those individuals who are found to be highly unresponsive to hypnotic suggestions. Immediately prior to the actual experimental session, the simulating subjects are met by a coexperimenter who tells them the following: 1) their task is to behave as though they are hypnotized; 2) this is a difficult task but it is possible; 3) the principal experimenter will know that some subjects are faking hypnosis but not know which ones; and 4) even though during the course of the session they might think they have made a mistake, they should continue because if the principal experimenter discovers that they are faking, he will terminate the session. Hence what one is essentially comparing is the performance of a group of highly suggestible subjects, who are operationally defined as being capable

of experiencing hypnotic phenomena, with the performance of a group of nonsuggestible subjects, who are highly motivated and "tuned in" to the explicit and implicit demands of the hypnotic situation.

Orne (1971) clearly points out that the simulating group is a quasicontrol and never permits a direct inference concerning the nature of hypnosis. Rather what one hopes to obtain from an evaluation of the responses of the simulators is an indication of what constitutes an appropriate response given the sum total of cues both explicit and implicit in one's experimental procedures. If the responses of the two groups are similar, it is obvious that 1) the objective response patterns are available to the unhypnotized individual, and 2) sufficient information is provided by the experimental procedures for an unhypnotized individual to determine the expected responses. Hence no conclusions regarding hypnosis can be drawn due to the fact that the observed responses could be attributed to the demand characteristics imposed. It should be noted, however, that such an observation does not rule out the possibility that for the hypnotized group some of the responses were the result of hypnosis. It simply cannot be concluded that these responses were not the result of the demand characteristics of the investigation. However, if the behavior of the two experimental groups should be found to differ, the hypnotized subjects are obviously behaving in a manner which is counterexpectational and their behavior must in some way be indicative of the essence of hypnotic phenomena. It is to this very essence of hypnosis that the present investigation is directed, and consequently, the real-simulator model is ideally suited to such an inquiry.

The technical aspects of the real-simulator model were implemented along the lines proposed by Orne (1971). Five experimental suggestions were developed to provide a framework within which the contradictory response patterns associated with the concept of trance logic could be observed. These suggestions were adaptations of the situations described earlier in the context of which Orne initially observed these counterexpectational behaviors. Additionally, three neutral suggestions were employed. These suggestions were typical challenge-type suggestions and were adapted from standardized hypnotic susceptibility scales (Weitzenhoffer and Hilgard, 1959).

The experimental hypotheses for this investigation were: 1) highly susceptible subjects would respond to trance logic relevant items in a fashion which ignores everyday logical considerations, and 2) simulating subjects would respond to the same items not in a contralogical manner but in a logical reality based fashion.

CHAPTER III

METHOD

Subjects

Subject selection was accomplished utilizing a successive hurdles procedure, i.e., a subject must have successfully met the criterion of one screening session in order to be eligible to participate in the next session. The real hypnotic subjects were selected on the basis of the following criteria: 1) obtaining a score of 12 on the Harvard Group Scale of Hypnotic Susceptibility: Form A (HGSHS:A; Shor and Orne, 1962). This is a 12-item, self-scored group administered hypnotic susceptibility scale with potential scores ranging from 0 to 12. Item content ranges from simple motor suggestions, e.g., hands moving together, to more difficult hallucinatory and posthypnotic suggestions. This scale has been found to correlate highly (.83 to .89) with observer-scored individually administered scales (Hilgard, 1967) and is generally recommended as a highly efficient initial screening device (Hilgard, 1967; Orne, 1971). 2) Obtaining a score of 12 on the Stanford Hypnotic Susceptibility Scale: Form B (SHSS:B; Weitzenhoffer and Hilgard, 1959). This is a 12-item observer-scored individually administered hypnotic susceptibility scale with potential scores ranging from 0 to 12. Item content is analogous to that of the HGSHS:A. This scale has yielded parallel forms reliabilities ranging from .83 to .90 depending on the subject sample (Hilgard, 1967). 3) Obtaining a score of 12 on the Stanford Hypnotic Susceptibility Scale: Form C (SHSS:C; Weitzenhoffer and

Hilgard, 1962). This scale is also a 12-item observer-scored individually administered hypnotic susceptibility scale with potential scores ranging from 0 to 12. The item content of this scale is richer and more far reaching with less motor suggestions and the inclusion of more hallucinations, age regression, and dreaming. This scale has been found to have a Kuder-Richardson reliability of .85 (Hilgard, 1967). The simulating subjects were selected on the basis of the following criteria: 1) obtaining a score of three or less on the HGSHS:A; 2) obtaining a score of three or less on the SHSS:B; and 3) obtaining a score of three or less on the SHSS:C.

Initial subject recruitment was made from introductory psychology classes at The Pennsylvania State University by means of a general verbal announcement stating that anyone interested in participating in hypnotic research should attend a group screening session. Subjects who met the criteria for selection on the HGSHS:A were then tested individually on the SHSS:B by a female experimenter (JK). Subjects who again met the selection criteria were tested on the SHSS:C by a male experimenter (RM). In addition to subject selection on the basis of these objective hypnotic scales, a diagnostic rating of their behavior during the actual experimental session was made by the principal experimenter (JEP). Any subject, whether real hypnotic subject or simulating subject, who did not appear to experience the experimental suggestions in a subjectively compelling fashion was excluded from further analysis. This screening procedure resulted in a real hypnotic group composed of four females and five males, with an age range from 17 to 23 years with a mean age of 18.7 years. The simulating group composed of two

females and six males with an age range from 18 to 25 years, with a mean of 19 years (age range and mean are based on seven subjects as age was unavailable for one male simulating subject).

