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DEVELOPMENTAL STAGE REGRESSION THROUGH HYPNOSIS

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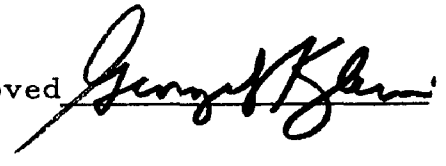
approved 

CONTENTS

Page

FOREWORD

This study was conceived in the course of conversations with Dr. George S. Klein, who agreed to sponsor the dissertation which resulted. He has seen the work through from inception to conclusion and his encouragement and incisiveness were material aids in its production. Drs. Alfred Baldwin and Philip Zimbardo, who served on the thesis committee, provided ready but unforced expertise, for which I am appreciative. Thanks are also due Dr. Harriet L. Barr for her analytic skills and attention to detail.

Lively argument with three men extremely knowledgeable in hypnosis research sharpened the positions taken and conceptualizations shaped in this paper: Donald O'Connell of the Unit for Experimental Psychiatry, University of Pennsylvania, and Dr. Peter B. Field, Veterans' Administration Hospital, Brooklyn, New York, alerted me to the nuts and bolts problems of experimental hypnotic procedure. Dr. Field also provided the setting for the experiment in his laboratory and the subjects from his research pool. His grasp of the issues and command of the literature of hypnosis were also generously put at my disposal. Dr. Theodore Sarbin of the University of California has been kind enough to travel the tortuous roads of theory and semantics during two extended discussions.

A small army of fellow students did the necessary but often tedious work of testing subjects, scoring protocols, and helping to cut through computational thickets: Richard Epstein, Martin Vigdor, Barry Sandufer, Jay Kwawer, Tom Todd and Jim Mintz have my thanks for this work. Superb secretarial help from Mrs. Carol Glasgow and Mrs. Pearl Schwartz was essential, as anyone who has worked anywhere will appreciate.

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All of the above named share credit for the useful formulation and sheer physical production of this dissertation. Whatever errors there may be in the work accrue to me.

E. G.

INTRODUCTION

This study concerns two issues which bear directly or by implication on major theories of psychopathology, development, learning, and memory. The central issue is whether functional cognitive schemata of childhood can be revived in adults. In a more general form, the issue of revival of childhood functioning has been investigated by a number of authors, each using hypnotic age regression as a method of choice. The phenomena examined include physiological changes, psychometric ability, projective test responses and developmental stages, and I have chosen the last for theoretical and empirical reasons to be discussed.

Although demonstration of the sufficiency of an hypnotic regression technique for eliciting childlike responses would satisfy the purposes of this research, the question of the necessity of such a technique has been raised (Sarbin, 1950), and constitutes a serious issue in the theory of hypnosis. For this reason, a second question, the answer to which is presupposed by the first, should be asked: Are the schemata of childhood normally beyond the reach of adults?

Resolution of these issues depends on the answer to the question, "Does the hypnotic subject, when return to childhood is suggested, exhibit behaviors that are: 1) characteristic of children, and

2) difficult or impossible for an adult to perform voluntarily." (Barber, 1962)

To demonstrate that behaviors of a subject "regressed" to childhood are indeed characteristic of children, comparison has typically been made between responses of chronological children at particular ages and adult hypnotic subjects regressed to these ages. Yates (1961) suggests that these comparisons may be direct--that is, may compare the hypnotic regressed performance with the subject's known performance at the experimental age--or indirect; comparison of the hypnotic regressed performance with the average known performance of normal children at the experimental age. In either type of comparison, a positive demonstration of regression requires age-appropriate behavior from the hypnotic subject.

In this study, however, developmental stage-appropriate behavior will be taken as positive evidence of regression. Rather than age-parallel scores on the criterion measure, scores consistent with particular developmental stages in conceptual thinking will constitute the criterion and will, on this view, point to the validity of the regression.

The use of developmental criteria in validating regressive performance is based on studies which suggest that regressed subjects perform at age levels somewhat higher than those suggested by the experimenter and on an attempt to consider criticisms of the

"genuineness" of positive regressive results. Since the demonstration of regression rests primarily on a correlation between childhood behavior and the behavior of the regressed adult, any such correspondence is evidence for regression regardless of the age-level of the performance. Further, since stages of development are not perfectly correlated with chronological age (Kohlberg, 1961), we might expect age-level responses to deviate from the suggested experimental age even though they demonstrate a consistent stage-level of development appropriate to childhood. This distinction can be clarified experimentally by the use of a developmental stage criterion to establish the validity of regression.

The issue of the "genuineness" of positive regressive results is both complicated and confusing. It may be posed as a question of the simulability of childhood responses; that is, certain responses are considered by some authors to be more available than others to normal adults in the waking state. Yates (1961) suggests that on such tests as the Binet, Wechsler-Bellevue, Otis and Word Association, adults may more easily reconstruct a child's answers than on tests such as the Rorschach and Bender-Gestalt, developmental tasks and physiological measures. In part, this is because simulable tests depend on result-scoring rather than process-scoring; the tests themselves do not tease out different patterns of functioning but rely on dichotomous scoring procedures to arrive at their results. Too,

these tests may be subject to stimulation through intellectual reconstruction of the child's breadth of knowledge or habitual verbal responses. Even a keen observer of children might have difficulty, however, reproducing Bender-Gestalt patterns or the process of a child's thinking elicited by developmental interviewing.

In one sense then, "skeptical" critiques of positive regression results rest on objections regarding the criterion measures used. This is a weak form of the simulation critique of hypnotic regression since it really questions the power of certain tests to discriminate between adults and children rather than the possibility of the regression itself. Control groups which demonstrate the non-simulability of childhood responses to certain tasks for adults variously instructed to simulate them are necessary to hypnotic regression experiments.

We should note that if "control" subjects can give responses which correlate with those given by children, several evaluations of such a result are possible: We might question the discriminating power of the test, for reasons mentioned above. We might question the necessity of an hypnotic technique for eliciting such responses. We might also require further evidence of the functional nature of the responses. If we find that both hypnotically regressed subjects and various hypnotic simulators and waking controls can give responses which correlate with stage-appropriate childhood responses, under what conditions can we doubt that regression has occurred? Either

the assumption that responses prevalent in childhood are not available to adults is questioned, and with it an entire set of developmental assumptions and observations of children and adults, or, the robustness of such regression must be investigated. By this I mean that the function of stages of thinking, emotional reactions, perceptual ability and the like should be considered. Aside from the reported differences in subjective experience between age-regressed Ss and simulators, are there limits to the extension of stages in thought thus evoked to other areas of behavior? Will simulators and/or regressed Ss be unable, when challenged, to function in an "adult" manner? Our prediction would be that even if simulators can approximate the behavior of regressed subjects and regressed subjects the behavior of children, there would be differences between groups along these parameters. As Erickson has said, "the best simulation is actualization," and if no differences can be found between the actions of adult simulators and those of children, we must assume that what we call "regression" has indeed taken place; similarly for age-regressed subjects, hypnotic simulators and left-handed outfielders if all can demonstrate these results.

REVIEW OF THE LITERATURE

It may help at the outset to clarify some focal issues in this review, since I hope to show a progression from previous work to the present experiment. The studies are grouped according to the criterion measures used to validate age regression phenomena; thus, physiological, psychometric, projective, and developmental measures are discussed. Two of the major experimental issues are here considered to be the use of a meaningful criterion measure and the nature of the hypnotic induction used to elicit regressive phenomena. Hypnotic technique and related concerns are discussed elsewhere.

I will attempt to make a distinction between demonstrations of hypermnesia and regression. The present investigation is concerned primarily with the problem of reviving developmentally prior modes of functioning rather than that of recovering or sharpening memories normally unavailable to adults. For this reason, the review will focus on uses of developmental criteria in age-regression studies. It is thought that the adult's memory of a developmentally prior cognitive process would require that as a child he have had available to him modes of self-observation specifically unavailable to the organism in its early years. This condition would not be requisite to adult memory of prior thought content.

I will use the term "age regression" to refer to the hypnotic technique in which subjects are asked to return to a specific "experimental age," and consider "regression" to be the equivalence of performance of an age-regressed adult with that of a child of specified chronological age or developmental stage.

Hypermnesia

It is important for the purposes of this experiment to distinguish hypermnesia from developmental regression; less essential to consider the conditions which facilitate heightened memory. However, a few cases can be discussed which support the general conclusion that "Hypnosis is useful in facilitating recall, although the results are not as striking as some popular accounts lead one to expect." (Hilgard, 1965, p. 175).

In Reiff and Scheerer's (1959) experiment on contextual recall, age-regressed subjects and waking controls were given a questionnaire containing verifiable items of personal history. The authors found that control and experimental subjects did not differ significantly in per cent of "creditable memories" recalled in the waking state ($p = .50$). Controls showed no significant increase in creditable memories under conditions of waking simulation (experimental ages 7 and 10). However, subjects age-regressed to 7 showed a significant increase in remembered items over both

8

unregressed somnabulists and waking simulators. Mixed results were found for experimental age 10.

Reiff and Scheerer also report the case of one subject for whom textbooks, drawings, and other material from the second and fifth grades were obtained. The subject was able to recall under hypnosis minor details from her life at this time which were unavailable to her in the waking state. Reiff and Scheerer then cite some work on the revival of forgotten skills. A twenty-six-year-old woman who was an excellent Latin student in high school was regressed to the appropriate age and showed greater skill in translation than was available to her as an adult.

Äs (1962) regressed a subject who had lost the knowledge of a particular Finnish dialect spoken by him until age 8. With regression, his comprehension was improved over a comparable performance in the waking state.

Is this to be considered hypermnesia, regression, or some mix of the two? It would be necessary to demonstrate at least that the subject's language was formally like that of a child to establish that regression had occurred. Similarly for other skills, such as motor or task-oriented ones, which may produce equivalent results through different processes. Such a distinction seems crucial to the evaluation of regressive phenomena, and tasks which are either developmentally graded or not directly susceptible to recall are best suited to the

elucidation of the distinction.

Regression: Physiological Criteria

Studies in this area are probably the most striking in their demonstration of regression and the least amenable to a simulation critique. Yet they do not bear directly on the present study because we are interested in the revival of cognitive processes rather than in purely physiological change. We need to make no assumptions about the physiological basis of the memory trace or of cognition in general in order to meaningfully interpret results. Nevertheless, the possibility "that a definite 'organic reproduction' of earlier states in the person's life history is possible during age reorientation in hypnosis" (Reiff and Scheerer, 1959, p. 72) is highly important and deserves some discussion.

Moody (1946) utilized Evipan narcosis to effect a reappearance of rope wheals and petechial hemmorrhages in two subjects whose injuries had long since healed. Ford and Yeager (1948) hypnotically regressed a patient who had exhibited a right homonymous hemianopsia prior to surgery in 1943. This condition was revived in the subject, who at the time of the experiment had regained normal vision.

In a controversial experiment later replicated by True and Stephenson (1951), Gidro-Frank and Bowersbuch (1948) produced a positive Babinski sign in three subjects regressed to an experimental

age of six months. They also demonstrated age-appropriate development of the adult plantar reflex, although no subject could reproduce these responses when asked to simulate them in the waking state. In addition, simulating adults were unable to evidence certain responses normally available to them.

Subjects were supposedly unaware of the purpose of the research, having received nonspecific age-regression suggestions. The case for demand characteristics as determinants of these results is at best difficult to support. However, the criterion measure is subject to criticism. In normal adults, the Babinski can be demonstrated under conditions of depressed muscle tone; in hypnosis, the general relaxation of the body might facilitate such a response. Wolff's empirical study of infants less than 7 months old found the typical Babinski response in only 13 of 389 observations, suggesting that the criterion measure is not characteristic of infant behavior (Barber, 1962).

Kupper (1945) reports the case of a man who suffered convulsive seizures continuing through the age of twenty-four, at which time he was age-regressed hypnotically. EEG patterns indicative of such disorder were found at age 18 (the time of first seizure) and again at age 24, when the subject was hospitalized. Serial EEG tracings were taken during regression to age 12. The EEG was essentially normal until age progression reached the eighteenth year, at which time

cortical abnormalities appeared. However, as Barber (1962) notes in his excellent critical review, Kupper's subject would show EEG variations under non-hypnotic conditions as well as in the regressed state:

> In this man the trigger to a convulsive seizure centered about a personal conflict whose resolution could lower the emotional danger point enough for clinical improvement. Under hypnosis and in interviews only this emotional problem could produce...a perceptible change in the EEG.

Mesel and Ledford (1959) attempted to replicate the work of Gidro-Frank and Bowersbuch and of Kupper. This study failed to confirm the original findings.

These results, as others throughout the regression literature, point to the influence of demand conditions on the production of positive instances of regression. "Demand condition" refers to some unrecognized variable in the experimental situation which influences results. Experimenter and subject expectation of results, subtle cues given subjects, and the general social conditions of psychological experimentation may account for results which seem at first to be due to the recognized experimental variables. Instances of striking predictive power in certain regression experiments may not confirm the success of the stated method--e.g., age regression--but certainly demonstrate the prevalence of powerful factors which radically influence behavior in some expected direction. Isolating these factors, rather than debunking results, may prove the more viable and useful approach to hypnotic experimentation.

Regression: Psychometric Criteria

Kohlberg, following Pieron, suggests that intelligence conceived in psychometric terms "is essentially a value judgment applied to complex behavior." (1961, p. 177). Psychometric performance may also be understood as an expression of the quantitative capacity to apprehend relations--something like Spearman's "g." High psychometric performance can then appear in an individual whose apprehension of qualitatively primitive kinds of relations reflects low developmental performance. Again, developmental criteria would seem better suited to the discrimination of regressive performance than would psychometric criteria. An examination of regression studies using intelligence test criteria should, however, prove instructive.

Platonow (1933) hypnotically regressed three Ss to experimental ages 4, 6, and 10 and tested them with the Binet-Simon. He reports obtaining suitable mental ages for the regressed condition and adds his impression that "there was a definite 'unity' or 'stability' to the complex of knowledge for each age." Sarbin and Farberow (1952) note that with conventional scoring methods Platonow's Ss performed not at appropriate levels, but, e.g., at M.A.'s of 6.8 and 8.6 at experimental age 6.

Young (1940) performed two experiments with male university undergraduates. In the first study, ten Ss hypnotized in a group were given suggestions to return to age three and told that they would be three years old when awakened. He transferred rapport from the hypnotist to ten testers who administered 25 items from the Terman scale for ages 3-9. Young found that M.A.'s ranged from 3,9 to 6,0 with an average M.A. of 4,7. Although the subjects' adult, waking IQ's averaged 100, their regressed IQ levels averaged 155.

For his second study, Young tested nine hypnotized Ss and seven "unhypnotizable" controls on the Stanford-Binet. Regressed Ss were told: "You are now three years old; do you understand? You are now three years old. It is your birthday. You are three years old. You will be three until I wake you. How old are you?" (1940, p. 275). When Ss replied that they were indeed three, testing was begun. A waking IQ score was determined ten minutes after the suggestion to return to real chronological age. Controls were asked to "imagine age three" and then tested.

Young found that the mean regressed IQ of Ss was 198, while their average waking score was 102. M.A. for the experimental Ss ranged from 4,7 to 6,9 and averaged 5,11. Control Ss, with similar M.A. range, averaged 5,5. Young also reports great variation on these measures both between subjects and within subjects. He concludes that role-playing is the most likely explanation of these results,

and that "Hypnosis is playing a role with all one's heart but not with all one's mind." (p. 278).

Again, as with Platonow's work, M.A. was found to be inappropriate to the suggested C.A. Yet M.A. was appropriate to some C.A. "prior" to the actual C.A. of the subject. If we were to accept the developmental norms implied by the Stanford-Binet, we might say that some regression had been demonstrated in both groups, with the simulators often performing at lower levels than the regressed Ss. With the introduction of a simulation condition such results should lead us to doubt the power of the Binet norms for differentiating adults from children under certain motivational conditions. Such an interpretation is, I suggest, relevant to most studies of regression utilizing psychometric criteria. Inadequate hypnotic technique also characterizes many of these studies. Clearly, it makes little sense to suppose that Young's induction will produce stable, deep trance states, to say nothing of regression. It often seems that those most critical of the experimental possibilities of hypnosis are those who make the most lenient assumptions regarding its power as a method.

Kline (1950) gave ten male psychology students the Otis Tests of Mental Ability in one waking and three hypnotically regressed states. All ten were somnambulists given eye-fixation and deep-sleep suggestions followed by the instruction that "after a brief count you

will be able to open your eyes, but will be fifteen (ten, eight) years old." Equivalent forms of the Otis were administered and, though IQ remained more constant than in normal test-retest conditions, the total number of correct answers dropped progressively from a mean of 59.2 in the waking state to 24.5 at experimental age eight. Although the measure is developmentally crude and depends on raw achievement score, the loss in raw score corresponded to the target age. No simulation condition or other control was used.

Sarbin (1950) compared Stanford-Binet (1916) responses of regressed and simulating Ss with records of these Ss' actual test behavior at age eight or nine. He told nine Ss judged highly hypnotizable (Friedlander-Sarbin depth scale) and three "unhypnotizable" controls that they would participate in an experiment on memory, and that hypnosis would be used. After an induction based on the Friedlander-Sarbin scale, Ss were told: "You are now 8 years old. You are in Miss ---'s room in the University Elementary School. You are to come with me to the psychologist's office where you will be asked some questions. You are 8 years old." This was repeated several times, followed by testing and a suggestion of amnesia. In the simulation condition, Ss were given no hypnotic instructions, being told: "You are to simulate the behavior of an 8-year-old child. Think, act and talk as a child that age would. Pretend you are a child of that age. It may help if you imagine how you acted at that age."

Ss were used as their own controls and the order of conditions varied. The three "unhypnotizable" Ss were added to the simulation condition, but not given regression instructions.

Sarbin compiled a "regression index" for each subject:

$$\left(\frac{\text{M.A. simulation}}{\text{M.A. original testing}} - \frac{\text{M.A. regressed}}{\text{M.A. original testing}} \right) \times 100$$

He concludes that there is no "authentic and complete regression... insofar as intelligence tests are concerned." In no case was a subject's experimental M.A. lower than his original M.A. His nine Ss, when regressed, tested on the average 3 years, 6 months, above the original score, while these same Ss, when simulating, averaged 5 years, 3 months, above the original. The unhypnotized simulators had parallel scores. He concludes that regressed Ss can better approximate their performance as children than can these same Ss as waking simulators.

Perhaps the most interesting result of this study is the high correlation found between hypnotic ability (as determined by the Friedlander-Sarbin depth scale) and the regression index (rho = .76). This suggests that more sophisticated induction techniques--or more stringent criteria for subject selection--could provide a more critical sample population in which to test for "psychometric test regression."

Barber (1961) addressed himself to the problem of simulation and psychometric regression. He administered equivalent forms of the Otis to nine hypnotized and nine unhypnotized Ss. Each group was tested in the normal waking state, where their mean IQ scores were 118 and 112, respectively. The nine Ss regressed to age 10 had a mean IQ of 136, while the nine who simulated age 10 scored a mean of 118. Barber concludes that "hypnotic age regression is not only unnecessary but also unhelpful in inducing an Otis performance in accord with norms for the assigned age." Barber noted that simulators often understand that they are not to exceed regressed subjects in "depth of regressive performance" especially when Ss are used as their own controls. He paid $10 for the best simulation performance, thus attempting to balance an implicit demand condition of the experimentwith an explicit experimental condition. Some variant of this approach is important for eliciting well-motivated simulation performances and, by extension, for testing the role-playing theory of hypnotic phenomena in general.

A number of authors report case studies in which M.A. of the regressed subject was consistent with the suggested chronological age (Gakkebush, 1930; Keir, 1945; Leeds, 1949; Kline, 1953). Others (Spiegel, 1945) support the general conclusion which may be drawn about studies in this area: M.A. of regressed subjects is often inappropriate to the suggested chronological age. Further, the work of

Barber (1961) and others leads us to question the adequacy of psychometric tests of intelligence used to validate regression phenomena.

Regression: Projective Test Criteria

Yates (1961) considers that tests such as the Rorschach and Bender-Gestalt can provide nonsimulable comparisons between the performance of children and that of age-regressed adults. The validity of such tests--and of drawings and handwriting--used as criterion measures here, depends on the existence of well-established norms for children. This might mean either general performance norms, such as age-related Rorschach H%, or norms based on individual case histories. These norms might reflect actual performance on the tests at an earlier age or hypothesized performance on such tests related to known psychological events of the subject's life--such things as traumata or neurotic symptoms.

Bergman, Graham and Leavitt (1947) regressed a 20-year-old who suffered from conversion hysteria. They utilized the Wolberg (1945) induction procedure and tested the subject at alternate experimental ages between 3 and 20, using the Rorschach as a criterion for regression. After each administration the authors were satisfied that their subject was amnestic for the testing. Eight Rorschach and eight Goodenough drawings were taken, each showing changes which, according to the authors, paralleled the patient's clinical history. They were

impressed with the emotional quality of the subject's responses, and say that "It was evident that, on the whole, he relived each age through one particularly significant memory." While the face validity of such observations is impressive, comparison of this subject's test results with extant, chronologically prior test data would be desirable. The results from other studies seem to bear out this contention.

Taylor (1950) obtained figure drawings from 12 regressed subjects at experimental ages 10, 8, and 6. The same subjects were also instructed to simulate the performance of a child at these ages. The drawings were scored and compared with Goodenough's norms for children. Taylor found that subjects' scores in the regressed condition were not significantly different from scores obtained from these same subjects in the simulation condition. He found too that subjects gave both childlike and adultlike responses and performed at an age level which was superior to the norms for the experimental ages.

Mercer and Gibson (1950) regressed one subject on three successive days to experimental ages 10, 6, and 14. Goodenough drawings, Rorschach and Stanford-Binet vocabulary were administered under regression and in the waking state. The authors conclude that the subject's performance at the experimental ages was consistent with that characteristically to be expected of him at that chronological age. The data followed the clinical findings for this subject.

Kline and Guze (1951) report on a single regressed subject given the HTP drawings. His normal performance and waking simulation were identical, but his drawings at experimental age six showed some childlike features.

A more systematized attempt at investigation of regression is Orne's (1951) study. Ten university students, all capable of somanmbulism, were hypnotically regressed to age six. It was suggested that the subject would be at his sixth birthday party, and subjects were encouraged to describe their surroundings at this time. When the subject began to describe the scene of his party, he was told that it was now the schoolday following his birthday and that he would be taking some tests. Rorschach, drawing and handwriting, samples were collected. Some days following the age regression, these same subjects were asked to simulate a 6-year-old's performance.

Orne found no consistent changes in the Rorschach data obtained under hypnosis, although the records differed unsystematically from test results in the normal waking state. A Rorschach test taken by one subject at age six showed no correspondence with his hypnotically regressed performance as a chronological adult. Drawings done at age 6 by another subject also showed no relation to those done at experimental age 6 by the age-regressed adult. Machover, who examined the drawings, concluded that they "definitely do not resemble 6-year-olds'." She described drawings in the regressed state as

"sophisticated oversimplifications." Indeed, says Orne, "every single record of regressed subjects shows some features which could never be expected in the record of a 6-year-old child."

He concludes that hypnotic regression is equivalent to improved role-taking ability: suspension of critical facilities, hypermnesia and the acceptance of the role as reality. Orne notes that unverified confabulations are a deceptive feature of hypnotic regression. This last point refers to a phenomenon we have noted in earlier case studies; without adequate comparisons of regressed and child performance, a semblance of children's behavior, or even the less guarded behavior of a hypnotized adult, may be mistaken for functional regression. To say that results such as Orne's demonstrate the validity of the role-playing theory of hypnotic behavior is, however, more difficult to support than is this simple caveat. Such a conclusion would require that simulators excelled in the imitation of a child's performance--that, in other words, they were able to play a child's role satisfactorily. Not merely convincingly so that they meet some adults' naive criteria for childlike behavior, but in such a way as would satisfy experts like Machover or correlate with experimental norms derived from the study of children. Orne's study is evidence against an ablation theory, but not positive evidence for the role-playing view. True, Orne suggests that role-playing requires behavior which is merely an approximation of the experimental age

and does not require the ablation of all knowledge acquired after the experimental age. In these terms, although it is not clear from the study, hypnotic subjects may have demonstrated increased role-playing ability. To fairly test the two alternative theories, however, instructions to the regressed subjects to forget all that had happened after the experimental age seem indicated. It is neither logically nor empirically evident that the suggestion to regress to a prior age should lead as well to ablation of adult responses.

Crasilneck and Michael (1957) investigated performance on the Bender-Gestalt test under hypnotic age regression. Ten female volunteers were given training in deep hypnosis and administered the Bender under four conditions in sequence: 1) awake; 2) awake with instructions to pretend to be four years old; 3) hypnotized with instructions to pretend to be four years old; 4) hypnotized and regressed to age four. Three clinical psychologists unaware of the purpose of the research judged the randomly presented protocols. They were asked to estimate the maturational level of the subjects on a scale ranging from under four years to over eleven years by half-year steps; they were also to rank sets of four Benders from most to least mature. (Rank-difference inter-judge r was above .85.)

Results for the four conditions, expressed as means, were: 1) 11.2 years; 2) 9.9 years; 3) 7.8 years; 4) 7.3 years. Significant differences were found between conditions 1) and 2) ($p < .01$), and 2)

and 3) ($p < .02$), but not between conditions 3) and 4). The authors conclude that when subjects are asked to perform at a given age level they comply to a degree but do not seem to reach the suggested age level. This is consistent with results in the positive direction found in other studies mentioned above. They further conclude that hypnosis facilitates behavior approximating the suggested age, and note the clinical demonstration of subjects' regressed behavior; e.g., revival of the sucking reflex at experimental age four months.

The authors note marked intra-test variability in subjects' performance, but stress the high commonality of clinical opinion regarding maturational level of the tests, and the difficulties in simulation associated with such a task as the Bender-Gestalt. These findings suggest that Crasilneck and Michael have demonstrated regression of type III--mixed adult and childlike responses. As Reiff and Scheerer (1959) take pains to point out, mixed regression does not mean the absence of regression. Similarly, regressed performance of whatever developmental level need not match the suggested chronological age to be judged valid.

To summarize: single-case studies of regression employing projective criteria tend to validate the phenomenon, but are subject to criticism in terms of the criterion measure employed. Group studies produce more equivocal and negative results regarding age regression, but these studies often employ crude or incomplete

induction procedures. Lengthy inductions based on excellent hypnotist-subject rapport and clinical association are more likely to elicit stabilized regressive behavior than are typical inductions subject to the pressures of larger experimental n. It appears that as the use of control groups has become more sophisticated and the popularity of role-playing interpretations increased, attention to the hypnotic process and its implications for experimental study of behavior has diminished.

Regression: Developmental Stage Criteria

To date, the most significant of the age-regression studies is Reiff and Scheerer's long monograph, "Memory and Hypnotic Age Regression: Developmental Aspects of Cognitive Function Explored Through Hypnosis," (1959). Both this work and the critical evaluation and replication study by Orne and his associates (1961, 1963) are noteworthy for sophisticated attention to induction procedures and the advocacy of a developmentally valid criterion measure.

Reiff and Scheerer characterize hypnotic regression as a type of "involuntary memoria":

> The person does not have here the experience of reliving the event, but lives through it as though it were happening for the first time; it appears as though all subsequent experience has been ablated. (1959, p. 36)

One criterion of regression, then, is the subjective experience of the regressed subject, another that it appear to an observer

as though adult responses have "been ablated"; that is, as if all adult responses are unavailable to the subject.

Reiff and Scheerer suggest that the difficulty of producing such a situation is a function of the nature of memory traces and their vicissitudes. Building on the work of Goldstein (1939) and Schachtel (1944), they hypothesize that the least alteration of original memory traces from childhood will occur when they are reactivated under conditions of: 1) Minimization of present functioning of current needs and interests and, 2) Reactivation of the "earlier cognitive-emotional stratum of the ego" in which the memory is imbedded. In this situation, the effects of later on earlier experience should be minimized, and a revival of developmentally prior functional schemata of childhood established. This conceptual break with the criterion of age-normal behavior and the substitution of developmental norms is discussed more fully below.

The methodology of Reiff and Scheerer's study, then, is informed by these hypotheses:

1. The cognitive form of an experience is contextually bound to the functional schemata available at the time.

2. Remembering is the reconstruction of previous experience to allow its integration in present schemata.

In hypnotic age-regression, the subject is seen to fluctuate between the actual revival of earlier schemata and behavior based on available--and thus, reconstructed--memories. To stabilize the

regression, the authors' suggestions were worded "so as not to give implicit permission to the subject to deviate from the regressed state in order to comply." (1959, p. 90). The technique was as follows:

1. Give the direct suggestion that the subject will think, act, and feel like a child at the particular age level.
2. Instruct the subject that no matter what the task, he will act in an age-appropriate manner.
3. Give no implicit permission for deviation.
4. Allow time for the subject to reorient himself in the regressed state.
5. Explain the presence of the hypnotist, saying: "I will be a person you know and like."

When his subjects had achieved a deep trance, the hypnotist suggested that he would count backwards from 21 to 10 (say) and that at 10 it would be the subject's 10th birthday. It was suggested also that the subject would feel himself getting smaller and younger and that he would forget everything that occurred after age 10. He was told that he would act, talk, think, walk, and be like a 10-year-old; that he would be a 10-year-old no matter what was asked of him. The subject was then asked to open his eyes and was led to a playroom and allowed to play freely for some 10 minutes before being tested. Eight tests and a questionnaire were administered, after which the subject was "counted back" to his present age.

Subjects were selected from a group of 100 university students, unpaid volunteers ranging in age from 19-27. Thirty Ss were selected on the basis of a suggestibility test, and from these were selected five somnambules who were judged to be relatively free of anxiety, and who manifested all the classical hypnotic phenomena. The induction of hypnosis was adapted from Wolberg (1948) and consisted of a discussion of hypnosis followed by suggestions of relaxation and drowsiness. If the subject could then demonstrate: eye catalepsy, hand levitation, limb catalepsy, inability to unclench hands, hyperanesthesia, anesthesia, ability to talk in the trance state, positive hallucinations, opening of eyes in the trance state, somnambulism, post-hypnotic suggestion and post-hypnotic amnesia, he was judged a "good" subject. The five highly selected subjects were then trained in regression to early adolescence and age ten in the manner described. Rapport with the hypnotist was maintained throughout.

Fifteen simulators were also selected--presumably from the thirty "suggestible" Ss. They were given no instruction in simulation. This lack of equivalence in experimental and control groups (hereafter "E" and "C") makes the study a poor test of the "ablation" vs. "role-playing" hypotheses, but does not affect evaluation of the "reality" of the regression, an issue more seriously influenced by errors in the criterion measure.

The criterion for age regression consisted of eight tasks which were administered to each of the five subjects at regressed ages 10, 7, and 4, and to fifteen controls, five of whom simulated age-appropriate behavior at each age:

	10	7	4
A	Free Play	Free Play	Free Play
B	---	---	Mud & Lollipop
C	Pledge of Allegiance	Pledge	---
D	---	Clock	Clock
E	Left and Right	---	Left and Right
F	Arithmetic	Arithmetic	Arithmetic
G	Hollow Tube	Hollow Tube	Hollow Tube
H	Word Association	Word Association	Word Association
I	Questionnaire	Questionnaire	---

In all cases the E Ss were regressed from 10 to 7 to 4. The procedure and results follow:

A. Free Play

As predicted, Es showed greater interaction with the experimenter and more freedom in displaying their emotions than did Cs in a free play situation conducted in a clinic playroom. The authors and observers were impressed with the "spontaneously childlike" quality of the Es and the discomfited, adultlike behavior of the Cs. The observation protocols were not scored, nor was there a comparison made of the regressed Ss with real children of equivalent ages.

Let us assume, though, that significant differences in behavior of Es and Cs can be demonstrated. What might account for such differences beyond the fact of differential subject selection,

9

experience in "regressive" behavior and possible regression?

After rapport had been established with the regressed Ss, the following suggestion was given:

> Then I will ask you if you would like to go with me into a playroom where there are lots of toys. You will feel happy about it and will say yes.

Controls were given these instructions:

> I am going to take you into a playroom where there are lots of toys. As long as you are in that playroom, no matter who talks to you or what you are asked to do, I would like you to pretend that you are (age) years old.

Differences in motivation and demand characteristics are obvious here. These differences were apparent in the treatment of subjects throughout the Free Play period, and, we may suppose, during other tasks. Compare, for example, this dialogue of regressed subject (SE) and experimenter (ex) with that of the experimenter and simulator (SC) which follows it (1959, pp. 118-120):

SE: What's that?

ex: That's Bobo.

SE: What's it got in it?

ex: Oh, its' got houses, bridges and fences.

SC: It's my custom to leave things out instead of putting them away.

ex: Well, try not to step out of your role.

Results for this test are conceptually equivocal, leaving aside the question of their empirical validity. For if Reiff and Scheerer have shown differences between their groups, they have not shown

that the differences were due exclusively to the effects of hypnotic age regression. Nor have they shown that they differ as children differ from adults. We may wish to reinterpret the results in terms of demand characteristics, role-playing, or suggestion.

B. Mud and Lollipop Test

All Ss were allowed to make mud pies. Immediately following this play, the experimenter presented each S with a lollipop reward. Ss were not instructed to eat the pop, yet, as predicted, all 5 Es accepted and ate it with enjoyment, while 4 of the 5 Cs insisted on first washing their hands. Fisher's exact test is significant here at $P = .04$. The authors conclude that this result argues for the genuineness of emotional behavior in regression as against that in simulation. Again, no control group of actual 4-year-old children was used.

C. Pledge of Allegiance

Ss were asked to write the Pledge of Allegiance at age 7. All simulators attempted to write it; all Es said that they could not write. Fisher's exact test is significant at $P = .01$.

D. Clock Test

Scheerer constructed a theoretical framework of six developmental levels for "telling time." No empirical studies of this developmental framework existed at the time of the study. There was some evidence of a relation between "regressed state" and developmentally lower performance as assessed on this hypothetical scale.

Again, let us assume that some difference between groups on this task has been demonstrated. What would be shown by this result?

Reiff and Scheerer distinguish "regressed" Ss from "simulators" but neither are compared with well-established norms for children. The authors are left with remarks such as "This appears to be an error quite likely characteristic for a child of that age." (p. 133)

Piaget described three stages in the development of perception of left and right from ages 5-12, from which Reiff and Scheerer elaborated five levels of development. Ss were asked to show the experimenter their own right hand and left hand, and the experimenter's right and left hand, and to tell whether a pencil lay to the left or right of another object. The authors did not ask all of Piaget's questions at early levels and eliminated some of the latter's complex questions for age 11. Also, no normative studies on large samples of children are reported for the Piaget-derived stages.

Reiff and Scheerer predicted that all Es at age four would perform at levels I-III and at age ten would perform at levels IV or V. Simulators' performance was predicted to be higher at each age suggested. No significant differences between groups were reported, though the Fisher's 2x2 test had a $P < .25$, which might have been decreased through increased sample size.

F. Arithmetic Test

The design for this task was based on Scheerer's approach to determining a child's ability to understand the logic of arithmetic. Ss at experimental ages 10 and 7 were asked to solve seven problems (e.g., 2+2, 4+2-2) and asked, "How did you get that?" The results were assessed in terms of six postulated developmental levels. The highest level attained by a subject was designated as his score. The results (see Table) indicate "a relation between lower level of performance and the regressed condition which could not be attributed to chance." Reaction time also differed in the predicted direction, and qualitative differences in performance were observed.

G. Hollow Tube Task

This task was developed by Piaget (1950); Reiff and Scheerer deviated in method from the original work but preserved its sense, which is to have the S predict the order of emergence of colored beads from a hollow cardboard tube. It was designed to assess the development of the concept of "reversibility" as described by Piaget and his associates.

Six levels of development were postulated and predictions of performance made for each. The highest level attained by each S was assigned as a score and the data was treated by rank-biserial r for simulators and regressed ranked at each age. No regressed Ss reached level VI, while 10 of the fifteen controls were at level VI

throughout. Significant differences were noted at ages 10 ($P < .05$) and 7 ($P < .01$). Groups at age 4 differed at $P > .10$.

H. Word Association Test

Words were chosen from the Kent-Rosanoff (1910) list, the Woodrow-Lowell (1916) list, and from a group of words not considered to be part of the vocabulary of children below age ten (penis, vagina, myth, TV). Words from the Kent-Rosanoff were those which "showed a definite trend in the response characteristic of adults," while words taken from the Woodrow-Lowell list showed trends characteristic of children.

The test was given to all Ss in the adult waking state and at the various experimental age levels for Es and Cs. The simulators responded with the most frequent Kent-Rosanoff words when waking and simulating. They also failed three of the additional words but associated to TV, though it should not have been known to them at the ages simulated. Es responded to 7 of the 9 stimulus words with Woodrow-Lowell words and failed all the four additional words.