Experimenters

The design of the present investigation necessitated the use of several experimenters at various stages of the study. The group screening sessions with the HGSHS:A were conducted by various graduate and undergraduate psychology students from The Pennsylvania State University. The individual screening sessions with the SHSS:B were conducted by a female experimenter (JK) who was a senior undergraduate student in psychology. The individual screening with the SHSS:C was done by a male senior undergraduate psychology student (RM). The experimental session proper was conducted by three experimenters. A female senior psychology student (DM) met all subjects immediately prior to the experimental session. At this time, she gave the simulating subjects their instructions and chatted briefly with the real hypnotic subjects. This experimenter also met with all subjects immediately after the experimental session to discuss their experiences with them. The actual experimental session was conducted by the principal experimenter (JEP), who administered the hypnotic induction and suggestions and conducted the majority of the interview, and an observer-coexperimenter, who assisted in interviewing the subject, recorded observations and served as the model for the double hallucination suggestion.

Procedure[1]

Following their selection, the experimental subjects were treated as follows immediately prior to the actual experimental sessions: All subjects in both experimental groups were met by a female experimenter (DM). She told the real hypnotic subjects that they were again going to be hypnotized and that she would meet with them again at the conclusion of the session to discuss it with them. She told the simulating subjects the following: 1) that their task was to behave as though they were hypnotized; 2) that this was a difficult task but it was possible; 3) that the principal experimenter (JEP) would know that some subjects were faking hypnosis but not know which ones; 4) and that even though during the course of the session they might think they had made a mistake, they should continue because if the principal experimenter (JEP) discovered they were faking, he would terminate the session.[2] She informed them that she would meet them again at the conclusion of the session to discuss their experiences with them. She further admonished them that at no time after they left her and the room where she was talking to them were they to reveal to anyone that they were simulating hypnosis. Only after the session was over when they were again with her were they to discuss their experiences as simulating subjects.

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[1] See Appendix C for a verbatim transcript of the experimental session. Item wording and content are crucial in this investigation and the interested reader should consult the verbatim transcript. This transcript was followed as closely as possible while still allowing for individual response variability.

[2] It should be noted that the principal experimenter would not in actuality have discontinued a session even if he had been totally convinced that a subject were simulating.

Following these instructions, the subject was escorted to the experimental room where he was introduced to the principal experimenter (JEP) and the observer-coexperimenter (KN). From this point on to the conclusion of the experimental session proper, all subjects were treated alike due to the fact that neither the principal experimenter nor the observer-coexperimenter knew from which experimental group the subjects had come. Following the introduction of the subject to the experimenters, the participants were seated in a manner such that the observer-coexperimenter was directly in front of and facing the subject. A casual, informal interchange between experimenters and subject was then initiated. This exchange was of a general nature and covered such topics as the subject's previous experiences with hypnosis, his academic major, and other neutral, non-arousing topics. This interchange was intended both to acquaint the subject with the experimenters and the experimental room and to help put the subject at ease and allay any initial anxieties he may have had.

Following this interchange, the principal experimenter asked the subject if he were ready to begin the session. If the subject responded negatively, any questions or hesitations he may have had were thoroughly explored. Once the subject reported that he was ready to commence, the principal experimenter administered the hypnotic induction and experimental suggestions. The hypnotic induction was a relaxation induction with suggestion and reinforcement of muscular relaxation, drifting into a peaceful sleep, and concentration of the hypnotist's voice. The administration of this

hypnotic induction lasted approximately 20 to 25 minutes. At this point both the principal experimenter and observer-coexperimenter made their initial guesses regarding whether the subject was a real hypnotic subject or a simulating subject. The experimental suggestions were then administered.

Item 1--Arm Immobilization. This was a neutral item adapted from the SHSS:B. It involved suggesting to the subject that his right hand and arm were extremely heavy and held tightly to the chair. The subject was then repeatedly challenged to try to lift his right hand and arm and told that he could not do so. This item was concluded by suggesting that the subject's right hand and arm were again not heavy but felt just as it normally did.

Item 2--Finger Lock. This item, like Item 1, was a neutral item adapted from the SHSS:B. Here the subject was told to put his hands together and interlock his fingers. It was then suggested that his hands would become tightly interlocked as though steel bands were holding them together. He was told that his hands would no longer feel separate. He was then challenged several times to try to pull his hands apart but told that he could not do so. This suggestion was concluded by telling the subject his hands again felt normal and that he could easily take them apart.

Item 3--Hallucination of a Portrait. This item, developed from Orne (1962), was the first trance logic relevant item. It was suggested to the subject that he would see a portrait of President Nixon somewhere on the walls of the experimental room. After the

subject was clearly hallucinating the portrait, he was asked to point out its location on the wall and to describe it in detail. The subject was then told that the portrait would disappear. When the subject's hallucination was completely gone, the suggestion was completed.