A statistical analysis of the concrete-abstract dimension of response was attempted, since:

> ...it was felt that an analysis of the number of concrete and abstract responses given by each S would give a fairly good indication of whether or not his conceptual level of thought corresponded to that found in children. <u>While there are no norms for the particular age levels</u>, it was predicted that a decline in abstract responses and an increase in concrete responses at each lower age level would be found. (p. 165, my ital.)

Three raters judged the tests, and only the 161 of 185 response ratings unanimously agreed to were counted. The groups showed no significant difference ($t = .07$, $P > .90$) when tested in the adult waking state. An analysis of variance revealed no significant difference between the three groups of simulators ($P > .05$), but a $P < .05$ was found for the differences between regressed Ss at each age.

Reiff and Scheerer thus conclude that at each age level a relation between % abstract responses and the regressed condition was shown which could not be attributed to chance. It is possible that the P value for the simulators is not very much greater than .05, and that the results are thus conceptually inflated, but the exact P values are not given in the text.

The authors note that their Es responded in a qualitatively different manner from that reported by Woodrow and Lowell in their study of children, and that the two studies used different methods of response (oral and written).

Summary of Findings:

Reiff and Scheerer report that all five statistical tests for age 10 (regressed vs. simulators) and all six statistical tests for age 7 supported their predictions. At experimental age 4, only two of the five predicted differences were significant. Also, the expected differences in percent of abstract words were significant for both

groups. A $P \leq .05$ was accepted as the criterion for significance. The results are summarized below; "P" in this table indicates a confirmed prediction, "S," significant, and "NS," not significant.

SUMMARY OF STATISTICAL FINDINGS ON COGNITIVE AND EMOTIONAL TASKS
(Reiff and Scheerer, 1959)

Test	Age 10	Age 7	Age 4
Hollow Tube		$Tau_b = 1$ P is .01 (S) P	$Tau_b = .48$ $P > .10$ (NS)
Left & Right	$Tau_b = 0$ (NS) P P is .05 (S) P		$Tau_b = .56$ $P > .14$ (NS)
Arithmetic: a. Level	$Tau_b = .52$ P is .14 (NS) P	$Tau_b = 1$ P is .01 (S) P	
b. Time	$Tau_b = .92$ P is .02 (S) P	$Tau_b = .92$ P is .02 (S) P	
Clock		$Tau_b = 1$ P is .01 (S) P	$Tau_b = .60$ P is .10 (NS)
Mud & Lollipop			P is .04 (S) P
Word Assoc.	$Tau_b = .80$ P is .05 (S) P	$Tau_b = .84$ P is .03 (S) P	$Tau_b = .76$ P is .05 (S) P
Pledge of Alleg.		P is .01 (S) P	
% Abstract Resp.	$P < .05$ (S) P	Difference between all three ages in regressed.	
	$P > .05$ (NS) P	Difference between all three ages in controls.	

The authors also compared the groups over all tasks at all experimental ages:

	C	E
Task performances above the suggested age level:	33	2
Task performances at the suggested age level :	26	51
Task performances below the suggested age level:	1	6

Reiff and Scheerer conclude that:

1. Regressed Ss tended to function at a level consistent with or lower than the experimental age.

2. Simulating Ss tended to function above the experimental age level.

3. The lower the experimental age, the more the simulators tended to function above that level.

4. Regressed Ss tended to behave more consistently than simulators.

They add that "...no statistic can capture the impression of genuineness and spontaneity which the regressed Ss gave, as contrasted with the forced and embarrassed behavior of the simulators." (p. 174)

Reiff and Scheerer's study is, we have said, impressive on many counts, not the least of which is that the authors actively undertake to consider alternatives to their design and to answer possible objections. The predictive powers of these investigators likewise compel respect, and the results tend to confirm significant group differences between their "regressed" and "simulating" Ss. The question to be posed is not so much the empirical one of whether a relationship has been established, but rather the conceptual issue of the meaning of what has been established. The authors are aware of criticism relating to the validity of their criteria, and state that,

> We have assumed the general validity of the qualitative criteria as we adopted them for definite 'stages'... The extent to which these criteria may appear to lack definitive verification is of course subject to further empirical research in this field. (p. 209)

This is putting the matter a bit mildly, since in fact none of the tasks employed in the study has received "definitive verification," and a number of them had never been used in the testing of children. More difficult to understand is that the authors, advising future researchers, name a number of tasks for which norms of children have been established. One, a mammoth study by Piaget and Inhelder, employed 1700 Ss ranging in age from 5 to 16.

Certainly Reiff and Scheerer have demonstrated that groups treated as theirs were will perform with significant differences on various tasks, certainly that they can perform in accord with experimental predictions; certainly too, they have demonstrated nothing which bears on the issue of whether functional schemata unavailable since childhood can be revived in the adult under any condition. This does not, of course, preclude the possibility of experimental confirmation of the criteria employed through research with children, and thus confirmation of the regression.

The authors defend their study against such criticism by maintaining that,

> The important point about hypnotic age regression is not whether it is or is not a genuine representation of a child's world by an adult, but that it could enable us to uncover in an adult earlier levels of cognitive-emotional organization which would supplement our insight into the process of growing maturation and development. (p. 221)

This focus is also implied in the subtitle of their study, "Developmental Aspects of Cognitive Function Explored Through Hypnosis." Yet it must be obvious that it is essential to compare developmental norms thus derived with longitudinal studies of children. If a discrepancy exists between these sets of norms, the burden lies with Reiff and Scheerer to explain why the "earlier levels" disclosed by the method of hypnotic age regression differ from the earlier levels themselves. At this time the important point, it seems, is exactly whether hypnotic age regression "is or is not a genuine representation of a child's world by an adult." If it is not, conclusions such as the following are at best specious:

> In summary, the Clock Test appears to be capable of assessing the performance levels of subjects with respect to the development of spatial-symbolic relations at age seven. (p. 135)

The authors state that "If the results would have been negative, neither age regression nor the developmental criteria could have been verified by this method," (p. 220) yet the same may be said of their positive results. Without sound developmental criteria, the regression cannot be verified, and until regression is verified, it cannot be a reliable tool for the investigation of developmental stages.

Replications of Reiff and Scheerer's work have clarified the importance of demand characteristics for the production of similar results. Orne and O'Connell (1963) utilized simulators motivated to

"fool" the experimenter. They found that subjects judged to be "really" regressed more closely approximated the performance of actual children than did those subjects judged "fake"; also, that simulators considered "real" outperformed hypnotic subjects considered "fake." This suggests that experimenters' expectations were important variables in the production of age-appropriate behavior exclusive of hypnotic intervention.

Troffer (1965) also replicated major aspects of the Reiff and Scheerer study and explored further the possible relationship between role-support offered by the experimenter and childlike hypnotic performance. She found that all "high role-support" subjects--those toward whom the experimenter acted as an adult would toward a child--were perceived as more childlike by the experimenter. There was a tendency for regressed subjects to be more involved in the child's role than were simulators and a slight trend for simulators to outperform regressed subjects on the Reiff and Scheerer tasks. Further, the performance of regressed subjects was significantly correlated with their perceived degree of subjective involvement in the child's role, but not significantly correlated with experimenter ratings of "childlikeness." For simulators, these findings were reversed; that is, performance correlated with experimenter ratings, but not with the degree of subjective involvement.

Both Troffer's study and the earlier work by O'Connell employ increasing sophistication in control groups to determine the extent to which demand characteristics of the experiment influence the results of studies of regression. Each leads to a relevant explanation of the impressive predictive returns of Reiff and Scheerer's original work. Troffer, comparing the results of all three studies, found more "childlike" performance elicited by the Reiff and Scheerer experiment than by either replication:

> ...on those tests for which a specific response was hypothesized, the Reiff and Scheerer regressed subjects gave significantly more childlike responses than the regressed subjects of the other two studies. On those tests for which only a general increase in time or decrease in response tendency is expected, no significant differences are found among the three groups. (1965, p. 103)

As with the original study, conclusions drawn from "childlike" performance on the Reiff and Scheerer tasks are subject to criticism of the criterion measures employed to validate regressive behavior. Troffer's other results are equivocal: While she found a "massive age effect" for the Reiff and Scheerer Word Association task, there was no significant role effect. The Draw-A-Man Test, scored according to the Goodenough-Harris norms, failed to differentiate among the experimental groups and conditions. The test most difficult of simulation--the Huttenlocher Word-Pair Reversal Test--which would require simulating adults to predict a pattern of reversals found in normative sampling of children's responses, was

among the tasks on which age regression was least shown.

Troffer concludes that "The results of this study support the concept of hypnotic regression as an emotionally but not objectively valid experience." While it is true that she has teased out certain of the relations between factors in the experience of regression--memory, subjective feeling, role-playing, demand characteristics--it is less clear, again because of criterion-measure difficulties, that she has demonstrated the objective invalidity of this experience.

ALTERNATE EXPLANATIONS OF HYPNOTIC REGRESSION

Weitzenhoffer (1957) has suggested a threefold classification of the phenomena elicited by hypnotic age-regression instructions: He considers type I regression to be some sort of "role-playing" by the subject, type II to be a "true" return to a prior psychophysiological state of the organism, and type III to be a mixed state involving both role-playing and type II regression. This reference system is an attempt to classify the observed phenomena manifested by an hypnotic subject rather than a theoretical explanation of the process associated with regression. Weitzenhoffer refers to the process itself as "revivification."

Type I Regression

The role-playing concept may be understood in a number of different ways. In one respect when we say that a subject is role-playing, we simply mean that he is utilizing "current memories, recollections or reconstructions of a bygone day," in an attempt to produce the hypnotically-suggested behavior--in this case regression--much as an actor might attempt to produce a stage role. Kubie and Erickson's (1941) "regression" and Reiff and Scheerer's "remembrance" are equivalent terms for this type of regressive

phenomenon.

Also relevant to type I regression is Orne's concept of "demand conditions," that is, those conditions of a situation perceived by the experimental subject as expectations for his performance and which may be at variance with the supposed "experimental variables" influencing his behavior. Experience with simulation controls, the ability of "actors" to fool hypnotists, etc. gave impetus to the generalization which Sutcliffe cites as the "skeptical" view of hypnosis--that "hypnotic behavior is like waking acting." (1961)

This use of the role-playing concept can be tested by comparing the performance of hypnotic subjects with that of "waking simulators." If it is shown that waking subjects perform a particular task in the same manner and with results equivalent to hypnotized subjects, one may draw the conclusion that hypnosis is not necessary to the elicitation of the behavior investigated. This conclusion is warranted in such experiments as comparison of hypnotized subjects and simulators along a dimension of weight-lifting capability, where the hypothesis is that hypnotic suggestion can increase this capability. In studies such as those reported by Orne (1963) in which a hypnotized subject's performance does differ from that of a simulator, the burden lies with partisans of role-theory to explain such a difference, in, e.g., reactions to a hallucination suggested by the experimenter. Orne, in his article, "The Nature of Hypnosis: Artifact and Essence"

(1959) notes further characteristics of the hypnotic state which must be taken into account:

> In sum, the principal 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 clues 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 waking state. (1959, p. 296)

Given these considerations, equivalent performance of hypnotic subjects and simulators might not indicate that no difference exists between hypnosis and acting. As Deckert and West note (1963, p. 227), "A relation between an alternate route and a state does not disprove the other relation, nor does it disprove the existence of hypnosis nor the existence of trance induction." Yet it is precisely this sort of conclusion to which role-taking theory, as elaborated by Sarbin (1950, etc.) tends.

In his early work (1950) Sarbin did suggest that "the role-taking of the stage actor and the role-taking of the hypnotized subject embody the same characteristics," that is, favorable motivation, role-perception, and role-taking aptitude. However, he also stated that "role-enactment depends upon prior experience, either symbolic or overt, in order to build up a percept of a given role," (1950, p. 259) and that "role-taking is the behavior performed by a person in order to validate his occupancy of a particular position or status (as

prescribed by the interact situation) (1950, p. 226). Role-taking theory thus takes on the aura of a general theory of human behavior in social situations. Indeed, Sarbin and Farberow treat the theory in such a way that they can conclude: (1952, p. 119) "The fact that a person can be hypnotized is taken as evidence that he possesses at least a minimal degree of role-taking aptitude." Or, as Edmonston (1962) concludes with equally proper logic, "By these assumptions, then, our entire life is a state of greater or lesser hypnosis." The reason that "role-taking theory in its present form does not lead to specific a priori predictions regarding age-regression," (Edmonston, 1962) is in part that hypnotic phenomena are subsumed under the general categories of role-taking, organismic involvement and the like. There is, on this view, no phenomenon which may be "hypnosis" as opposed to "role-taking" behavior.

Role-taking in its less general form is still a useful concept allowing us to discriminate those instances in which hypnosis is not necessary to the production of a particular phenomenon from those in which it is essential.

Alternatives to "simple" role-taking theory can be based on three types of phenomenon: the subjective experience of the hypnotic subject, the general unavailability of role-playing material, and the "functional ablation" of responses.

By "subjective experience" I mean phenomena related to Orne's criteria for the use of the term "hypnotic state." Both the subject's experience of "really" reliving a particular developmental stage and the experimental instruction to simulate or actualize an age-related experience can be aids in the discrimination of simple role-playing from some other experience.

A study done by Kline (1963) is of interest here. Kline employed the Reid Polygraph and GSR measures to establish a base rate for subjects in resting, waking, and hypnotic states. No major differences were found. However, subjects capable of regression revealed little evidence of lying, deception, or simulation when questioned rigorously as to the reality of the regressed state. Within the hypnotic regressed state, logical and empirical evidence of actual chronological status failed to alter subjects' polygraph tracings when they were questioned as to the reality of their regressed status. The same subjects, however, in both waking and hypnotic states showed "lying" reactions on the polygraph when conscious of their simulation.

The "unavailability of role-playing material" refers to the probability of successful approximation of a role given subjects' and experimenters' expectations of performance. This dimension includes such things as predictions communicated to the subjects directly or covertly--the demand conditions of the experiment--and what Orne (1962), following Brunswik, has called the "ecological

validity" of an experimentally-induced phenomenon. To distinguish simple role-playing from functional ablation (type II) or type III regression, the role-playing material must be relatively inaccessible to the subject. Reyher (1962) has suggested a paradigm which minimizes the accessibility of material and makes clear the distinction between simple role-playing and one of the alternatives:

> 1. The induced process must in no way include clues as to how the experimenter expects the subject to respond in any other respect.

An example of such an experiment is Edmonston's "Experimental Investigation of Hypnotic Age Regression" (1961). An involuntary conditioned reflex was induced and then extinguished in two groups of six volunteer Ss matched for sex and age. There was no difference in rate of acquisition or trials to extinction between the groups. The experimental group was hypnotized and told to visualize a calendar, then regressed to a period prior to extinction (some three weeks). Each group was then presented with further trials. Controls continued to extinguish, while regressed experimental Ss reproduced the mean conditioned responses they had had during acquisition. The experiment is notable, in this context, because "No instructions were given concerning responding or not responding, much less the manner of response expected. In fact, at that point the experimenter himself did not know what the appearance of the response curves would be." (1962, p. 135)

Reyher further suggests that:

2. The induced processes must be response-producing.

Here Reyher refers to the functional aspect of experimentally-induced phenomena. Elsewhere in this paper I have referred to "extension of function," "ecological validity," or "robustness of the regressive behavior," terms represented operationally by a subject's ability to produce appropriate developmental-stage responses on a series of tasks though the suggestions for regression include no clues as to specific task-appropriate behavior.

This last point relates to Reyher's third injunction:

3. Some of the responses must satisfy the defining criteria for inclusion in some classification of (appropriate, predictable psychological behavior).

Reyher's final suggestion is that:

4. Simulation should be employed to determine demand characteristics of the research.

Now simulation is a more complex phenomenon than is usually recognized. In many studies, simulation controls are established by giving waking subjects instructions identical with those given hypnotized subjects. Orne (1963) has added sophistication to simulation conditions by instructing subjects to "fool" the hypnotist. While this addition is useful, the simulation paradigm achieved is, like the less sophisticated versions, a variant of simple role-taking. This may be taken to approximate classical acting, in that the

49

distinguishing characteristic is an actor's performance rather than his subjective state of role-involvement.

This paradigm of simulation is adequate to the elucidation of demand characteristics relating to performance, and, as such, has been used to good advantage by Orne, Barber, and others. In my view, however, the concept of simulation rests as heavily on specifications of subjective experience, or "state" as it does on instructions regarding performance. While simulation condition controls are often used to substantiate the role-playing hypothesis, simulation and role-involvement are actually conceptual opposites.

Since this section is intended only as an introduction to the issues of this study, development of the relevant arguments is left to the chapter on "Experimental Design." Empirical confirmation may be sought in the "Findings" section.

Type II Regression

"Functional Ablation" (type II regression) refers to "the process of reliving under hypnosis the pattern of behavior of the suggested earlier period of life in terms only of what actually belonged there... The present itself and all subsequent life and experience are as though they were blotted out." (Erickson and Kubie, 1941) Positive hypnotic regression results of this type are categorized as "revivification" by Erickson and Kubie (1941) and "memoria" by

Reiff and Scheerer (1959). The so-called "credulous" view, based on such results, states that "hypnotic suggestions are substitutable for real states of affairs as conditions of sensory experience." (Sutcliffe, 1961) Since general role-taking theory can account for such a situation by postulating the "organismic" nature of role-taking aptitude, it was felt that our re-defined view of simulation would provide a more meaningful contrast between type I and type II regression than would the general theory. In the present research, conditions of motivation and involvement have been operationally equated through the use of hypnotic rather than waking simulation, and this hypnotic simulation is taken to operationally approximate an induction for type I regression. The reasons for this choice are set out more fully in a later section.

In summary: Theories of process aside, the categorization of phenomena elicited by hypnotic regression instructions has tended toward a class of role-taking behaviors, or toward "functional ablation." I have suggested several dimensions along which this distinction can be made, the most crucial of which are the "ecological validity" of the phenomenon and the establishment of the ablation of adult responses in the regressed hypnotic subject. If such distinctions cannot be established experimentally, that is, if there is no phenomenon which can be classified as type II regression (a view which Weitzenhoffer supports), the ground of argument about theories of

process in hypnotic regression shifts, or must be discarded. For this reason, discussion of possible process theories--these range from Edmonston's verbal conditioning paradigm (1962) through Kline's neurophysiological theory (1953), the psychoanalytic explanations of Gill and Brenman (1959), and Mcranie and Crasilneck's habit-reactivation model--must be deferred until a clearer idea of the nature of the phenomenon under investigation has been achieved.

THE EXPERIMENT: DESIGN AND PROCEDURE

This study was designed with a view to establishing the validity of elicited "regressive" responses in hypnotic subjects. A strict test of the availability of these responses to the well-motivated adult is proposed.

The criterion measure employed is an indirect-nonsimulable comparison (Yates, 1961), in this case developmental stage interviews (Kohlberg, 1961). Subjects were interviewed under two conditions at a suggested age level which corresponds to the median age of attainment of particular developmental levels in, e.g., the dream concept (Kohlberg, 1961). To be considered regressed, subjects must respond at some consistent level of concept-development. Both the possibility of simulation and the effects of practice should be minimal.

The basic design uses subjects as their own controls to provide a strict test of the availability of the childhood responses, as well as to facilitate design efficiency. All subjects both simulate children's responses and "regress" to childhood; half the subjects simulated prior to regressing and half after regressing. All subjects were in a deep state of hypnosis as defined by the classical criteria for deep trance. The simulation condition thus differs from the

regressed condition primarily in the dimension of suggestions given the subject, with hypnosis common to both conditions.

The complete induction procedure is described below. As far as possible, this induction takes account of Reyher's suggestions for reducing unknown demand characteristics in the experimental model (1962). In other respects it parallels the induction utilized by Reiff and Scheerer (1959) in their age regression work.

The experimental design can be schematized:

	Group A	Group B
First testing:	hyp. simulation	hyp. age regression
Second testing:	hyp. age regression	hyp. simulation

If, under all temporal conditions, subjects when regressed demonstrate a significantly closer approximation of children's conceptual development than the same subjects when simulating, we may say the following:

1. Hypnotic age regression is a necessary and sufficient condition for the re-establishment of cognitive functional schemata of prior developmental stages in adults.
2. Adults who simulate regression are unable, even with the aid of hypnosis, to function at developmentally prior levels. Thus, the responses of childhood are functionally unavailable to adults save in age-regressed conditions.

If subjects respond at prior developmental stages in both the Simulation and Regression conditions, we may say: Both hypnotic simulation and hypnotic age regression are sufficient conditions for the re-establishment of developmentally prior functional schemata. If this result obtains, further control groups will be needed to define the necessary conditions for regression: waking simulators and hypnotized subjects without specific instructions (to test for the regressive implications of standard hypnosis). If both additional groups demonstrate "regression," further experimental work will be indicated.

If no group demonstrates developmental stage regression, we can say that the revival of functional schemata of childhood cannot be achieved by the method of hypnotic age regression. The subjective feeling of childhood reported by regressed subjects might then be explained in terms of demand conditions of the experiment rather than by the concept of regression. Such a result would also suggest that while memory <u>content</u> can be revived in adults through the use of hypnotic techniques, these same techniques cannot facilitate the revival of thought <u>processes</u> peculiar to childhood. This result might also be adduced as indirect evidence for the view that schemata change without leaving a "memory-trace."

Tests

Four developmental tasks (Kohlberg, 1961) were chosen as criterion measures for the present study. In order of presentation to subjects, they are: 1) A Constancy of Substance task in which subjects respond to changes in the shape of pieces of clay and questions about its mass; 2) An Object-Sorting task which requires the spontaneous grouping of objects and a rationale for the groups constructed; 3) A Class Inclusion task, scored both independently and as an item on the Concept-Formation scale (Object-Sort and Class Inclusion); 4) A Dream Interview in which subjects are asked about the origins, locus, visibility, etc., of dreams.

The tasks chosen cover a range of conceptual activity: The Dream Interview is entirely verbal; Class Inclusion presents a simple stimulus coupled with a complex conceptual issue; Constancy of Substance presents a changing stimulus and requires consecutive judgements and the use of feedback information; Object Sorting requires that a subject manipulate, structure and provide concepts for a collection of objects.

The tasks, instructions for test administration and scoring criteria follow. Items "passed" or "correct" are scored +. A passed item is one responded to as an adult would respond. A - score indicates items responded to in a childlike manner. The highest score for each test is usually attained by children above age 7, and by all adults. Thus, lower scores are indicative of performance regression on the tasks.

DEVELOPMENTAL TASKS AND SCORING CRITERIA
(KOHLBERG, 1961)

CONSTANCY OF SUBSTANCE: CLAY TEST

Apparatus: Three balls of clay, each of a different color. Two are the same size.

Introduction: "There are two balls of clay here that I've made just the same. Each one has just as much clay as the other. Will you pick out the two that are the same, that have the same clay?

(After correct choice:) "Now I'm going to keep one and I'm going to give you one. I want each of us to have as much clay as the other. Now look at them. Do we both have the same or does one of us have more clay than the other?" (If one has more, take a bit of clay from one and add it to the other until child says they are same.)

Questions:

1. "Now, watch me. This is what I do. I make mine into a hot dog." "Now I have a hot dog and you have a ball. Do I have the same amount of clay as you do?"

   a. "How can you tell? What makes you sure of that?"

   b. If no answer to a: "What happens when I roll the ball? If the hot dog is longer does it have more clay in it? Why? (not)"

2. If same or no answer on 1: "Now watch. I'm rolling my hot dog longer still....longer still. Now who has the most clay? Why is that? How can you tell?

3. If different on 1: a. "Now I roll my hot dog back into a ball again. Now who has the most clay? Why is that?"

   b. "Now I take a little piece off my ball and leave it here (in sight). Now who has the most clay? Now I take a little piece off your

ball just like the piece I took off my ball and put it there. Now who has the most clay? (Should ans. the same.) "Now I make my ball into a pancake. Now who has the most clay? Why is that?

4. All: "Now I break my clay into three pieces. Do I have the same amount of clay as you? Who has the most clay?"

CLAY TASK: SCORING CRITERIA

Scale Score

4	Conservation for Shape and Division (no failures)
3	Conservation for Shape (fails question "4")
2	Conservation Within Limits (fails "2" and "4")
1	Conservation With Help (fails "1", passes "3" or fails "1" and "3", passes "4")
0	No Conservation (all failures)

Clay "Rationale": Scoring Criteria

Reason

A	Non-Conservation: "Looks Like"
B	Just Looks Like
C	Reversible
D	Began Same

OBJECT SORTING TASK (CONCEPT-FORMATION)

Equipment: Randomly arranged cluster of 3 infants, 3 fathers, 3 mothers, 3 boys, 3 girls, 3 chairs, 3 dogs.

1. "Put them in order. Put the ones together that go together. Why do they go together?" (Require 5 groupings: Record reasons)

   a. (If most groupings are associative) "Put the ones that are the same together here."

2. (Human dolls are now collected and mixed, non-human dolls are set aside. Two pieces of paper are set out.)

   "Now make just two piles out of all the dolls. Put some of the dolls here and some of them there. Put all the ones that are the same, that go together, here. Put all the other ones that go together, that are the same, over here."

   a. (If child is uncertain or does not respond to the above.)

      "We're going to take all these dolls that are together and make two piles out of them. Let's take this boy doll and put it on the paper, here. Now put all the other ones that go with the boy on this paper. Put the other ones that go together here.

OBJECT SORTING TASK: Typology

1. ASSOCIATIVE: sort - No shared attribute in terms of inspection and reasoning, e.g., 2 fathers & 2 dogs

   Includes one or more objects not 'similar' to others in grouping

   verbal - Inclusion based on some action involving both objects, or a relation of liking between them.

   Objects associated in the child's experience rather than subsumed under a common concept.

2. COLLECTIVE: sort - Family groupings: a. one and only one M & F (& kids)
   b. called "family" as a reason

   verbal - A culturally named group of 2 or more individuals defined in terms of some organized pattern of relations to one another rather than possession of a common attribute: e.g., "a store, "a school classroom:

3. DESCRIPTIVE: sort - Similarity in objective physical attribute common to grouped objects, e.g.: color, materials, dress, posture

   verbal - states members "look alike"

4. CATEGORICAL: Groups based on similarity scored thus only if: either
   a. Inclusive of all 3 dolls of category
   b. Includes dolls of more than 1 sub-category

      e.g.: "children"= boy, girl, girl
      "girls"= mother, girl, girl
      baby

5. IDENTITY: All categorical sortings based on class membership rather than shared physical characteristics

   e.g.: "grown-ups"

7

CONCEPT FORMATION: SCORING CRITERIA

Stage I — Figural Collections

1. On request, can make groupings on the basis of similarity (but most groupsing are associational).

Stage II A — Non-figural Collections

2. Associational. Most groupings are not associational.
3. Inclusion. Spontaneously includes all 21 objects in one group or another.
4. Inclusion. Spontaneously includes all members of a class in the relevant class group in more than 50 percent of the spontaneous groupings.

Stage II B — Categorical Classification

5. Complementarity. When asked, constructs a system of two complementary classes including all objects. Examples of complementary classes are males and females, children and adults.
6. Categorical Set. More than 50 percent of weighted groupings are true categorical concepts.

Stage III — True Operational Classification

7. Hierarchy. Understands the quantitative inclusion of a subclass in a higher-order class without probings (i.e., scores 3 on inclusion task).
8. Shifts spontaneously from one system of classification to another. When asked to make just two groups, makes a different set of complementary classes than those used spontaneously. Examples are those in which groupings were initially by sex, and are now by age or vice versa.

8

CLASS INCLUSION TASK

Materials: 3 girl dolls, one boy doll.

"Look, here are some dolls. Some are girls (show them to him) and one is a boy (show it here)."

"Are these girl dolls?" (yes)*
"Is this a boy doll?" (yes)
"Then, tell me, are there more dolls or more girls?"

"Why do you say....(use subject's answer)?"

If the child answers that there are more dolls and explains that it is so because, in addition to the girl dolls there is also one boy doll, terminate the inquiry.

If the child cannot explain or if he answers that there are more girls, ask:

"If I took all the girls away, would there be anyone left?" (yes)
"If I took all the dolls away, would there be any left?" (no)
"Then are there more girls or more dolls here?"
(If now correct): "Why do you say there would be more dolls here?"

---

*Answers in parentheses are those the child should normally give if he understands the questions. If the child does not answer as foreseen, this means he did not understand the question or that he did not pay attention. In such cases, the examiner must repeat the question using the exact wording, until he is sure that the child does not answer at random.

CLASS INCLUSION: SCORING CRITERIA

Level	
0	Says there are more girls than dolls throughout the interview.
1	Says there are more dolls than girls in the course of the interview but no reason can be elicited as to why this is so.
2	Initially says there are more girls than dolls but changes under probing and gives an intelligible reason for the correct answer.
3	Initially says there are more dolls than girls and gives a reason.

DREAM INTERVIEW

Introduction:

"You know what a dream is, don't you? Do you dream sometime during the night? (If he says he does not, go to end of interview, marked ***)

a. (If he says he dreams, ask:) "What did you dream about last time? Tell me a dream you had."

b. "What happened after the dream was over? What did you think and do?"

1. Reality

a. "Was the (object or activity dreamt of) really there?

b. "Was it just that it seemed to be there, as if it were there, or was it really there?"

c. "During the night, when you dream that you are playing, are you really playing?"

(7.) Subjectivity

a. "Why did you dream about that? What made you have that dream?

b. "Then do you know why we dream, why there are dreams?"

3. Origin

a. "Tell me, where does a dream come from, where are they made?"

b. "Do they come from within you or from outside of you?"

(7.) Subjectivity

a. "Who makes the dream come forth?"

b. "Is it you or is it somebody else?"

4. Location

   a. "While you are dreaming, where is your dream, where does it go or in what place is it?"

   b. "Is it inside of you or in your room?"

   c. (If dream is external, ask:) "Is it only that it seems to be in your room, or is it really in your room?"

2. Visibility

   a. "If your mother is in the room while you are asleep and dreaming, can she also see your dream? Why (not)?"

   b. "How about me--could I see your dream if I were in your room while you were dreaming?"

6. Materiality

   a. "If we could look into your head while you are dreaming could we see your dream?" (If not, ask:) "Why not?"

   b. "What is a dream made of?"

   c. "Is it made of paper?"

   d. "Then, what is it made of?"

   e. "Can we touch dreams?"

*** If the child says he did not dream, ask:

   a. "Let's make believe that you dream during the night about a monkey. Would it just seem that the monkey was there, or would the monkey really be there?"

   b. "Let's make believe you dream about a monkey during the night. What would make you dream about that?"

   c. "Then do you know why we dream, why there are dreams?"

(Continue in this vein until interview is complete.)

DREAM INTERVIEW: SCORING CRITERIA

SCALE OF DEVELOPMENT OF CONCEPT OF THE DREAM

Stage I Absolute Realism

Stage II Immediate Realism

Differentiation of the dream-thought from the object thought about, but complete confusion between the internal and the external.

1. Actions or objects of the dream are not really there.

   The following replies are correct (+):

   (Was the object you dreamt of really there? Was it just that it seemed to be there, as if it were there, or was it really there?)
   "It wasn't there." "Wasn't there but I thought it was."
   (During the night, when you dream you are playing, are you really playing?)
   "No."

2. Dreams are not visible to others.

   A correct response if both the following correct replies are given:

   (If your mother is in your room, can she also see your dream?)
   "No."
   (What about me? If I were in your room could I see your dream?)
   "No."

Stage III Mediate Realism

The dream-thought is conceived of as a thing, but as a partly internal one.

3. Dreams do not originate in the external physical world.

   Any of the following replies are correct in response to (Where are the dreams made, where do they come from?):

   "From you," "from some part of the body," "from dreamland," "from God." "Don't know." (If followed by correct response to next question.)

Incorrect replies are:

"From the night," "from the windows," "don't know."

In addition the child is asked: (Do dreams come from inside you or outside?)

Correct replies are the same as the preceding.

Incorrect replies are:

"Outside" (unless preceded by God or dreamland in the first question), "Don't know."

Both replies must be correct or consistent to be scored positive on the scale-item.

4. Thinks dreams may take place inside the body or mind.

A response is scored correct if two or more of the following correct replies are made:

(While you are dreaming, where is your dream, where does it go or in what place is it?)
"In the head, mind," "in you," "in some part of the body including eyes."
(Is it inside of you or in your room?)
"Inside."

(Is it only that it seems to be in your room, as if it was there, or is it really in your room?)
"Only seems to be there."

(When you dream, are your eyes closed or open? Well then (if closed), where is your dream?)
"In the head, mind, body," "in you."

5. Is sure dreams take place inside the body or mind.

Replies correctly to all questions about the location of the dream when it takes place. May believe that dreams come from God or Heaven, but if so believes that the dream goes inside the body before its unfolding within.

Stage IV Subjectivism

Dream thoughts are differentiated from matter and dreams are seen as the product of thought.

6. Dreams are not material things.

(What is a dream made of?)
No concrete physical substance is named.

(Is it made of paper?)
"No."

(Can we touch dreams?)
"No."

(If we could open your head while you are dreaming, if we could look into your head, could we see your dream?)
"No."

7. Dreams are caused in a purely subjective or immaterial fashion by the child himself.

A correct response involves correct replies to all of the following:

(Who makes the dreams come forth?)
"You do." "Your mind." (Some event stimulating the child.)

(Is it you or somebody else?)
"You."

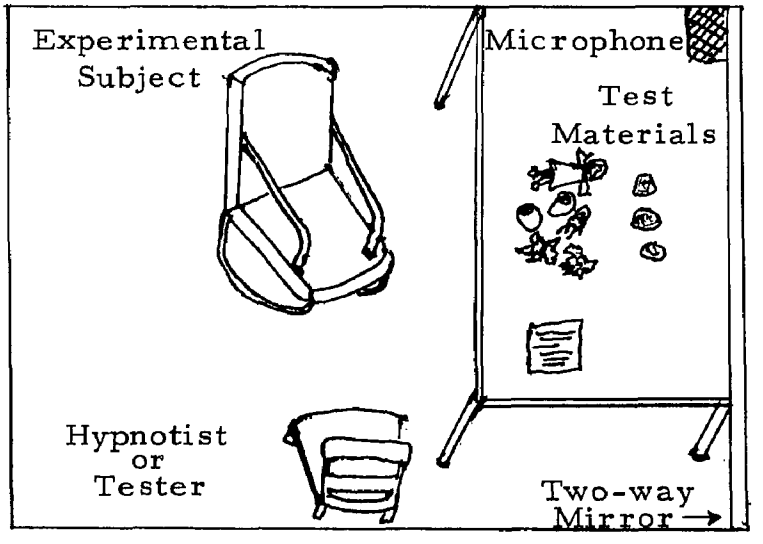
(Why did you dream about that?)
Some explanation of having perceived or heard about the dreamed-about event and some explanation of its having made an emotional impression upon the child. Or it is said to be something the child has been thinking about. A simple statement that the child has seen the thing dreamed about not adequate.
Examples: "Dreams come from your mind. They're things you think of. While I'm awake in bed, I decide what to dream about."
"A dream is something you think in your sleep. I dream of what I'll get for Christmas."

Procedure, Sample, Setting

For the purposes of this discussion, hypnosis may be viewed as a technique or stimulus-control device used to gradually establish two distinct states of awareness and behavior in experimental subjects.

Subjects for this experiment were 20 paid volunteers, students aged 18-25, who had previously been assessed for hypnotizability. All 20--ten male and ten female--scored 10 or above on some form of the standard hypnotizability scales (Stanford Hypnotic Susceptibility Scale, Form A, B, or C, and Harvard Group Hypnotic Susceptibility Scale).

The experiment was performed at the Brooklyn V.A. Hospital, Brooklyn, N.Y., in a room equipped with two-way mirrors (as illustrated below).



The author hypnotized each subject but was not present in the room during the testing situations. Three testers were employed during the course of the experiment and their idiosyncracies did not affect subjects' scores under either experimental condition in a systematic way: $r_{RT} = .02$; $r_{ST} = -.01$. (These values of r are not significantly different from zero by t-test.)

Trance Induction

The subject was greeted, led into the room, and asked to sit in "the comfortable, hypnotic subject's chair." He was asked what he knew about the present experiment (see "Letter to Subjects" in appendices). The hypnotist explained that he would again be hypnotized and would rapidly achieve a very profound depth of trance.

The subject was asked, "How old are you now?" (the first implication of possible subjective age changes to follow) and, "Do you know the difference between childlike and childish?" It was explained that he would have some "childlike" experiences--that is, would act in the way children do--but would not act "childishly," be embarrassed, or feel foolish.

Following this, hypnosis was induced by asking the subject to remember the most pleasant, deeply relaxed feelings he had had during previous hypnosis. This suggestion was coupled with a "shoulder signal," the subject being told that when he was touched on

the right shoulder, he would reach a very deep trance state.