Item 4--Arm Rigidity. This item, adapted from the SHSS:B, was the third and final neutral item. The subject was told to extend his left arm straight out in front of him and make a fist. It was suggested that his arm would become extremely stiff, like a bar of iron. He was then repeatedly challenged to try to bend his arm but told that he was unable to bend it. This suggestion was completed by suggesting that the subject's arm was no longer stiff and he could again bend it easily.

Item 5--Negative Hallucination. This trance logic relevant item was developed from Orne (1962). On the subject's right, several feet from his chair, was a table on which was placed a small yellow cube. A wastebasket was placed directly in the subject's path to the cube. It was suggested to the subject that as he looked at the wastebasket, it would disappear. After the subject indicated that the wastebasket had vanished, he was told to look at the yellow block on the table. It was then suggested that the block was so heavy that he would be unable to life it. He was told to walk over to the table and challenged to try to lift the block. It was then suggested that the block would become light and that the subject could easily lift it. He was then told to return to his chair and

look at the floor to his right. It was suggested that as he did so, the wastebasket would reappear. This item was completed when the subject again saw the wastebasket.

Item 6--Age Regression. This trance logic relevant item was developed from Orne (1951). It was suggested that as the principal experimenter counted to seven, the subject would become younger and younger until he was again seven years old. After the principal experimenter finished counting, he interacted with the subject as though the subject were actually seven years old. This interaction involved talking about friends, favorite games, and school. There were toys available and it was suggested that, if the subject desired, he could play with the toys. The subject was asked if he could write or print and was given paper and a pencil. He was then asked to write or print his name, do some simple arithmetic, and draw some pictures. At this point, he was asked to write the sentence, "I am participating in a psychological experiment." This sentence was read word by word while the subject transcribed it. It was then suggested that as the principal experimenter counted backwards from seven to one, the subject would return to his normal age. This completed the age regression item.

Item 7--Source Amnesia. This item was adapted from Evans (1966). The subject was asked a list of questions which were defined to the subject to be a test of general knowledge. This list was composed of two types of questions: 1) simple, general questions which all subjects were expected to correctly answer, 2) difficult, esoteric questions which subjects were not expected to

answer correctly. The subject was given the correct answer to any question he missed immediately after he gave his incorrect response. Questions were asked until the subject gave three incorrect responses. Two simple, general questions were asked after the subject missed his third question. At this point, this item was completed.

Item 8--Double Hallucination and Transparent Hallucination. This item was taken from Orne (1959). Prior to the administration of this item the observer-coexperimenter moved from her position directly in front of the subject to a position at the subject's left and out of his direct visual field. An hallucination of the observer-coexperimenter sitting in the chair where she formerly had been was induced. The subject was then asked to describe his hallucination. After the subject was clearly hallucinating the observer-coexperimenter and was interacting with his hallucination, he was asked where the observer-coexperimenter was sitting. After the subject indicated the chair directly in front of him, the principal experimenter pointed to the actual observer-coexperimenter and asked who that was. If the subject reported simultaneously "seeing" two images of the same person, he was asked to explain and resolve this situation. It was then suggested that the subject's hallucination would disappear. This item was completed when the subject reported that his hallucination was gone.

At the conclusion of Item 8, recall amnesia for the hypnotic session was suggested. The subject was then awakened from hypnosis and his recall amnesia was tested. At this point, the subject was asked a list of questions, within which were embedded the questions

he had missed in Item 7. The subject was questioned regarding how he knew the information he reported in answering this list of questions. The subject's recall amnesia was then removed and the session was explored in detail. Following this discussion, the subject was escorted to the room to which he had initially reported. There he was again met by the female experimenter who had met him just prior to the hypnotic session. All subjects, both real hypnotic subjects and simulating subjects, discussed their experiences with this experimenter.

CHAPTER IV

ITEM SCORING AND RESULTS

The selection procedure employed, including the rating made during the experimental session, resulted in a subject sample consisting of nine real hypnotic subjects and eight simulating subjects. The experimental session was discontinued for one real subject (R3) due to an adverse reaction he experienced during the administration of Item 5. Consequently, for Item 6 through Item 8, the real hypnotic group was composed of eight subjects.

Responses to the eight experimental suggestions were scored on the basis of the following response categories. A passing response to a neutral item was indicative of a subject's responding to or experiencing the suggestion; whereas, a passing response to a trance logic item is indicative of an illogical or contradictory response. It should be noted that for a response to be scored for a trance logic item, the subject had to initially accept the suggestion.

Neutral Items

Item 1--Arm Immobilization.

Pass: Arm rises less than one inch in ten seconds after initial challenge.

Fail: Arm rises more than one inch in ten seconds after initial challenge.

Item 2--Finger Lock.

Pass: Incomplete separation of fingers ten seconds after initial challenge.

Fail: Complete separation of fingers ten seconds after initial challenge.

Item 4--Arm Rigidity.

Pass: Less than two inches of arm bending in ten seconds after initial challenge.

Fail: More than two inches of arm bending in ten seconds after initial challenge.

All subjects in both the real hypnotic and simulating groups responded to these suggestions, namely their responses were scored as having passed these items.

Trance Logic Items

Item 3--Hallucination of a Portrait.

Criterion for scoring: Subject must report "seeing" a hallucinated portrait.

Pass: Portrait is located where there is a picture or smudge on the wall.

Fail: Portrait is located on a suitable empty wall space.