The following patter was used to encourage trance stability and reduce possible embarrassment, both areas noted as difficulties in the work of Reiff and Scheerer (1959):

> With every word I speak, or don't speak, with every movement you make, or don't make, with everyone who enters or leaves the room, with every change, you'll go deeper and deeper into this very interesting and pleasant trance state. Deeper and deeper, for about two hours, until I say, "That's all for today."
>
> Until that time, you'll continue to go deeper: You'll experience many different states of consciousness and of amnesia during this time--and all of them will be resolved at the end of the session, when I say, "That's all for today." Until then, it will be as though one might suspend certain aspects of his reality, perceptions, feelings, or memory for a couple of hours to attend a party.
>
> You'll find that you're able to move, talk, speak, and even open your eyes in the trance, and that each movement, each sound, each word, each sight will deepen the trance and will solidify and stabilize the <u>particular</u> experience and instructions you are having.
>
> It will be as though there's a sort of 'secret understanding' between me and your unconscious mind, to allow you to experience many pleasant and interesting things. If at any time during the testing your unconscious mind notices you merging <u>out</u> of the particular experience and instructions you're having, your unconscious mind will bring you back to it.
>
> At all times, someone you like will be in the room with you and will be sitting right here with you, so everything will go smoothly and pleasantly and you <u>won't</u> be uncomfortable or embarrassed. It could be your own good self, or me, or the tester, a man you'll meet later.

The first paragraph contains suggestions to the effect that whatever happens during the two hours of the experiment will serve to deepen the trance. It prepares the subject for the transition from hypnotist to tester. This aspect of stability, interest, and relaxation in the face of changes both situational and subjective, is expanded in the second paragraph and explicated in the third.

The fourth paragraph contains two sets of instructions: The first, suggested by Erickson (1962), indicates to the subject that he can retain his own experience while complying with the hypnotist. This helps prepare him for the Simulation condition in which he must comply with the hypnotist and attempt to fool the tester (see below). The second instruction builds on the idea of unconscious compliance with suggestions to direct the subject toward trance stability.

Finally, the subject is again told that his comfort will be maintained whether he is alone, with the hypnotist, or meeting the tester. Comfort, relaxation, trance behavior, etc. are thus made contingent on the duration of the experiment, and not on the particular person who deals with the subject. The statement "your own good self" implies that the subject (or his "unconscious") is an adequate agent for hypnotic induction.

The progression of suggestions is such that ideas implied or hinted at in earlier stages become utilized explicitly in later instructions (Erickson, 1965a). For example, the idea of unconscious

processes introduced casually in the trance induction is utilized in the regression suggestions.

Regression Condition

The regression suggestions were devised to include both standardized and individuated methods. A number of possible "ways" into the experience of regression are introduced to the subject, who may then resist one or the other while still complying with the general directive to "regress." The following suggestions were given in a casual tone, but were almost identical for each subject:

INTRODUCTION	Now that things are becoming deeper and easier with every minute, I'm going to tell you about the pleasant, interesting experience you're about to have. You may wish to listen very carefully to the interesting things I'm about to tell you, but they'll register in your unconscious mind whether you pay close attention, or just sit back and watch the hands of the clock going round and round in reverse. You've probably begun to feel that pleasant, quiet air of expectation, something like kids feel when they know they're about to get a present with no strings attached; before they know it, the birthday is there, even if it seems far in the future or long ago.
BEGIN DISSOCIATION INDUCTION	Now I'd like you to imagine that you're watching a small child who looks very much like you. He's wearing handsome party clothes, and he looks very very pleased and happy because he's about to play with the presents at his fourth birthday party. Can you see him clearly? What is he wearing? Do his shoes buckle or lace? Can he tie his own shoes? Very good. (Subject is encouraged to develop and respond to the image of himself as child.)

> While you watch him, and see all the nice things he does, I'm going to continue to talk to your unconscious mind. So, while your conscious mind watches, and feels pleased at watching this four-year-old child who looks so much like you and who is so pleased with things, your unconscious mind will register <u>everything</u> that I say, without any effort on your part, as you sit, pleased and expectant, and watch this little child who looks so much like you.

These suggestions encourage expectation of and participation in the child-experience, yet they allow the subject distance and time to adjust to the new experience. There are also a number of disguised binds which allow for resistance to suggestion or individual accomodation to suggestion without retarding the direction of the regression.

Following this introduction, the subject is confronted with Erickson's (1965a) confusion induction. This is designed to disorient the subject as to time and place, and to prepare him for amnesia during regression. At the same time, such a technique should make the subject more amenable to the direct instructions to follow.

REGRESSION BY CONFUSION (Erickson)

> Everyone knows how easy it is sometimes to become confused as to the day of the week, to misremember an appointment as of tomorrow instead of yesterday, and to give the date as the old year instead of the new. Although today is Tuesday, one might think of it as Thursday, but since today is Wednesday and since it isn't important for the present situation whether it is Wednesday or Monday, one can call to mind vividly an experience of one week ago Monday, that constituted a repetition of an experience of the previous Wednesday. This, in turn, may

remind you of an event which occurred on your birthday in 1958. At this time you could only speculate upon but not know about what would happen on the 1959 birthday, and, even less so about the events of the 1960 birthday, since they had not yet occurred. Further, since they had not yet occurred, there could be no memory of them in your thinking in 1958.

Now people may remember some things and forget others; often one forgets things he is certain he will remember but which he does not. In fact, certain childhood memories stand out more vividly than memories of 1960, 1959, 1958. Actually, every day you are forgetting something of this year as well as last year or of 1958 or 1957, and even more so of 1956, '55 and '54. As for (1950), only certain things are remembered identifiably as of that year and yet, as time goes on, still more will be forgotten.

Forget many things, as naturally as one does, many things, events of the past, speculations about the future; but, of course, forgotten things are of no importance--only those things belonging to the present--thoughts, feelings, events, spontaneous present--only these are vivid and meaningful.

Things at age 4 will be remembered so vividly that you will find yourself in the middle of a pleasant life experience, not yet completed.

REGRESSION: "THE BIOLOGICAL CLOCK"

Everybody knows that clocks can go forward, to register the passing of time, or backward, to indicate time going into the past. Sometimes, in the movies, pages are taken from a calendar, or clocks run backwards, to indicate the passing of time into the past. That's how it is with "outside" time--time you can see. Many people don't know that there's also a kind of "inside" time--time you can't see. Everyone has a kind of biological clock that can really go forward or backward; that can really take you into the past. You can feel that inside clock, even without being

quite aware of it, and we can turn it backwards just by counting; later, we can turn it back to the present, just as easily.

REIFF & SCHEERER INDUCTION (modified)

In a little while I am going to start counting from (S's AGE) back to four. As I count, the biological clock will start to run backwards and you'll become smaller and smaller and younger and younger, so when I reach four you'll be four years old. With each count you'll lose all memory of that year-number, so when we reach four you'll have forgotten everything that happened to you after four. That's the way the biological clock works. When we reach four you'll really be four, celebrating your fourth birthday. You'll move and talk and act and think four years old; it will be easy because you'll really be four and won't be able to think of being anything else: being four will be very happy, and being anything else will seem silly until we count again on the biological clock. So, you'll be four years old. When we reach four, you'll slowly open your eyes and look around the cozy room. I will be somebody you know and like and like to talk to.

I'll give you some clay to play with, and that will be fun. Then, while you play, I'll go out for a moment and bring another grown-up in to play with you. He'll ask you some questions and it will be great fun to answer, almost like getting a present in words and questions.

DISSOCIATION

Now you're watching this little, four-year-old boy who looks so much like you. He goes over to a big, soft couch waiting expectantly to play with a grown-up. You go over and sit on the other side of the couch and watch. Now you edge over to where he is sitting. Now your shoulder dips down and touches his. And now you begin to merge back into him.

When you've completely merged with the little four-year-old boy, your unconscious mind will send a signal that you may or may not be aware of. One of your fingers will rise, by itself, when

you are <u>really</u> the four-year-old boy. <u>COUNT</u>: present age.....four.

The sections following Erickson's "Confusion Technique" contain direct suggestions detailing expected behavior and experience. The "Biological Clock" includes suggestions whereby the subject is encouraged to entertain the idea of regression intellectually and then led into a belief in that possibility. The Reiff and Scheerer induction parallels that used in their 1959 study.

When the subject opened his eyes, he was given a piece of clay and engaged in brief conversation about what he might make with it. He was then asked: "How old are you?" and then, with a firm, quizzical intonation, "How old are you <u>really</u>?" If he answered "four" to each question, the tester was called in and the hypnotist retired. Any other response led to re-induction for regression and, if not followed by correct responses a second time, to elimination from the sample.

Following testing, the subject was requested to "take a nap," and the tester gave the standard shoulder signal. The hypnotist returned, counted "up" to the subject's real age, and gave amnesia suggestions before proceeding to the second condition.

Simulation Condition

The regression condition was designed to maximize subjects' chances for childlike thought and experience with the aid of hypnotic procedures. Characteristic of but not unique to hypnosis is a state of redistributed attention, heightened availability of visual memories and ability for fantasy production, increased responsiveness to suggestions, tolerance for reality-distortion, and facilitated role-behavior (Hilgard, 1965).

The problem of the simulation condition, in terms of this experiment, is to maximize the opportunity for essential equivalence of behavior (thus testing the necessity of the regression induction, cf: Gordon and Freston, 1964) while clearly delineating some distinct state of experience from that of regression. The two conditions are similar in their equivalent motivational conditions--i.e., subjects are used as their own control and both conditions are under hypnosis. Rapport with the tester is essentially equivalent because the tester is not informed as to the order of conditions and is instructed to treat each subject "as though he were a real child" (cf: Troffer, 1965). A "Dissociation" induction is used in each condition, providing some formal similarity, and, of course, the hypnotist is the same in each condition.

These are the barebones similarities; the essential difference between conditions lies in a conception of what constitutes simulation.

To pick through the thicket associated with the "reality" of hypnosis as a "state" and the "role theory," the possibility of autohypnosis under role-playing, the overlapping populations of good role-players (actors) and good hypnotic subjects (see Hilgard, 1965), and other such thorny issues, the following argument was employed:

In considering the act of simulation, we are always somehow aware of Erickson's comment that "the best simulation is actualization." This view, I think, informs both the endless experimental efforts to reproduce hypnotic phenomena under other conditions (Barber, Orne, and others) and the role-view of Sarbin, in which simulation exists along some continuum of involvement in action. To simulate is to "make a pretense of" (Amer. Coll. Dict.) and experimenters are eager to wipe away conceptual distinctions--as between hypnosis and waking role-assumption--when the pretense approaches the action pretended to. In this they implicitly assume an answer to the question posed by J. L. Austin in his essay, "Pretending" (1964): "Is it however the case that at least when we are pretending to do or doing a physical action we are <u>universally</u> debarred from actually doing that action itself?" Consider, for instance, one of the standard Stanford Scale items: A subject is asked to "try" to bend his arm, which he has been told is stiff and rigid. He is asked to pretend to bend it, but not to succeed--to give the appearance of bending it, without actually doing so--for should he actually bend it, he would

fail the item. He is asked in effect to simulate arm bending, and successful simulation is adjudged proof of his hypnotizability! Similar examples are abundant.

Returning to Austin: "That chap over there, he's all right I suppose, he's cleaning the windows, eh?" "Ah, him, he's pretending to be cleaning the windows right enough, cleaning 'em a treat too: but I seen him taking note of the valuables through 'em all the time." To pretend, then, must require, as Austin notes,

> ...trying to make others believe, or to give them the impression, by means of a current personal performance in their presence, that I am (really, only, etc.) abc, in order to disguise the fact that I am really xyz.

Pretending requires then that we do two (or more) things at once. Clearly, if our clever thief forgets that he has come to case the joint, and instead concentrates on the window cleaning exclusively, he is no longer pretending to clean windows. Note that he may clean the windows as well as any union member, but if he at the same time entertains some other directed action, he must be said to pretend to wash the windows. Translating this conception of simulation to the present experiment, I devised a set of suggestions emphasizing consistent knowledge of the reality of adulthood coupled with imitation of children directed to "fooling" the tester. The suggestions, then, are an attempt to operationalize this conception of pretending, or simulation, utilizing the motivational aids tendered by hypnotic

procedures. Hilgard, in discussing the subjective experience of the simulator, notes that "Sham hypnotic behavior, although it may fool an audience, does not fool the subject." (1965, p. 17) The Simulation condition is designed to indicate to the subject that his sham regressed behavior should not fool the subject himself:

DISSOCIATION (Rehearsal)

Now I'd like you to imagine that you're watching a deeply hypnotized adult who looks very much like you. He is wearing (DESCRIBE S's CLOTHING, etc.) and looks very pleased and happy because he's waiting to play a most interesting game. Can you see him clearly? Good. If you watch him closely, you'll see that he's moving, talking, and acting the way he thinks a four-year-old child moves, talks, and acts. Although he's really an adult of (GIVE S's AGE), he tries to move, talk, and act the way he thinks a four-year-old child moves, talks, and acts. He is pretending to be four years old, although he always knows that he is really a deeply hypnotized adult of (S's)years of age.

ROLE-ADOPTION

As you watch, you see him simulate a four-year-old child's movements, speech, actions, and answers with great skill. No matter what the tester says to him he pretends to answer like a child, although he always knows that he is really a deeply hypnotized adult. Now you watch this hypnotized adult who looks so much like you as he sits down on a couch, waiting expectantly to demonstrate his skill at imitating children. You go over and sit on the other side of the couch and watch. Now you edge over to where this deeply hypnotized adult is sitting. Now your shoulder touches his. And now you begin to merge back into him.

When you have completely merged with this deeply hypnotized adult, your unconscious mind will send a signal that you may or may not be aware of. One of your fingers will rise, by itself,

when you are <u>really</u> the deeply hypnotized adult.

TRANSITION TO TESTING

Good. Now listen very carefully. In a little while I'm going to go into the next room and bring (TESTER'S NAME) in to talk with you. Your job is to pretend that you are moving, talking, and answering like a four-year-old child. The tester will not know whether you really know that you are a deeply hypnotized adult or whether you think you are actually a little child. Only you and I will know that you are <u>really</u> a deeply hypnotized adult acting and answering questions the way he <u>thinks</u> a four-year-old child would. At <u>no time</u> during the testing will you really think that you are a child. <u>At all times</u> you will be fully aware that you are a deeply hypnotized adult <u>pretending</u> to answer like a child, and attempting with great intellectual skill to fool the tester, who will not know what condition you are in.

SIMULATION STABILITY

If at any time during the testing you leave this role--if, at any time between my leaving the room and the tester's going to call for me--your unconscious or conscious minds notice you merging out of this deeply hypnotized adult pretending to answer like a four-year-old child--your unconscious mind will bring you back to it. Your eyes will close and finger rise rapidly, the tester will wait, and you will again merge into the role. When you are ready again, perhaps by remembering rapidly all that I have said to you in the last few minutes, your eyes will open, your finger lower, and the testing will continue.

Is all this clear to you? How old are you? How old are you really? Are you hypnotized? Are you a hypnotized adult or a hypnotized child? Good. (CALL TESTER AFTER CORRECT RESPONSES.)

Subject Interview*

After testing in the second condition, the subject was again met by the hypnotist. If the second condition was Regression, the subject was "counted back" to his present age, then asked about the experience. If the Simulation condition was last, the subject was again asked, "How old are you?," etc., and then, "Do you think you fooled him?" After a description of the experience, the subject was asked, "How many times were you tested?," as a check on the amnesia suggestions. Remaining amnesia was then removed, and an interview conducted covering these areas:

1. Trance stability within conditions: comparison of subjective experience in the two conditions, understanding of the conditions, amnesia between conditions, consciousness of self and spontaneity, etc.
2. Aids to accurate reproduction of childlike responses: experience with children ages 3-6, studies in child psychology, knowledge of Piagetian theory, memory of the subject's own childhood, acting training.
3. Demand conditions of the experiment: Subjects were asked, "What do you think was the purpose of this experiment?"

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*The Subject Interview form appears in Appendix 1 .

The subject was then asked if he had any questions of his own, paid, thanked, and dismissed.

FINDINGS

The data for this study consists of scores for three developmental tasks--a Dream Interview, Concept Formation task and Conservation of Mass task--and a set of scored interview questions. To shape the inquiry, we may ask these questions of the data:

A. Is there "true" regression, i.e., Do subjects under either condition perform on the tasks as does a group of chronological children? The major statistical comparison here is based on scalogram analysis (Green, 1956).

B. Do performances under the Regression and Simulation conditions differ from one another, regardless of their equivalence to real children? This question required an analysis of variance design.

C. Given a mixed pattern of scores on the tasks, what factors contribute to the ability to perform like a real child? Here a factor analytic design was employed.

Table 1

Scores on Developmental Tasks for Subjects
Under the Regression Condition*

Task:	Clay Task	Clay Rationale	Concept Formation	Class Inclusion	Dream Interview	Sum*** R
Range:	0-4	A, B, C, D	0-8, NS**	0-3	0-7, NS**	0-22
Subj.						
1	2	C	5	0	1 NS	8
2	0	A	6	0	0	6
3	0	A	5	2	0	7
4	1	C	6 NS	3	1 NS	11
5	0	A	7	3	2 NS	12
6	0	A	7	3	4	14
7	0	A	7	3	0	10
8	3	C	8	3	7	21
9	0	A	3	0	1 NS	4
10	4	D	7 NS	2	6 NS	19
11	4	B	6 NS	3	4 NS	17
12	4	D	8	3	7	22
13	1	C	5 NS	0	1 NS	7
14	3	D	8	3	3 NS	17
15	0	A	7	3	2	12
16	4	D	5 NS	3	3 NS	15
17	1	C	8	3	4 NS	16
18	1	C	5 NS	2	3 NS	11
19	4	D	8	3	7	22
20	0	A	7 NS	0	1 NS	8

*The four developmental tasks and their scoring criteria are described in Appendix 1. Lower scores are developmentally prior to higher ones. The highest score for any task represents the adult level of response (usually attained between ages 6 and 11).

**NS is indicative of a "non-scale" response on the task. NS is assigned when a subject's score-pattern differs from that found to be the norm for children (Kohlberg, 1961).

***The SUM score is obtained by adding scores across task, disregarding scale-pattern. "Clay Rationale" is a nominal index not included in the SUM score.

Two judges agreed .95 on item-scores for subjects rated in Table 1 and Table 2.

Table 2

Scores on Developmental Tasks for Subjects
Under the Simulation Condition

Task:	Clay Task	Clay Rationale	Concept Formation	Class Inclusion	Dream Interview	Sum S
Range:	0-4	A, B, C, D	0-8 NS	0-3	0-7, NS	0-22
Subj.						
1	4	C	6	2	5 NS	17
2	0	A	8	3	0	11
3	0	A	5	2	0	7
4	2	D	7 NS	3	0	12
5	4	D	7 NS	3	6 NS	20
6	3	D	6 NS	3	3 NS	15
7	3	D	6 NS	3	0	12
8	1	A	8	3	6 NS	18
9	0	A	8	3	5 NS	16
10	0	A	5 NS	3	5 NS	13
11	4	D	5 NS	3	5 NS	17
12	4	D	7 NS	3	7	21
13	0	A	6	0	5 NS	11
14	4	C	7 NS	2	3 NS	16
15	0	A	7	3	3 NS	13
16	4	D	7 NS	3	4 NS	18
17	4	D	8	3	3 NS	18
18	4	D	6 NS	3	3 NS	16
19	4	D	8	3	4 NS	19
20	0	A	7 NS	0	7	14

A. Is There "True" Regression?

The clearest performance test of true regression, as was argued earlier in this paper, is the developmental task. Within the group of tasks employed, those requiring a consistent pattern of responses should prove most difficult of intellectual simulation. It will be apparent from cursory examination of the tasks employed in this study (see Appendix 1) that difficulty of simulation is least for Conservation of Mass ("Clay Test") and greatest for the Concept Formation task ("Object Sort" and "Class Inclusion").

The assumption that it is difficult to achieve consistently low--i.e., regressed--scores over the series of tasks is supported by a significant "Tests" variable in the analysis of variance ($p < .001$). That is, mean scores on the various tasks differ significantly. Though this difference is in part an artifact of the greater range of possible scores on the Dream and Object Sort tasks as compared with the Clay and Class Inclusion tasks, if subjects had scored consistently low on all tasks, the statistical difference would not have appeared.

To simulate a child's performance on the Clay task, a subject need make one good guess: "Changed shape = changed mass." To simulate successfully a child's performance on the Class Inclusion task, a subject must guess: "Obvious (adult) answer = 'more dolls.' Therefore, child's answer = 'more girls.'" The Dream Interview requires a type of guess similar to that on the Class Inclusion task--

"child's answer = adult's answer reversed"--but these guesses must form a pattern most of which is "hidden" from the subject.

The Concept Formation task provides no such cues. To simulate successfully on this task requires both successful simulation of the Class Inclusion task--scored as item 7 of Concept Formation--and a guess of the order: "Children, given a set of objects to sort, would make groups xyz and give reasons abc for their choices."

This paradigm of intellectual simulation does not include judgements which the subject must make on each task regarding the rationale for his choices in the task. Since scores derive from the rationale as well as from the performance, simulation is somewhat more difficult than presented. The way in which subjects actually attempted simulation is discussed more fully in later sections.

Dream Interview and Object Sort

A major assumption of Piagetian developmental theory is that the structure of the child's thought is different in kind from that of the adult. That is, there is not "more error" in a child's thought, but a logic in operation different from that employed by adults. Normal adults do not evidence the kinds of thought spontaneous to children. To tap this structural difference, Piaget and others constructed tasks which yield evaluations of thought-process as well as

of thought-product. The responses are ordered in "developmental stages." The prime criterion of a stage theory is that the qualitative levels (stages) form an invariant order of succession. The age of acquisition of levels is variously determined; it is only the sequence which is theoretically invariant (Kohlberg, 1961). Scalogram analysis can be used to evaluate this theoretical invariance in sample populations to determine whether all respondents who display a "higher" stage of some task-concept also display all the earlier stages of this concept.

The use of developmental tasks in the present study simplifies comparison of hypnotically regressed and simulating subjects with real children precisely because of these qualities of the stage theory. If scores conform to age-level responses higher than those of the suggested age (see Review of Literature, above) the respondent may still be judged to have regressed, though his scale pattern approximates that of a 6-year-old child rather than the suggested age of four. The data tabled below show Kohlberg's results for a sample of 64 middle-class children ages 4-8, of whom 47 responded on the Dream Interview and 39 on the Concept Formation task. The results were later replicated with children of other social classes and IQ's (unpublished).

Table 3

Scale of Development in Concept-Formation (Kohlberg, 1961)

Attribute:		1	2	3	4	5	6	7	8	Frequency:	
		Same.	Ass.	Incl.	Inc.	Comp.	Cat.	Hier.	Shift	Scale Type	Non-Scale Type
Scale Type:	8	+	+	+	+	+	+	+	+	2	1
	7	+	+	+	+	+	+	+	-	1	
	6	+	+	+	+	+	+	-	-	3	1
	5	+	+	+	+	+	-	-	-	1	1
	4	+	+	+	+	-	-	-	-	6	
	3	+	+	+	-	-	-	-	-	5	2
	2	+	+	-	-	-	-	-	-	9	
	1	+	-	-	-	-	-	-	-	4	
	0	-	-	-	-	-	-	-	-	3	
	$\frac{n}{n}$										

Reproducibility (Rep_A) = .984

Chance reproducibility (Rep_I) = .896

Index of Consistency (I) = .85

Standard error of reproducibility $\left(\hat{\sigma}_A\right) \approx .01$

Table 4

Scale of Development of Dream Concept (Kohlberg, 1961)

Attribute:		1 Real	2 Vis.	3 Origin	4 Locus	5 Locus	6 Mater.	7 Subj.	Frequency: Scale Type	Frequency: Non-Scale Type	Median Age of Type
Scale Type:	7	+	+	+	+	+	+	+	9		7, 10
	6	+	+	+	+	+	+	-	2	1	6, 5
	5	+	+	+	+	+	-	-	7	1	6, 5
	4	+	+	+	+	-	-	-	8	4	6, 4
	3	+	+	+	-	-	-	-	2	3	5, 4
	2	+	+	-	-	-	-	-		1	5, 0
	1	+	-	-	-	-	-	-	5		5, 0
	0	-	-	-	-	-	-	-	4		4, 8
	n	41	36	33	32	19	15	9	37	10	
	$\frac{n}{n}$	6	11	14	15	28	32	38			

Reproducibility (Rep_A) = .965

Chance reproducibility (Rep_I) = .839

Index of Consistency (I) = .83

Standard error of reproducibility $\left(\hat{\sigma}_A\right) \approx .01$

In a perfect Guttman scale, an individual's score bears a one-to-one relationship with his response pattern; his item responses are completely specified by his score. In such a situation the Coefficient of Reproducibility (Rep_A), which indexes the relationship between score and response pattern, will be unity. Thus, a subject scoring 3 on, say, the Dream Interview, will have a response pattern of: +++----; one scoring 4 will have a pattern of: ++++---, and so on.

Responses of this sort are "scale" responses. Mixed patterns of response, such as +-++---, will have equivalent scores to scale responses (here, 3) yet the response pattern will not be directly specified by the score. Non-scale responses will depress the Coefficient of Reproducibility, unless marginal values are high. To evaluate this possibility, Green (1956) developed a set of summary statistics for scalogram analysis.

Chance Reproducibility (Rep_I) indexes the reproducibility obtainable if the items of the task were mutually independent. The Index of Consistency (I) is a statistic of scalability which equals unity when items are perfectly scalable and zero when items are mutually independent. $I = \frac{Rep_A - Rep_I}{1 - Rep_I}$. Green suggests $I = .50$ as an acceptable criterion for scalability.

The formulae for computation of the Coefficient of Reproducibility, Chance Reproducibility, and the Index of Consistency, as well as the estimated standard error of Rep_A appear in Appendix 2. These

summary statistics allow quantification of the subjective criteria for reproducibility debated by Guttman (1947), Festinger (1947), and others.

The evidence suggests that the scales developed by Kohlberg from his sample of 4-8-year-old children are highly reproducible. Tables 5 and 6 show the results obtained for each task under the Regression (R) and Simulation (S) conditions of the present study.

For the task most difficult of simulation, the Object Sort, Reproducibility is high under both conditions. However, as the unacceptably low I demonstrates, the Reproducibility is spuriously high. This results from the many items with high modal frequency (n_g). Further, the item order obtained by hypnotic subjects--R: 12345678; S: 13257864--differs from that obtained by Kohlberg. (That the condition R subjects' order approximates that of real children better than that of the condition S subjects is of interest and will be discussed below.)

Results for the Dream Interview are similar; unacceptably low Consistency (I = .43 for R, I = .37 for S), and item order seriously at variance with that found for chronological children. Item order for children on the dream is, of course, 1234567. The hypnotic subjects' responses are most highly reproducible in an ordering of R: 2374615 and S: 2371465.

Table 5

Scaled Responses of Experimental Subjects: the Concept-Formation Task

		Regression Condition										Simulation Condition							
Item(i)		8	7	6	4	5	3	2	1			4	6	8	7	5	2	3	1
Rank Order (g)		8	7	6	5	4	3	2	1	Scale Score	Scale Score	8	7	6	5	4	3	2	1
Subj.	1	+	+	+	+	+	+	+	+	8	8	+	+	+	+	+	+	+	+
	2	+	+	+	+	+	+	+	+	8	8	+	+	+	+	+	+	+	+
	3	+	+	+	+	+	+	+	+	8	8	+	+	+	+	+	+	+	+
	4	+	+	+	+	+	+	+	+	8	8	+	+	+	+	+	+	+	+
	5	+	+	+	+	+	+	+	+	8	8	+	+	+	+	+	+	+	+
	6	-	+	+	+	+	+	+	+	7	7	+	+	-	+	+	+	+	+
	7	-	+	+	+	+	+	+	+	7	7	-	+	+	+	+	+	+	+
	8	-	+	+	+	+	+	+	+	7	7	-	+	+	+	+	+	+	+
	9	-	+	+	+	+	+	+	+	7	7	+	+	+	+	-	+	+	+
	10	+	-	+	+	+	+	+	+	7	7	+	+	+	-	+	+	+	+
	11	+	-	+	+	+	+	+	+	7	7	+	-	+	+	+	+	+	+
	12	-	-	+	+	+	+	+	+	6	7	+	+	+	-	+	+	+	+
	13	+	+	-	-	+	+	+	+	6	6	+	+	-	-	+	+	+	+
	14	-	+	-	+	+	+	+	+	6	6	+	+	-	-	+	+	+	+
	15	-	-	-	+	+	+	+	+	5	6	-	-	+	+	+	+	+	+
	16	-	-	-	+	+	+	+	+	5	6	-	-	+	+	+	+	+	+
	17	-	-	+	-	+	+	+	+	5	6	-	-	+	+	+	+	+	+
	18	-	+	-	-	+	+	+	+	5	6	-	+	+	+	+	-	+	+
	19	+	-	-	-	+	+	+	+	5	5	+	-	-	-	+	+	+	+
	20	-	-	-	-	-	+	+	+	3	5	-	-	-	+	+	+	+	+
	ng	9	12	13	15	19	20	20	20			13	14	15	15	19	19	20	20
	$n\bar{g}$	11	8	7	5	1	0	0	0			7	6	5	5	1	1	0	0

$Rep_A = .9572$	Reproducibility	$Rep_A = .9447$
$\hat{\sigma}_A \approx < .02$	Standard error of reproducibility	$\hat{\sigma}_A \approx < .02$
$Rep_I = .9227$	Chance reproducibility	$Rep_I = .9161$
$I = .45$	Index of Consistency	$I = .34$

Table 6

Scaled Responses of Experimental Subjects: the Dream Interview

		Regression Condition									Simulation Condition						
Item (i)		5	1	6	4	7	3	2			5	6	4	1	7	3	2
Rank Order (g)		7	6	5	4	3	2	1	Scale Score	Scale Score	7	6	5	4	3	2	1
Subj.	1	+	+	+	+	+	+	+	7	7	+	+	+	+	+	+	+
	2	+	+	+	+	+	+	+	7	7	+	+	+	+	+	+	+
	3	+	+	+	+	+	+	+	7	6	-	+	+	+	+	+	+
	4	+	-	+	+	+	+	+	6	6	-	+	+	+	+	+	+
	5	-	+	-	+	-	+	+	4	5	+	-	+	-	+	+	+
	6	-	+	-	+	+	+	-	4	5	+	-	+	-	+	+	+
	7	-	-	+	+	+	-	+	4	5	-	+	+	+	+	-	+
	8	-	+	+	-	-	+	-	3	5	-	+	+	+	+	+	-
	9	-	-	-	+	-	+	+	3	5	-	+	-	+	+	+	+
	10	-	-	-	-	+	+	+	3	4	-	+	+	+	+	-	-
	11	-	+	-	-	-	-	+	2	4	-	+	+	-	-	+	+
	12	-	-	-	-	+	-	+	2	3	-	+	-	-	-	+	+
	13	-	-	-	+	-	-	-	1	3	-	+	-	+	-	+	-
	14	-	-	-	-	-	+	-	1	3	-	-	-	+	+	-	+
	15	-	-	-	-	-	-	+	1	3	-	-	+	+	-	-	+
	16	-	-	-	-	+	-	-	1	3	-	-	-	-	+	+	+
	17	-	-	+	-	-	-	-	1	0	-	-	-	-	-	-	-
	18	-	-	-	-	-	-	-	0	0	-	-	-	-	-	-	-
	19	-	-	-	-	-	-		0	0	-	-	-	-	-	-	-
	20	-	-	-	-	-	-	-	0	0	-	-	-	-	-	-	-
	ng	4	7	7	9	9	10	11			ng 4	11	11	11	12	12	13
	$n\bar{g}$	16	13	13	11	11	10	9			$n\bar{g}$ 16	9	9	9	8	8	7

$Rep_A = .8864$	Reproducibility	$Rep_A = .8722$
$\hat{\sigma}_A \approx < .03$	Standard error of reproducibility	$\hat{\sigma}_A \approx < .03$
$Rep_I = .8002$	Chance reproducibility	$Rep_I = .7962$
$I = .43$	Index of Consistency	$I = .37$

These results suggest that on the most difficult tests of developmental stage regression, hypnotic subjects do not successfully approximate the performance of chronological children. This holds true under conditions of hypnotic simulation and hypnotic regression. The evidence, then, weighs against "true" developmental regression (Weitzenhoffer's type II).

Thus, hypnotic subjects do not perform as children. Yet they do not perform as adults, either, since adults would be expected to consistently score at the highest levels of each task (reached by most children at age 7-8). The pattern of responses given by our experimental subjects is best conceptualized as a "mixed" regression (Weitzenhoffer type III) in which some items are answered in a child-like manner, some like adults. On the strictest criterion of regression, though, a consistent pattern of "scale-type" responses defines a "true" regression. What can we then say of the pattern of mixed responses given by our subjects?

Consider Shor, Orne and O'Connell's (1963) study, which found that a small sample of real children did not perform in the manner of the hypnotically regressed adults on Reiff and Scheerer's (1959) tasks. Let us assume that the sample of children used by Shor is representative of the population of chronological children. If this is so, then Reiff and Scheerer's results substantiate not that regressed adults can think and act as chronological children do, but that there is

a commonly held adult view of children's behavior which changes systematically according to the "experimental age" suggested to regressed hypnotic subjects. On this model, a hypnotized subject asked to do any non-simulable X (regress to the womb, become a real chair, speak Swahili) will do Y (curl into a ball, posture like a piece of furniture, babble) in an attempt to please the hypnotist (or to meet demand conditions of the experiment). Hence, we may expect mixed (non-adult, non-child) patterns of response in a non-simulable hypnotic event such as developmental stage regression. Utilizing this model, we might explain Reiff and Scheerer's results by saying that the subjects produced the mixed pattern of responses and thus an adult's conception of children's performance. Nor need we deny Reiff and Scheerer's results on the basis of demand condition cues. The tasks were developed by Scheerer exactly on the basis of his (adult) conception of a child's probable responses! On this model too we can explain the high incidence of belief in regression by observers, since their perception of the regressed subject's responses is based on this same adult conception of how children act.

There is, however, some difference in pattern of responses under the two conditions, suggesting that possibly two separate adult conceptions of children are in play under the two experimental conditions. This question will be examined in the discussion section, with reference to testers' guessing the subject's condition and the means

utilized by subjects to approximate the demand conditions of Regression and Simulation.

Class Inclusion and Clay Task

These tasks may be easily simulated, and so provide no strict test of developmental regression. They do, however, provide comparison of experimental subject and chronological child which may prove instructive.

The score on Class Inclusion is entered in the scale score for Concept Formation on a pass (+) or fail (-) basis, where a score of 3 is pass, and 0, 2, or 1 fails. On this task 60% of the subjects passed in the R condition and 75% passed in the S condition. Of Kohlberg's four-year-olds, only 6% passed the item.

The Clay Task provided two measures; developmental level and type of rationale used to justify conservation. Tables 7 and 8 show Kohlberg's findings.

Table 7

Percent of Children Showing Conservation of Mass at Four Ages (Kohlberg, 1961)

Level:	0	1	2	3	4
	No Conserv.	Conserv. with Help	Conserv. within Limits	Conserv. for Shape	Conserv. for Shape & Division
Age:					
4	87	00	07	07	00
5	93	00	00	07	00
6	25	06	25	13	31
7	07	13	00	00	80

Table 8

Percent of Children at Four Ages Giving Various Reasons for the Conservation of Substance (Kohlberg, 1961)

	A	B	C	D
Reason:	Non-Conservation, Looks like	Just looks like	Reversible	Began Same
Age: 4	100	00	00	00
5	93	07	00	00
6	50	25	13	13
7	20	27	13	40

The experimental subjects' scores, expressed as frequencies, were:

Table 9

Percent of Experimental Subjects at Each Level of Conservation

Level:	0	1	2	3	4
Condition R	40	20	05	10	25
Condition S	35	05	05	10	45

Percent of Experimental Subjects Giving Various Reasons for Conservation

Reason	A	B	C	D
Condition R	40	05	30	25
Condition S	40	00	10	50

The appropriate statistical test--Kolmogorov-Smirnov Two-Sample Test--requires equal n (with $n < 40$) and so could not be used. Instead, the One-Sample version of this test was employed, with expected frequencies generated from Kohlberg's obtained results.