All subjects in both groups reported "seeing" a hallucinated portrait. In the real hypnotic group, four subjects superimposed their hallucinations upon an already present picture, while five located their hallucinations on a suitable empty wall space. In the simulating group, two superimposed their hallucinations upon a picture, one utilized a smudge on the wall, and five placed them upon

a suitable empty wall space. Fisher's Exact Test on these results yielded a probability level of .58.[3] These results are summarized as follows:

Table 1. Responses to Hallucination of a Portrait.

	Pass Item 3	Fail Item 3
Real Hypnotic Group	4	5
Simulating Group	3	5
p = .58		

Item 5--Negative Hallucination.

Criterion for scoring: Subject must omit wastebasket when reporting contents of room.

Pass: Subject does not bump into wastebasket in traversing the room.

Fail: Subject does bump into the wastebasket in traversing the room.

Two subjects in the real group reported still seeing the wastebasket when initially asked to report the contents of the room. The suggestion was reinforced for them and on the next inquiry, they

[3]Computations were carried out through the facilities of The Pennsylvania State University Computation Center.

omitted the wastebasket in their report. All other subjects in both experimental groups omitted reporting the wastebasket upon the initial inquiry. When this item was scored as it was initially written and intended, eight real subjects and four simulating subjects did not bump into the wastebasket, while one real subject and four simulating subjects did bump into the wastebasket while traversing the room. Here Fisher's Exact Test yielded a probability level of .11. These results are summarized as follows:

Table 2. Responses to Negative Hallucination.

	Pass Item 5	Fail Item 5
Real Hypnotic Group	8	1
Simulating Group	4	4

$p = .11$

It should be noted that of the eight real subjects who did not bump into the wastebasket while traversing the room, two of these subjects did nudge the wastebasket while standing at the table attempting to lift the block. These two encounters with the wastebasket were more of a slight touch or brushing of the wastebasket with one's leg rather than any type of direct bumpting of it. However, when this item is scored so that any encounter with the wastebasket is considered to be a failure, the resultant data have a probability level

of .42 with Fisher's Exact Test. These modified results are summarized as follows:

Table 3. Responses to Negative Hallucination (Modified Scoring).

	Pass Item 5 (Modified Scoring)	Fail Item 5 (Modified Scoring)
Real Hypnotic Group	6	3
Simulating Group	4	4
p = .42		

With regard to lifting the block, which is a neutral item embedded within this trance logic item, all simulating subjects and eight real subjects did not lift the block more than one inch from the table and hence responded to the suggestion. One real subject did, with major struggling, succeed in lifting the block several inches from the table.

Item 6--Age Regression.

Criterion for scoring: Clear change in handwriting between present and regressed age.

Pass: Transcribed sentence shows evidence of incongruity of response.

Fail: Transcribed sentence shows no evidence of incongruity of response.

None of the subjects in either experimental group correctly spelled all of the crucial words, i.e., participating, psychological, experiment, in a childlike fashion. However, all subjects did write in a childlike fashion, and four real subjects and two simulating subjects wrote one of the crucial words correctly. These results attained a probability level of .30 with Fisher's Exact Test. These results are summarized as follows:

Table 4. Responses to Age Regression.

	Pass Item 6	Fail Item 6
Real Hypnotic Group	4	4
Simulating Group	2	6
p = .30		

Item 7--Source Amnesia.

Pass: Subject responds to suggestion of recall amnesia, correctly answers the first relevant questions during posthypnotic test, and either does not know source of this information or rationalizes its source.

Fail: Subject either does not respond to suggestion of recall amnesia, does not correctly answer the first relevant question during posthypnotic test, or knows the source of this information.

This scoring procedure was developed from Evans (1966; personal communications, 1972). Responding to the suggestion of recall amnesia is here defined as recalling three or fewer suggestions from the experimental session. The first relevant question for any given subject is the first question he missed during the administration if Item 7 while he was hypnotized. Based on this source procedure, three real hypnotic subjects and no simulating subjects displayed source amnesia, while five real subjects and all eight simulating subjects did not display source amnesia. Fisher's Exact Test on the results yielded a probability level of .10. These results are summarized as follows:

Table 5. Responses to Source Amnesia.

	Pass Item 7	Fail Item 7
Real Hypnotic Group	3	5
Simulating Group	0	8
p = .10		

Item 8--Double Hallucination and Transparent Hallucination.

Criterion for scoring: Subject must report "seeing" a hallucination of the observer-coexperimenter.

All subjects in both experimental groups reported "seeing" a hallucination of the observer-coexperimenter. Three distinct scores were obtained with this item.

Pass 1: Subject correctly identified the real observer-coexperimenter when first confronted by the principal experimenter.

Fail 1: Subject did not correctly identify the real observer-coexperimenter when first confronted by the principal experimenter.

Seven real hypnotic subjects and four simulating subjects did correctly identify the observer-coexperimenter, while one real hypnotic subject and four simulating subjects did not. It should be noted that one real hypnotic subject and one simulating subject pointed out the real observer-coexperimenter when initially asked where the observer-coexperimenter was sitting. Both of these subjects were scored as having correctly identified the observer-coexperimenter. Further, one of the simulating subjects did not correctly identify the observer-coexperimenter when initially confronted, but on her second guess, did correctly identify her. This subject was scored as not having identified the observer-coexperimenter. A probability level of .14 was obtained using Fisher's Exact Test on these results. These data are summarized in Table 6.