Table 10

P Values for Kolmogorov-Smirnov One-Sample Test: Comparison of Expected Frequencies (from Kohlberg's Sample of Children) with Frequencies Obtained from Adult Experimental Subjects

	Clay Test	
	Experimental Condition R	Experimental Condition S
Kohlberg Sample, Age: 4	$< .01$	$< .01$
5	$< .01$	$< .01$
6	$< .05$	ns
7	$< .01$	$< .05$

	Clay Rationale	
	Experimental Condition R	Experimental Condition S
Kohlberg Sample, Age: 4	$< .01$	$< .01$
5	$< .01$	$< .01$
6	$< .01$	$< .01$
7	ns	ns

The results demonstrate that the distribution of scores among various scale levels of the Clay Task was significantly different from that generated by chronological children, save for the Simulation condition responses corresponding to children aged 6. On the more critical test of the distribution of rationales for conservation, subjects differed from real children except at age 7. The 6-7 cutoff point defines a limit to "child-level" scores, so that subjects' approximation of children's responses for these ages is less convincing evidence of regression than responses in the proportions obtained from true four-year-olds.

We may conclude that on easily simulable tasks, as well as those more difficult of simulation, a group of highly hypnotizable subjects does not respond at developmental levels with a frequency similar to that of real children. The fascinating and difficult question of what occurs in those subjects for whom scores are low (i.e., like those of real children) or during those instances in which subjects produce childlike answers, will be considered along with the factor analytic results of section C below.

B. Do Performances Differ Under Simulation and Regression Conditions?

A 2x4x2 Split Plots Analysis of Variance design was used to answer this question. In the table of results (11) "Orders" refers to the differential effects of giving the R condition or the S condition first to subjects. (C) is the "Conditions" effect. "Tests" has been discussed in section A.

Table 11

Analysis of Variance

Source*	SS	df	MS	F	p
Orders (O)	1.1125	1	1.1125	<1	ns
error a	160.5125	18			
Conditions (C)	12.7125	1	12.7125	6.356	<.05
Tests (T)	528.5750	3	176.1920	88.096	<.001
C x T	1.6625	3	.5542	<1	ns
O x T	9.5625	3	3.1875	1.590	ns
O x C	4.5000	1	4.5000	2.250	ns
O x T x C	5.3750	3	1.7920	<1	ns
error b	251.9875	126			

*2 Orders: Regression-Simulation, Simulation-Regression (10 Ss per order); 2 Conditions: Regression, Simulation; 4 Tests: Conservation, Concept-Formation, Class Inclusion, Dream Interview.

The results are relatively straightforward: no interaction effects were significant, but two of the main effects are significant at $p < .05$. The non-significant Orders effect suggests that the order of

administration of experimental conditions did not significantly affect the variance of summed task scores; orders were not differentially productive of greater or fewer numbers of childlike responses. This result is at variance with Hilgard and Tart's (1967) report that the SR order produced significantly more childlike responses than the RS order. The significant Tests effect has been discussed.

The major finding of this analysis is the small but significant conditions effect (C). This suggests that even if subjects are used as their own controls, the R condition is productive of a greater mean number of childlike responses than is the S condition (disregarding, for this analysis, the pattern of responses). Troffer (1965) found that there was a slight tendency for hypnotizable simulators to perform at lower levels than regressed subjects on her measures of regression. As in the Tart and Hilgard study just cited, Troffer did not use subjects as their own control. Hilgard (1965) also cites evidence to the effect that subjects used as their own control will show increases in suggestibility as a result of hypnotic induction, and that the small effects attributable to induction exceed the effects attributable to motivation and expectation alone. Again, evidence from studies with separate control groups tends to be in the opposite direction to Hilgard's results. For subjects used as their own control, though, and with the simulation condition employed in this study, the regression induction is productive of significantly more childlike responses than the simulation induction.

Analysis by Tests

Regressive performance on the developmental tasks may be analyzed in terms of sum scores (by condition), as in the preceeding section. Analysis of the consistency of scores over tests provides further differentiation of performance between conditions. Table 12 details these relationships.

Table 12

Correlations of Test Scores Within Conditions and of Test Scores Under Regression and Simulation

	Regression (R)				Simulation (S)			
	Clay	C-F	Incl.	Dream	Clay	C-F	Incl.	Dream
Clay (R)	X	.29	.36	.75				
C-F (R)	.29	X	.59	.59				
Incl. (R)	.36	.59	X	.52				
Dream(R)	.75	.59	.52	X				
Clay (S)	.42*	.28	.52	.34	X	.01	.37	.11
C-F (S)	-.07	.24	-.02	.15	.01	X	.18	.09
Incl. (S)	.21	.14	.60	.37	.37	.18	X	-.26
Dream(S)	.40	.14	-.13	.50	.11	.09	-.26	X

Clay = Constancy of Substance Task
C-F = Concept-Formation Task
Incl. = Class-Inclusion Task
Dream = Dream Interview

R = Regression Condition Test Administration
S = Simulation Condition Test Administration

* Numbers in the diagonal of the lower left quadrant of this table are those detailing correlations of the same test between conditions.

The correlation matrix in Table 12 may be ordered into a set of average intercorrelations. Thus, the average intercorrelation of tests under the Regression Condition is .53. Test scores under the Simulation Condition attain an average intercorrelation of .08. A t-test between these two average intercorrelations is significant at $P<.01$ (two-tailed $t=3.72$, with 10df). Similarly, the reliability of the average test-score is .82 for the Regression Condition and .21 for the Simulation Condition (by Spearman-Brown Prophecy Formula).

These results suggest that performance on various tasks under the Regression Condition is highly consistent from test to test. Under the Simulation Condition, performance on the various tasks is independent from test to test. In fact, scores on tests under Simulation correlate more highly with scores on tests under Regression than they do with each other:

Table 12a

Average Intercorrelation of Tests by Condition

	Regression	Simulation	
Regression	.53		
Simulation	.34	.08	

The small, but significant, "Conditions" variable based on Analysis of Variance of the sum scores (by condition) is amplified by these results. We now have some basis for asserting that performance measures under Regression form a unitary performance variable, while the same performance measures, given to the same subjects under Simulation, form a series of independent variables. This finding might also be stated as follows: Test scores under the Regression Condition provide a reliable measure of performance regression.

C. What Factors Contribute to the Scores?

Interview data was collected on each subject and scores assigned to the following items: *

Knowledge of Child Psychology (K): Courses in child psychology and knowledge of Piaget's theory (items E 2 and E 3 from the Subject Interview) were each assigned a score of 2, 1, or 0, with 0 indicating no knowledge, 1 a moderate amount, and 2 substantial knowledge or moderate knowledge and active use of the knowledge in the experimental conditions. The sum of these items yielded K.

Experience with Children (X): Subjects scored 2 if they had considerable custodial experience with children, 1 for moderate experience and 0 for no such experience (from item E1 of the Subject Interview, Appendix 1).

Memory of Childhood (M): Very good memory of the subject's own childhood was assigned a score of 2, spotty memory was scored 1 and a report of no memory of one's own childhood scored 0.

Amnesia (Am): Am was obtained by summing the amnesia check items of the interview, with 2 scored for excellent amnesia, 1 for moderate amnesia, and 0 for lack of stated amnesia for experiences during the experiment.

Acting Experience (Ac): Subjects scored 2 if they had considerable experience as actors, 1 for moderate experience, 0 for no experience. High scores would indicate training in role involvement of the sort Sarbin and Andersen (1967) refer to in their reformulation of role-enactment theory.

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* Scores may be found in Appendix 3: Interjudge agreement (2 judges) = .95 for the scored interview data.

Understanding of Demand Conditions (Ds, Dr): Subjects who gave an accurate assessment of the "purpose" of the Simulation condition scored 1 on Ds; those who gave "Don't Know" or variant responses scored 0. Similar scoring yielded the Dr for the Regression condition.

Tester's Guess (G): The tester was asked, after each test administration, to guess the subject's condition. A score of 2 indicates a firm, correct guess on both conditions. 1 is scored for indecisive guesses--where the tester indicated some difficulty in deciding--and for those correct guesses arrived at only after the second test administration had been completed. 0 was scored for a firm, incorrect guess on each condition.

Stability of the Experience (St): We might expect that if the Regression condition enables subjects to give more childlike responses, stability of this experience would be productive of lower task scores. Similarly, if the simulation paradigm is well founded, instability during this condition--that is, slipping into the role of a child rather than pretending to be one--would also yield lower task scores, hence more "regression" in performance. The "simulation stability" suggestions were conceived to provide an index of trance stability. We might count the number of times a subject gave the finger signal under R and under S and so have an estimate of his

condition-instability. Unfortunately, only three subjects-- 4, 8 and 12 -- gave such signals. As an alternative to this exact scoring, subjects were assigned a rough score of 1 or 0 for each condition, based on their reported stability during the condition. The results of this scoring showed correlations with condition not significantly different from zero (by t-test): $r_{RSt_r} = -.09$ and $r_{SSt_s} = -.05$. The scoring used is considered unsatisfactory, and the items were not included in the factor analysis.

Scores for R and S were obtained by summing the four task scores for each condition. Note that low scores for R and S indicate more "regressive" performance. A negative correlation, such as $r_{RAc} = -.17$, thus indicates that the more experience a subject has as a "method" actor, the lower his scores under the Regression Condition. A positive correlation, such as $r_{SAc} = .20$, indicates that the less experience a subject has in acting, the lower his scores under the Simulation Condition.

In interpreting the correlations and factor analysis, it should be borne in mind that n=20 is quite low, and thus the correlations--extrapolated to populations of good hypnotic subjects-- are highly unstable. For example, for $r_{RS} = .61$, fiducial limits are +.21 and +.82 (P=.05). The following discussion should be understood to be restricted to analysis of the sample population, since no reliable conclusions can be drawn about the true population values.

Table 13

Correlations Among Interview Items and Between Interview Items and Conditions

	R	S	Ds	Dr	G	Ac	M	Am	K	X
R	X									
S	.61	X								
Ds	.48	.38	X							
Dr	.45	.30	.18	X						
G	-.09	-.04	-.45	.20	X					
Ac	-.17	.20	.07	.39	.23	X				
M	-.08	-.22	.24	.00	-.25	.00	X			
Am	.08	-.02	-.02	.04	.09	-.41	-.25	X		
K	.11	-.05	.10	-.26	.04	-.12	.06	-.39	X	
X	-.44	.01	-.39	-.07	-.16	.00	-.13	-.01	-.08	X

R = Sum Regression Condition Score

S = Sum Simulation Condition Score

Ds= Understanding of Demand Conditions (simulation)

Dr= Understanding of Demand Conditions (regression)

G = Tester's Guess

Ac= Acting Experience

M = Memory of Childhood

Am= Amnesia

K = Knowledge of Child Psychology

X = Experience with Children

The Factor Analytic Study

Rotation of the factor matrix to simple structure yielded three orthogonal factors (I, II and III) with loadings of the ten variables previously described. Communalities were estimated from maximum absolute row values in the matrix of correlations (Table 13).

Table 14

Rotated Factor Matrix

	Factors			
Variable	I	II	III	Communality
R	.93	.15	-.02	.89
S	.63	.03	.20	.44
Ds	.72	-.26	-.33	.69
Dr	.34	-.13	.61	.51
G	-.08	.21	.54	.34
Ac	-.02	-.45	.50	.45
M	-.07	-.47	-.22	.28
Am	.02	.66	-.01	.44
K	.05	-.21	-.33	.16
X	-.38	.09	.02	.16

Factor I accounts for over 80% of the variance in sum scores under the Regression Condition and over 40% of the variance in sum scores under the Simulation Condition. This factor accounts for virtually the entirety of the common variance of R and S, and represents a substantial aspect in which performance on tests under the two conditions is qualitatively alike. Factor I may be thought of as "outcome by test performance," where test performance is conceived of as the sum score of instances of childlike response over tests. Differences on performance between tests and between conditions have been discussed in sections A and B of the Findings (above).

The major associated variable clustering with R and S on Factor I is Ds, the subject's reported understanding of the Simulation Condition demands and instructions. Some 50% of the variance of Ds loads on this factor. Small loadings (10-15% of the variance) of Dr and -X also appear. In this context, a variable negatively associated with one of the performance measures (e.g.: r_{RX}= -.44) may be thought to contribute to childlike regressive performance on the developmental tasks. (High scores of R or S indicate little performance-regression).

Factor I describes the following situation:

1) It appears that, contrary to expectation, knowledge of demand conditions is a hindrance to

good regressive performance on the developmental tasks. More descriptively; A rational orientation to tasks, i.e., following a demand to maintain awareness of reality, seems, for the sample population of the present study, to be associated with low levels of regressive performance. This is especially the case for subjects who grasp the intellectually complicated Simulation Condition instructions.

2) To some smaller degree, custodial experience with children (X) is associated with high levels of childlike performance on the developmental tasks. As the correlation matrix (Table 13) indicates, this association holds for regression scores under the Regression Condition ($r_{RX} = -.44$), but not for scores under the Simulation Condition ($r_{SX} = .01$).

3) Other variables are negligibly associated with regressive performance as measured by sum scores over tests in the experimental conditions.

Factor II exhibits an interesting structure in which the major associated variables are Am (reported amnesia between experimental conditions), -Ac (acting experience) and -M (reported degree of memory of one's own childhood). We might have expected amnesia to be highly associated with the Factor I cluster, indicating that separation of the conditions by amnesia instructions has effects on performance scores. However,

amnesia has negligible associations with sum scores under both conditions: r_{RAm}= .08; r_{SAm}= -.02. Factor II exhibits a structure suggestive of a personality-trait constellation:

Moderate loadings (20-25% of the variance) of Ac and M are negatively associated with Am. That is, the availability of childhood memories and of role-playing experience is negatively correlated with reported amnesia. Hilgard reports a study conducted in his laboratory (Clemes, 1964) in which "posthypnotic amnesia turned out to show many of the characteristics ordinarily attributed to repression..." Thus, persons high on hypnotic amnesia might be expected to be those who repress relevant childhood memories. They are also unlikely to become involved in role-related experiences (r_{AmM}= -.25; r_{AmAc}= -.41).

In the present study, the hypothesized personality constellation was unrelated to the variability of regressive performance.

Factor III, like Factor II, has no substantial test-performance loading. The major triad of associated variables for this factor is: Dr (the subject's reported understanding of the Regression Condition), G (tester's guess of the subject's condition), and Ac. More than 25% of the variance for each variable is accounted for by this factor.

Factor III describes the variables associated with the evaluation of a subject's experimental condition by the tester. This factor, while not central to the interpretation of the variability of regressive performance, is of interest because it gives some shape to the interpretation of the place of role-taking experience in regression. Those subjects whose actions under the two conditions were sufficiently different and demonstrative to allow testers to make firm, reliable guesses as to condition, were those with experience as role-players and those who understood the demands of the Regression Condition.

Acceptance of the subject's role-playing, and/or accurate assessment of the role being played, is associated with acting experience and with understanding of instructions detailing belief in childhood status, diminished intellectualization, spontaneity and the other suggested actions of the Regression Condition. Factor III thus clarifies an interpersonal aspect of the Regression-Simulation distinction, as the analysis by tests (see above) clarified performance aspects of this distinction. Experiential differences between conditions are discussed at some length in the following chapter.

The orthogonality of "outcome by test performance," a personality constellation and "tester's evaluation," deserves comment. In previous studies (e.g., Troffer, 1965) tester's evaluation and role-relationships were found to be significantly related to outcome measures based on test performance. For the group of subjects utilized in the present study, such results do not obtain. One reason for this is the rather obvious fact that testers were instructed to treat all subjects alike, rather than to vary role relationships. A corollary, and more important reason, is the apparent prominence of situational, or "Condition" variables over such trait variables as are represented by the Factor II constellation, and over such interpersonal variables as are described by Factor III. The only variables significantly associated with R and S variances are the understanding of conditions.

In the present study, those variables related to the experimental manipulations were found to be more highly related to outcome on the criterion measures than were variables derived from historical data about the subjects.

Curiously, reported understanding of the Simulation Condition is associated with adultlike rather than regressed performance on the tasks. Thus we must add

to the above empirical rationale of the factor analytic results the speculation voiced earlier, namely: The specific instructional, or situational variable with greatest impact on test performance was the subject's ability to simulate or "pretend," that is, to do two things -- one behavioral, the other intentional -- at once. In previous studies, where the outcome of a role-playing instruction was thought to provide the condition of simulation, no such condition differences could be elicited. This point will be amplified in a later discussion of some issues in the theory of hypnosis.

Further accounting for the factor analytic results, at least in a formal way, are theoretical arguments relating to the divergence of behavior, state and interpersonal assessment, or interaction. A model for attempting to order these observations into a relevant research strategy is developed in the next section.

3

TOWARD A MODEL OF REGRESSION AND SIMULATION

It will be useful at this point to examine reports of the subjects' subjective experience and other anecdotal evidence. These data should provide indications of appropriate models for the experiences of hypnotic regression and simulation and shed light as well on some difficult conceptual issues.

We might begin with some interesting observations of the subjects' behavior which do not bear directly on the issue of developmental-stage regression. Under both experimental conditions, subjects played with the dolls and the clay, interacted with the tester, spoke in a childish manner, and puzzled over questions. Some subjects did much of this, others little; one even attempted (under regression) to eat the clay. The only behaviors which appeared in a number of subjects and which were restricted to one experimental condition occurred under Regression: Six subjects played actively with the "baby-girl" doll during the Object Sorting task, and five of these attempted to place the baby bottle in the dolls' mouth. Four subjects were seen to rock in their chairs during the testing, again, only during Regression.

No particular conclusions will be drawn from these limited observations, but the regularities may be instructive for future research in regression; possibly these represent spontaneous behavioral indices of regression.

It was unsystematically observed by the author that response latencies were highly variable under both experimental conditions, though he had expected that under Simulation instructions subjects would take uniformly longer to respond. In both conditions, subjects often waited before responding to the tester's questions. Interviewing revealed that during Simulation this latency was a function of the difficulty of withholding adult-level answers in favor of childlike answers. Under regression suggestions, the subject reported himself puzzled by the question, or unable to think of the answer.

We know from much previous work (e.g., Field, 1963) that there is no necessary relationship between internal experience under hypnosis and external performance; indeed, we know this to be true of behavior in general. The defining characteristics of a human action must combine considerations of internal experience and observed performance, for, as we have argued in establishing the Simulation condition, this is what distinguishes one action from another. This assumption is supported, in the present study, by the disparate subjective experiences of our subjects under the two conditions as contrasted with the high correlation of performances (r_{RS}=.61).

The low correlation of reported stability of experience with performance (r_{StR}=-.09, r_{StS} = -.05) provides similar evidence.