Pass 2: Subject did a double take, looking back and forth between his hallucination and the real observer-coexperimenter.

Fail 2: Subject did not do a double take, looking back and forth between his hallucination and the real observer-experimenter.

Table 6. Responses to Double Hallucination (Identification).

	Pass 1 Item 8	Fail 1 Item 8
Real Hypnotic Group	7	1
Simulating Group	4	4
p = .14		

Here three real hypnotic subjects and four simulating subjects did a double take, and five real hypnotic subjects and four simulating subjects did not do a double take. Fisher's Exact Test on these data yielded a probability level of .50. These results are summarized as follows:

Table 7. Responses to Double Hallucination (Double Take).

	Pass 2 Item 8	Fail 2 Item 8
Real Hypnotic Group	3	5
Simulating Group	4	4
p = .50		

Pass 3: Subject spontaneously reported a transparent quality about his hallucination.

Fail 3: Subject did not spontaneously report a transparent quality about his hallucination.

Here four real hypnotic subjects spontaneously reported a transparent quality about their hallucinations. All other subjects did not describe their hallucinations in such a fashion. Fisher's Exact Test on these results yielded a probability level of .04. These data are summarized as follows:

Table 8. Responses to Transparent Hallucination.

	Pass 3 Item 8	Fail 3 Item 8
Real Hypnotic Group	4	4
Simulating Group	0	8
p = .04		

An overall trance logic score for each individual subject was computed by simply adding up the number of passing scores he received on Items 5, 6, 7, 8(1), and 8(3).[4] On the basis of this computation of a trance logic score, in the real hypnotic group, two subjects

[4] Items 3 and 8(2) were omitted from the trance logic score due to the fact that these items were the most exploratory in nature. See Appendix B for alternative computations of a trance logic score.

received a score of two, three subjects received a score of three, and three subjects received a score of four. In the simulating group, one subject received a score of zero, four subjects received a score of one, and three subjects received a score of two. The median test (Conover, 1971) yielded a probability level of .003 for these data. These results are summarized as follows:

Table 9. Overall Trance Logic Scores.

	Trance Logic Score				
	0	1	2	3	4
Real Hypnotic Group	0	0	2	3	3
Simulating Group	1	4	3	0	0
p = .003					

Additionally both the principal experimenter and the observer-coexperimenter made independent guesses regarding the experimental group from which each subject came. Guesses were made both at the conclusion of the hypnotic induction prior to the administration of any suggestions and again at the conclusion of the entire experimental session. On the presuggestion guesses, the principal experimenter guessed that all eight real hypnotic subjects and five simulating subjects were real hypnotic subjects and that three simulating subjects were simulating subjects. The observer-coexperimenter guessed that seven real hypnotic subjects and three simulating subjects were

real hypnotic subjects and that one hypnotic subject and five simulating subjects were simulating subjects. These data are summarized in the following tables:

Table 10. Principal Experimenter's Presuggestion Guesses.

	Real Hypnotic Subject	Simulating Subject
Real Hypnotic Group	8	0
Simulating Group	5	3

Table 11. Observer-Coexperimenter's Presuggestion Guesses.

	Real Hypnotic Subject	Simulating Subject
Real Hypnotic Group	7	1
Simulating Group	3	5

On the guesses at the conclusion of the experimental session, the principal experimenter guessed that seven real hypnotic subjects and one simulating subject were real hypnotic subjects and that one real hypnotic subject and seven simulating subjects were simulating

subjects. The observer-coexperimenter guessed that seven real hypnotic subjects and two simulating subjects were real hypnotic subjects and that one real hypnotic subject and six simulating subjects were simulating subjects. These data are summarized in the following tables:

Table 12. Principal Experimenter's Post-suggestion Guesses.

	Real Hypnotic Subject	Simulating Subject
Real Hypnotic Group	7	1
Simulating Group	1	7

Table 13. Observer-Coexperimenter's Post-suggestion Guesses.

	Real Hypnotic Subject	Simulating Subject
Real Hypnotic Group	7	1
Simulating Group	2	6

There are a variety of ways in which to consider these results. First, it should be observed that the principal experimenter's percentage of correct guesses rose from 69 percent on the presuggestion estimates to 88 percent on the postsuggestion estimates. The observer-coexperimenter's percentage of correct guesses rose from 75 percent to 81 percent. Second, if one considers a hit, or accurate guess, to be as likely as a miss, or inaccurate guess, and then applies the two-tailed binomial test to the postsuggestion estimates, it is found that the principal experimenter's guesses are significant at a level attained of .0006 and the observer-coexperimenter's guesses are significant at a level attained of .004.

In general, the aforementioned results clearly support the experimental hypotheses of the present investigation, namely highly susceptible subjects responded to the trance logic relevant items in a fashion which ignored everyday logical considerations while simulating subjects responded to the same items in a more logical reality based fashion. These differential response patterns were quite evident in the overall trance logic scores where the difference between the real hypnotic group and simulating group was significant at the .003 level. Similarly, responses to Item 8(3), Transparent Hallucination, yielded a significant difference between groups and differences approaching significance were obtained with Item 5, Negative Hallucination, Item 7, Source Amnesia, and Item 8(1), Double Hallucination. In each case, the trend of these differences was in the direction of the real hypnotic subjects displaying more illogical behaviors with the simulating subjects being more reality oriented.

CHAPTER V

DISCUSSION

No differences in responding between the two experimental groups were observed on the neutral items, Item 1, Arm Immobilization; Item 2, Finger Lock; and Item 4, Arm Rigidity. All subjects in both groups responded to these suggestions. Similarly the neutral suggestion of the heavy block, which was embedded within Item 5, Negative Hallucination, was responded to by all subjects but one. This one subject was a real hypnotic subject who, after a great deal of major struggling, was able to lift the block beyond the criterion point of one inch above the table. Thus, the behavioral responses of the two experimental groups were essentially indistinguishable within the context of the neutral items. Furthermore, there did not appear to be any reliable differences in the quality of response between the groups. That is, one group did not tend to display a great deal more struggling in attempting to overcome the challenges imposed by these suggestions than did the other group. Thus, the only reasonable conclusion that can be drawn relative to the neutral items is that the responses which are generally considered to be neutral items is that the responses which are generally considered to be indicative of hypnosis are within the response repertoire of nonhypnotized simulators and these desired responses can be deduced from the sum total of the demand characteristics of the experimental situation. It cannot be concluded that the real hypnotic subjects are responding solely on the basis of these inheritant demand characteristics

but neither can this possibility validly be ruled out (Evans, 1971b; Orne, 1971).

The results obtained with the trance logic relevant items varied from item to item; consequently, each item will be discussed separately. The behaviors observed in response to Item 3, Hallucination of a Portrait, were not as hypothesized, i.e., there was not a reliable difference between the two groups in terms of the location of their hallucinated portraits on the wall. Orne (1962) reported that a real hypnotic subject would tend to locate his hallucination where there is some external reality support such as a picture, wall hanging, smudge, etc. Whereas, a simulating subject would tend to locate his hallucination on some suitable empty wall space, i.e., operate in a more logical fashion. This was not found to be the case in the present investigation. The majority of the subjects in each group (five out of nine real hypnotic subjects and five out of eight simulating subjects) located their hallucinated portraits on some empty wall space. There did, however, appear to be more of a subjective interaction between the real hypnotic subjects and their hallucinations, regardless of location. This is exemplified in the comments of R8 who reported, "I felt as though I were there with him. I felt and thought with him." This type of intimate relationship between subject and hallucination was not reported by the simulating subjects.

Responses to Item 5, Negative Hallucination, were in the predicted direction and approached significance ($p = .11$). These results would imply that although the demand characteristics associated with this item do not rule out the trance logic response of

walking around the wastebasket while denying that one can see it, this behavior is observed much more frequently in the real hypnotic group than in the simulating group. In fact, all but one of the real hypnotic subjects did not bump into the wastebasket while traversing the room. Thus while such a response was typical of the real hypnotic subjects, it was performed by only half of the simulating subjects. In this instance the contradictory nature of a trance logic response is observed. That is, immediately after the subject has omitted reporting the wastebasket as present in the room, his objective behavior of walking around the wastebasket is observed. The subject is denying the presence of the wastebasket while concurrently affirming its presence. The contradiction involved is evident.

The results with Item 6, Age Regression, were not as strongly supportive of the experimental hypotheses as were those to Item 5, but here again the tendency was for more real hypnotic subjects than simulated subjects to display trance logic type responses. In this particular situation an incongruous or trance logic response was considered to be one in which the subject correctly wrote all or part of the sentence, "I am participating in a psychological experiment." in a childlike fashion. Particular attention was paid to the subject's method of coping with the crucial words, participating, psychological, and experiment. These are words which would normally be considered to be too difficult for an average seven year old to spell correctly. Although no subjects correctly wrote the entire sentence in a childlike fashion, all subjects readily spelled the noncrucial words and did so in a childlike handwriting or printing.

Further, four real hypnotic subjects and two simulating subjects correctly spelled the crucial word experiment. Thus again the incongruous response, correctly spelling a reasonably difficult word while writing in a childlike fashion, was more common in the real hypnotic group.

The responses to Item 7, Source Amnesia, are strongly supportive of the experimental hypotheses. The crucial finding here is that, while three real hypnotic subjects displayed source amnesia, none of the simulating subjects responded to this item in a contralogical fashion. That is, it is simply not logical to respond to the suggestion of recall amnesia for the session and then know specific information that was acquired during the course of the session but not remember where or how one acquired this knowledge or rationalize its source. Thus the demand characteristics of this item clearly do not elicit responses indicative of source amnesia. When the phenomenon was observed, it was always in the real hypnotic group. These findings are consistent with those reported by Evans (1966; 1971a). Statistically the difference between the real hypnotic group and the simulating group approaches significance ($p = .10$).

In the present investigation, source amnesia was scored in the following fashion: After the subject was awakened from hypnosis but before the removal of the suggestion of posthypnotic amnesia, the subject was asked a list of questions. Embedded within this list were the three questions the subject had missed while he was hypnotized. These three questions will henceforth be referred to as the relevant questions. If the subject responded to the suggestion of

recall amnesia for the session, correctly answered his first relevant question, and either did not know how he had acquired this knowledge or rationalized its source, he was scored as having passed the item. If he did not respond to the suggestion of recall amnesia, incorrectly answered his first relevant question, or knew the source of this information, he was scored as having failed the item. (Evans, personal communication, 1972) points out that source amnesia is a fragile phenomenon and that after a subject's first relevant question, he will tend to "catch on" to the item. This indeed was observed. Five simulating subjects and one real hypnotic subject did correctly answer a relevant question after they had missed either one or two relevant questions. Of course, all of these subjects were scored as having failed the item. Nevertheless, their responses are interesting in their own right. The real hypnotic subject and one simulating subject gave a correct response to an esoteric question specifically designed for this item, and these subjects would have been scored as having passed the item if they had not missed an earlier relevant question. On the other hand, three of the simulating subjects, who correctly answered their second or third relevant question, answered a question which had been included in the original list as a buffer, the answer to which everyone was expected to know when the questions were first asked while the subject was hypnotized. Thus when the principal experimenter initially gave these subjects the correct answer to these questions, it is assumed that this involved reminding them of information they had previously known and had forgotten rather than providing them with a totally new datum of esoteric information.

Their responses would tend to imply that the demand characteristics associated with such a procedure would tend to elicit responses other than those obtained with the more esoteric information. That is, the simulating subjects concluded that they should remember the answers to these questions in spite of the fact that recall amnesia for the session was suggested and they "responded" to that suggestion. It should be noted that none of these three subjects correctly answered any of the esoteric questions. The final simulating subject initially responded to an esoteric question with an incorrect answer. However, after being questioned about how he knew this information, he proceeded in a pseudological fashion to deduce the correct answer. Upon postexperimental inquiry, he reported that by the time this question was reached, he had "figured out" what he should do. He had "caught on" to the item, to use Evans' term.

The results obtained with Item 8, Double Hallucination and Transparent Hallucination, are perhaps the most important of the present investigation. It was with such a suggestion that Orne (1959) originally formulated his ideas regarding trance logic behavior. This particular item was scored in three distinct ways in the present inquiry. The first score involved whether or not the subject immediately identified the real observer-coexperimenter when asked "Who is this?" Responses to his question varied from correctly identifying the observer-coexperimenter, to recognizing the existence of a person but denying knowledge of who it was, to denying that anyone was there. The results with this score are quite similar to those obtained with Item 5, Negative Hallucination.

That is, the trance logic response is much more common in the real hypnotic group (seven out of eight subjects giving the passing response of correctly identifying the observer-coexperimenter) than it was in the simulating group (four out of eight subjects giving the passing response). Again, this group difference approached statistical significance ($p = .14$). The contradictory nature of this response lies in the fact that the subject is reporting the simultaneous existence of two observer-coexperimenters. He has just reported that his hallucination is the observer-coexperimenter and immediately reports that the coexperimenter is the observer-coexperimenter. Again the illogical aspects of such a response are evident. The second score obtained with this item was whether or not the subject did a "double take," looking back and forth between his hallucination and the real observer-coexperimenter. This behavior was observed in nearly half of the real hypnotic subjects (three out of eight), but it was also observed in half of the simulating subjects (four out of eight). Thus this datum of behavior does not provide a meaningful difference between the real hypnotic and simulating groups. The third score for this item was based upon whether or not the subject <u>spontaneously</u> reported a transparent quality about his hallucination either while he was hypnotized or later during the experimental session. Orne (1959) reports that this type of response, when it does occur, is absolutely indicative of a real hypnotic subject. This is precisely what was observed in the present investigation. Four of the eight real hypnotic subjects reported a transparent quality with comments such as "like I could

see the chair through her" (R1), "I could get flashes . . . but the middle was real foggy" (R6), "it felt like I could just put my arm through her" (R7), "almost as if it were a ghost . . . I thought that I could go right through her and she wouldn't be there at all" (R9). None of the simulating subjects described their hallucinations in such a fashion. Their "hallucinations" did differ with regard to their reported strength of image but no simulating subject described his "hallucination" as transparent or nondense in nature. This result is a statistically significant difference between the groups ($p = .04$) and more important, as Orne (1959) points out, is a response which is elicited spontaneously only from highly hypnotic subjects.

In addition to the support for the notion of trance logic which was found with the individual items, the overall trance logic score lends strong support for this conceptualization. This score yielded a highly significant group difference ($p = .003$). Moreover, it should be noted that none of the simulating subjects received a score greater than two nor did any of the real hypnotic subjects receive a score of less than two on this index. If, in the present investigation, a cutoff score of two is adopted and those subjects with a score greater than two are denoted as highly hypnotizable while those with a score less than or equal to two are considered to be simulating, the classifications would be correct in 88 percent of the cases. This figure is actually higher than the 80 percent accuracy figure Orne (1959) reports possible by the utilization of an in-depth clinical diagnosis of subject status which is generally

accompanied by a great deal of subjective uncertainty on the part of the experimenter. Obviously the use of such a cutoff score in the present instance capitalizes on the chance characteristics of the data; nevertheless, such a finding does imply that it may prove possible to develop a trance logic index which would be highly accurate in discriminating between real hypnotic and simulating subjects and which would not be confronted by the necessity of a clinical estimate of subject hypnotizability and the uncertainty and inheritant bias that such a procedure entails.

Further evidence that a procedure which utilizes trance logic relevant items provides a working framework within which real hypnotic subjects can be differentiated from simulating subjects is provided by the accuracy of the guesses of subject status made by the principal experimenter and the observer-coexperimenter. At the conclusion of the investigation, the principal experimenter's guesses were 88 percent accurate and the observer-coexperimenter's guesses were 81 percent accurate. These figures are consistent with the previously mentioned 80 percent accuracy figure Orne (1959) reports attainable by employing an in-depth clinical diagnosis of the subject's experimental status, i.e., real hypnotic subject or simulating subject. Further, the present accuracy of guesses is superior to the accuracy attained in other experimental contexts (Evans, 1968; O'Connell, Shor, and Orne, 1970; Orne, 1959; Orne and Evans, 1966) where guesses were accurate only at a chance level. Additionally in the present investigation the postexperimental guesses of the subjects' experimental status were made in a majority of the cases with a great deal of

confidence that they were accurate. This is unlike Orne's (1959) report that there is generally a great deal of subjective uncertainty on the part of the experimenter. The accuracy of the guesses in the present situation raises the possibility of the experimenters inadvertantly behaving differentially toward subjects whom they believe to be in the real hypnotic or simulating group. It should be pointed out that the experimenters did not in actuality know from which group the subjects came until the conclusion of the study. Nevertheless, inadvertant biasing may have resulted on the basis of the experimenters' subjective guesses. In an attempt to control for this possibility the experimental procedure was followed as closely as possible for all subjects while still allowing for individual response variability. Further the principal-experimenter made a conscious effort to respond uniformly to all subjects regardless of his subjective notions regarding their experimental status.

Thus the results of the present investigation clearly support the notion that real hypnotic subjects respond to certain suggestions in an apparently contradictory fashion and that these responses are not attributable to the demand characteristics of the experimental situation in which they are observed. This is evidenced in the differences observed in subject responses to the individual items, in differences found in overall trance logic scores between the groups, and in the accuracy of the experimenters' guesses regarding the subjects' experimental status. What are the implications of these observed behavioral differences with respect to the essence of hypnotic phenomena? The significance of obtaining reliable group

differences with trance logic relevant items lies not in simply providing a particular experimental context within which one is able to detect a simulating subject but rather in the fact that the response pattern of the real hypnotic subjects which are not elicited from simulating subjects must in some way be indicative of the essence of hypnosis and not merely attributable to the demand characteristics of the investigation. Hence the most cogent interpretation of these findings is simply that trance logic is indeed the essence of hypnosis. This conclusion is the antithesis of the conclusion reached by Johnson, Maher, and Barber (1972) in their purported investigation of trance logic. The discrepancies between the findings and conclusions of these two inquiries are most likely attributable to the inadequacies in the implementation of the real-simulator model and the less than optimal experimental procedures employed in the Johnson, Maher, and Barber (1972) study (Hilgard, 1972). Thus when these inadequacies are eliminated, the experimental results strongly support the position proposed by Orne (1959) that the essence of hypnosis is to be found precisely in the subjective experiences of the hypnotized subject. Specifically the real hypnotic subject is willing to accept his hallucinated perceptions as valid and subjectively meaningful experiences. He is willing to describe these perceptions as real and is not disturbed by the contradictory aspects involved in the experience. Thus, one's hallucination of the observer-coexperimenter is real in spite of the fact that there is a transparent quality to her and the wastebasket is gone in spite of the fact that a residual awareness of it remains. Hence on the

basis of the subjects' reports regarding their hallucinatory experiences and their outward objective behaviors what apparently has occurred is a temporary relaxation of one's generalized reality-orientation and the substitution of a special, temporary orientation to a small range of preoccupations (Shor, 1959). This altered reality-orientation permits the subject "to mix freely his perceptions derived from reality with those that stem from his imagination and are perceived as hallucinations. These perceptions are fused in a manner that ignores everyday logic" (Orne, 1959, p. 295).

The results obtained with the source amnesia suggestion have not been included in the above discussion, as the mechanisms underlying a response indicative of source amnesia are probably little related to the mechanisms underlying the other trance logic responses. In the present investigation, responses to the source amnesia item were one of the most powerful individual discriminators between the real and simulating subjects, with three of the real hypnotic subjects passing this item and none of the simulators. Thus the demand characteristics of such an item clearly do not elicit responses indicative of source amnesia. Although little is currently known regarding the mechanisms underlying a source amnesia response, Evans (1971a) notes the similarities between a source amnesia response and other somewhat more well known phenomena such as clinical amnesias and unconscious plagarism. He further suggests that source amnesia responses may not at all be related to depth of hypnosis in a traditional sense and are most likely attributable to some form of disocciation present in hypnosis (Evans, 1966; Shor, 1959).

CHAPTER VI

CONCLUSION

The present investigation has been a real-simulator inquiry into the delimiting parameters of Orne's (1951; 1959; 1962) anecdotal and informally presented observations regarding trance logic. The present results clearly support his notion that highly hypnotizable subjects respond to certain suggestions in an objectively illogical or contradictory fashion and that their responses are not a function of the demand characteristics of the suggestion situation. Further, these subjects are not concerned about these objective inconsistencies in their behavior and, in fact, their behavior may not be at all subjectively illogical. It definitely appears that the essence of hypnosis lies in the subjective experiences of these hypnotized subjects which permit the observation of these overtly illogical responses. A relaxation of day to day reality orientations and the substitution of special, temporary reality orientations (Shor, 1959) would appear to underlie these observed responses.

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