Subjective experience during Regression was of two general types, which parallel the types of experience reported in any hypnotic exercise: "Pure" subjective regression--reported by nine subjects--had the qualities of spontaneity of action, lack of subjective discomfort or anomaly, and a corresponding sureness of response and situation. Subjects reported: "I wasn't aware of being four, I just was four," "I wasn't thinking at all; I felt very normal doing what I was doing, natural," "Things popped into my mind more," "I knew what to do with those things," "It was like acting, when you really get into the part." (The complete interview data may be found in Appendix 4).

This subject's remark about the regression experience's likeness to acting deserves comment, especially since it is supported by evidence that experience in acting contributes to lowered--i.e., more childlike--scores under the Regression condition, but not to more childlike scores under the Simulation condition (r_{RAc} = -.17, r_{SAc} = .20).

Sarbin and Andersen (1967) in their latest formulation of the "Role-Theoretical Analysis of Hypnotic Behavior" note that they refer to Stanislavskian or "method" acting, not to classical acting. They state that role-enactment "should connote commitment,

involvement, and..dead seriousness in carrying out one's role..." (1967, p. 327) and that the adjective most apt to describe this role-taking is "earnest." In sum, they describe a situation in which a person is totally involved in some action. This description parallels the suggestions given our subjects under the Regression condition and is distinct from that "double-involvement" or pretending suggested for simulation.

Along some continuum of role-enactment, or involvement in an action, we might place the experience of the other 11 regressed subjects somewhere between "pure" regression and "pure" simulation. These subjects reported: "One small part of me knew what was going on--but I couldn't control it," "I felt I should be doing something (else) but I didn't care," "I sort of knew (the adult answers) but something blocked my mind and I wasn't sure," "I wondered what would happen if I looked in the mirror, but I didn't. I held the doll up and let the doll look in." As Hilgard (1965) concludes regarding regression: "Many subjects experience very vivid age regressions, although for most of them an observing ego is maintained...rather than a full dissociation from present awareness." These subjects demonstrate responses characteristic of hypnotic subjects in "medium" trance; the elements of compulsion, partial dissociation, and regard for the demand conditions--"protecting the trance," one might say--characterize their experience of regression.

7

We might expect an even greater proportion of subjects to respond in this way when inductions are limited and unsophisticated, as was the case in much of the earlier work on hypnosis and regression (see "Review of Literature"). Erickson's (1965) caveat is applicable:

> Certain subjects can develop profound trances in a decidedly brief period of time and are capable of readily manifesting exceedingly complex hypnotic behavior. However, critical study of such subjects frequently discloses a high incidence of "as-if" behavior.

Erickson, of course, represents the "credulous" view of hypnosis; crudely, that there is such a thing, different from other things. Sarbin maintains the "skeptical" view that such a state does not exist "either as a descriptive device or as a mediational process" (Sarbin and Andersen, 1967). Sarbin quotes Bertrand (1823) with approval:

> The psychological phenomena observed during the magnetic state are not exceptional phenomena, but are normal, or are at least phenomena which can be observed under various other conditions. Artificial Somnambulism... serves merely to render conspicuous and to amplify phenomena depending upon the working of the general laws of imagination, expectant attention and desire.

Or, as Erickson (1962) has put it:

> ...there are any number of attitudes taken to disprove the legitimacy of hypnotic experiments and the concepts that one deals with in hypnosis despite their occurrence in the ordinary course of human events (my ital.).

We seem again to be left with the choice of calling all things aspects of hypnosis, or all things aspects of role-enactment or some other social-psychological formulation. I would suggest that if this

were the only set of alternatives available--as it must seem to the partisans--much experimental effort has been marshalled to do battle for simple nominal commitments.

Perhaps an alternative model can relieve some of the obduracy of this debate and still provide us with distinct models for various states. Sarbin suggests that credulous and skeptical views of hypnosis are distinguished by the "non-employment of the trance either as a descriptive device or as a mediational process," in the role-enactment model. How does this view square with descriptions of the subjective experience of hypnosis? Orne (1959) notes that:

> Any subject who has experienced deep trance will unhesitatingly describe this state as basically different from the normal one. He may be quite unable to explicate this difference, but he will invariably be quite definite and certain about its presence.

In "pure" hypnosis, then, as in "pure" hypnotic regression, the subject will experience a distinct state and will be "definite and certain" about its presence. This criterion for the existence of a state can only be met from subjective report and statements about it only verified by our usual criteria for the veracity of reports, i.e., truth and lies. This subjective report defines the state of hypnosis or regression, but does not define the action of hypnosis or regression.

Similarly, observation--testing, scoring, statistical comparison and the like--may define the behavior of hypnosis or regression, but does not by itself define the action of hypnosis or regression. On

this model, to be considered an action, hypnosis or regression would have to combine the state of feeling hypnotized with the behavior characteristic of a hypnotized subject. The rule I am suggesting would simply place these phenomena in a class of human actions which require such a correspondence. It is useful because it allows us to distinguish between, say, regression and simulation by some combination of criteria. We can now explain, or rather label, what occurs in those rare cases in which hypnotized subjects both consider themselves to be children (the reported state of regression) and respond as children do on various developmental tasks (the observed behavior of regression). If the phenomenon is limited, it is by no means a less real phenomenon, and though it does not appear that the group of hypnotically regressed subjects meets both criteria for the action of regression, some few individuals do. I have proposed to explain these individual instances of regression with the aid of this model of the action of regression and the results of the factor analysis.

Let us now return to the simulation paradigm which was established on an analogous model of action. Among subjects under the Simulation condition, nine reported instances of "double thought," withholding adult answers, "looking for something that would sound better," etc. Four subjects reported that despite the weight of the suggestions, they felt embarrassed, or felt that the tester was "not

as believable" as he had been during regression.* (See Appendix 4.) Eight subjects said that they had attempted to remember what they had done as children in order to simulate more successfully, and four attempted to use their knowledge of child psychology for this purpose. Ten subjects volunteered that the task of simulation was difficult: "I was just pretending, and it was a strain," "It's difficult to know what a four-year-old would say," "It was kind of hard to try to be four...I couldn't just say what I thought, I had to reflect on what I was supposed to say," "It was more difficult--I had to think things through twice." Lack of spontaneity, subjective discomfort and anomaly, and unsureness of response characterized the simulation experience for most subjects.

A most interesting finding was the report of some subjects that they had attempted to "act" the part under simulation or to involve themselves in the role: "I was getting very--like I wanted to get involved, but I just couldn't--I'm not much of an actress." One subject reported, "I just let myself think that I was four--whatever occurred, occurred. To put on an act as four--you can't do it--can't remember that far back, so I let what happens happen. I didn't always know I was 21..." Under simulation, subjects were asked to

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*A strict test of Troffer's (1965) hypothesis that subject-tester rapport increases regression might involve hypnotizing the tester so that he would believe himself to be dealing with real children rather than with hypnotized adults.

pretend and, implicitly, not to involve themselves in the role, but, rather, to think the answer, and many reported that they "had to think a great deal."

The clearest statement of the simulation paradigm was volunteered by a subject who had been unusually active and spontaneous during regression:

> I was planning ahead; I guess that's what gave me trouble. When you're planning, you don't really listen. Y'see, sometimes if you're pretending to be someone else you can put yourself in them and act accordingly--really feel like you're them. But I was trying to imitate--taking things I remembered, like sucking my thumb--picking things I remembered. I felt inhibited. You don't really give yourself a chance to be (a child). You're doing two things at once.

The note of strain or difficulty, occasioned by suggestions in the simulation paradigm to "pretend to be a child" while "always knowing that you are a deeply hypnotized adult," was in some cases mirrored in subjects' behavior. (Here we might speak of cases of "pure" simulation: a state coupled with certain behavior to define the action of simulation.)

The testers reported that their attempts to distinguish between Regression and Simulation conditions were sometimes aided when a subject would "exaggerate" childish behavior during Simulation. Subjects reported a similar phenomenon: "I banged my feet all the time--children do sometimes," "I was trying to use little girl words; when I was little I tried to use big words." This subject had used the word

"lavender" during Regression to describe the color of the chairs in the Object Sorting task; under Simulation she called them "purple." She explained that "I was very proud (of using "lavender"), I thought 'Oh, boy, I learned the word.'" Again, on the adult view of the child, we might expect baby talk from regressed subjects. The tester with experience with chronological children would expect less childish behavior from regressed subjects and so label exaggerated responses as simulation.

This analysis of the simulation and regression paradigms enables us to better organize and understand the results of much work on regression previously thought to support the "skeptical" view of hypnosis. For example, Troffer (1965) found that childlike performance on tasks was significantly correlated with subjective involvement under the Regression condition, but not significantly correlated with subjective involvement under the Simulation condition. What we find in the present factor analytic study is some association of regressive performance under the Regression condition with role-involvement ability (as measured by experience in "method" acting).

When subjective experience of the role involvement is matched by regressive performance ("scale" responses to the "simulation-difficult" developmental tasks), we may say that "true" regression has occurred. This model of regression rests in part on the assumption that if we label our experience as, say, "hypnosis" rather than as

"method acting" and give equivalent performances, we may still be said to be doing different actions. Schachter and Singer's (1962) work on the differential labelling of emotions having equivalent physiological components supports this line of argument.

In conclusion: The term "regression" has usually been applied to actions which: 1) Have the subjective component of belief in reacquired childhood status, a belief shared by participant and observer, and; 2) Have a behavioral component which approximates the commonly held adult view of childlike responses.

Critiques of the second criterion for use of the term "regression" may be based on a comparison between the performance of age-regressed adults and that of real children. The present study, using a developmental-stage criterion for regressive performance, demonstrates that the criterion critique is valid: for a selected group of adults, the commonly held view of childlike behavior did not successfully approximate the performance of real children. The behavior of such a group might be termed "mixed" or "type III" regression.

For some subjects, however, performance on

the developmental tasks did approximate that of chronological children. Some variables associated with this successful regressive performance were delineated. A cluster of variables associated with the successful approximation of childlike behavior as judged by observers was also described.

The subjective criteria for "true" regression (type II) are at present in much the same confusion as previously obtained for behavioral criteria. We are in need of norms of subjective report from children of their own experience, and of a methodology adequate to deal with such reports. Perhaps the ingenuity of Piaget and other developmentalists who deal in the sophisticated interviewing of children can be put to such a task. This seems an important next step in clarifying our conception of the action of regression.

The importance and utility of such investigations and of the conceptual model on which they lean may not be evident.

Consider:

In the present study, a crude distinction may be made between those subjects reporting a "pure" experience of regression and those reporting mixed, self-conscious experiences. It is striking

that the mean performance-regression scores for those reporting subjective regressive experiences is nearly identical to the mean score for those with mixed experiences. Those who reported that they, "felt like a child," "just knew what to do," "never thought I was anything but four," etc., averaged 12.8 on tasks administered under the Regression Condition. Subjects reporting awareness of their real age, an observing ego, disbelief in the experience of regression, etc., averaged 13.1 (Means did not differ significantly by t-test).

Similarly, if subjects are ranked by performance on the developmental tasks, it can be observed that 3 of the 6 lowest sum scores on Regression Condition and 3 of the 6 highest sum scores on Regression reported subjective experiences which we might term "pure" regression.

This sort of evidence might be multiplied anecdotally, based on the common observation that people's behavior often bears little relation to their subjective states. Consideration of both behavior and state variables has been suggested for the explication of human actions. The utility of such a view is evidenced by distinctions made earlier in this paper between simulation and role-involvement.

Labelling is crucial to this investigative strategy, which is at some variance with more usual forms of research in psychology. It may be thought of as definitional, rather than causal, or as dealing with a "rule-governed" model of human action (Winch, 1958) rather than the causal models of physical science. The argument for this model of human action is carried through with less haste and greater elegance than I will employ here by Winch. It is already commonplace in philosophy, having its roots in the work of Wittgenstein on the relations between language and the (social) forms of life.

For studies in psychology, one might argue that the terms used to delimit phenomenal areas are tied rather directly to the social situations in which they exist, rather than to phenomena "imbedded" in some social structure, which structure is then reduced in the laboratory to lay bare the phenomenon. Sarbin, and others, have begun to ask, e.g., "How does a person come to be labelled 'schizophrenic'?" rather than the more traditional questions, "What are the characteristics of schizophrenics?" or, "What causes schizophrenia?"

The strategy is clear in cases where the common language provides terms such as "criminal" or

"crazy". Certain forms of social intercourse give rise to the labels in specific situations; and social labelling, as opposed to the labelling of social scientists, requires almost without fail considerations of social context and appropriateness, and often considerations of internal state, before applying terms. Compare, among numerous examples, the rules for "crazy" and "crazy like a fox".

For technical terms of social science, such as "regression" or "hypnosis," the community of psychologists structures a language from forms of social interaction developed in laboratory or other "artificial" situations. Orne (1962) has commented on the social psychology of the psychological experiment: within the causal model of psychological research, such revelations have some of the status of the "Uncertainty Principle" in physics. Uncertainty sets certain limits to observation of the electron; yet the data of social science are not limited, but rather <u>defined</u> by a sort of uncertainty. That is, our observations and the conditions under which they are made not only change but define the phenomena. Radically, we might propose that experimental instructions produce, rather than simply "control" the phenomena of the social sciences,

and that what has seemed an inconvenience, at times an obstruction to research -- subjective report, verbal behavior, the "demand characteristics" of experiments -- is in fact the central stuff of psychology.

SUMMARY

This study investigated the phenomena elicited by hypnotic age-regression instructions. A review of various criterion measures used to validate age-regression pointed to the utility of a developmental-stage criterion of regression. Weitzenhoffer's (1957) threefold classification scheme of role-playing (type I), ablation (type II), and mixed (type III) regression was discussed and distinctions made between functional ablation, role-enactment, simple role-taking, and simulation.

In the experiment proper, twenty good hypnotic subjects--10 male and 10 female paid volunteers aged 18-25--were tested on four developmental tasks (Kohlberg, 1961) under conditions of Hypnotic Regression and Hypnotic Simulation. In the Regression condition, subjects were told that they would really be the target age (4 years old) and be unable to consider any other status. The Simulation condition was based on an operationalization of the concept of "pretending" (Austin, 1964) in which subjects were instructed to "act the way you think a four-year-old child acts, while always knowing you are really (actual age)." Subjects were used as their own controls.

The testing was followed by an interview which tapped the subjects' knowledge of how children act, reported experience of

regression and simulation and understanding of demand conditions of the experiment. These interview data were scored to provide measures correlated with performance under the two experimental conditions.

Three questions shaped the inquiry:

A. Do subjects under either condition perform on the tasks as does a group of chronological children? Scalogram analysis (Green, 1956) suggests that on the tasks most difficult of intellectual simulation hypnotic subjects do not successfully approximate the performance of chronological children. (For subjects under both Simulation and Regression condition administrations of the Dream-Concept and Object-Sorting tasks, Indices of Consistency (I) were less than .50.)

The evidence, then, weighs against "true" developmental regression (Weitzenhoffer's type II). Analysis of responses to conservation of substance and Class Inclusion tasks suggests that this conclusion holds for easily simulable tasks as well as for those more difficult of simulation.

The subjects' pattern of responses is best conceptualized as a "mixed" regression (Weitzenhoffer type III) in which some items are answered in a childlike manner, some like adults. This suggests the possibility of a commonly held adult view of children's behavior. Such a model is useful in explaining certain previous experimental results (e.g., Reiff and Scheerer, 1959) and in conceptualizing the

responses of subjects to non-simulable hypnotic tasks.

B. Do performances differ between conditions? An Analysis of Variance design showed a small but significant "Conditions" effect ($P<.05$). This suggests that even when Ss are used as their own control the Regression Condition is productive of a greater mean number of childlike responses than is the Simulation Condition (disregarding, for this analysis, the pattern of responses).

No significant "Order" or interaction effects were found. A significant "Tests" effect ($P<.001$) supported the conceptual distinctions made between developmental tasks on the basis of degree of difficulty.

The significant "Conditions" effect was elucidated by an analysis of the consistency of scores over tests. The average intercorrelation of tests was found to be significantly different ($P<.01$) under Regression ($\bar{r}=.53$) and Simulation ($\bar{r}=.08$). Reliability of the average test scores (by Spearman-Brown Prophecy Formula) was .82 for the Regression Condition and .21 for the Simulation Condition. These results support an interpretation of the test scores under Regression as a reliable measure of performance regression on developmental tasks.

The Simulation Condition scores provide measures of a set of relatively independent performance variables.

C. What factors contribute to the ability to perform like a real child on developmental tasks?

Factor analysis yielded three orthogonal factors:

Factor I describes "outcome by test performance" accounting for virtually the entire common variance of R and S condition sum regression scores. It represents a substantial aspect in which performance on tests under the two conditions is qualitatively alike; that is, in the associated variable Ds (understanding of the Simulation Condition demands and instructions). Poor levels of regressive performance under both conditions are associated with a rational orientation to tasks.

To a smaller degree, custodial experience with children (X) is associated with good regressive performance, especially under the Regression Condition.

Factor II describes a possible personality constellation of hypnotic amnesia (Am) associated with poor memory of one's own childhood (-M) and little experience in method acting (-Ac).

Factor III, like Factor II, has no appreciable test-performance loading. Accurate assessment of a subject's condition by the tester (G) is found to be associated with acting experience (Ac) and understanding of the Regression Condition instructions (Dr). Factor III thus clarifies an interpersonal, or interactive aspect of the Regression-Simulation distinction unrelated to test performance.

The orthogonality of variables related in past studies to performance measures was given empirical and theoretical rationales; one related to the uniqueness of the Simulation Condition of the present study, the other to a research model based on the predominence of situational over "trait" variables in the understanding of human action.

A model for the ordering of phenomena elicited in the experiment was suggested. The defining characteristics of a human action, e.g., "regression," must combine considerations of internal experience (state) and observed performance (behavior). Data for behavior are gathered in the usual ways of science, and do not require the direct participation of the subject. Data concerning state are the product of participant observation and verbal report (cf: Winch, 1958).

On the basis of this model, simulation and regression paradigms were applied to the interview data (subjective report) and performance scores, and four types of action--"pure" regression, "pure" simulation and two "mixed" actions--were determined. A similar model was applied to the "skeptical-credulous" argument within the theory of hypnosis.

APPENDICES

LETTER TO SUBJECTS

Psychology Service

VETERANS ADMINISTRATION HOSPITAL

BROOKLYN, N. Y. 11209

Dear ,

We would very much like to have you participate again in another study we are conducting to explore deeper and more interesting aspects of hypnosis.

We do hope that you can return to our research project soon to help us out again. As a token of our appreciation for your help, we will give $6.40 for 1-1/2 to 2 hours of your time.

Please call TE 6-6600, ext. 423, before 4:30 weekdays to make an appointment at your convenience. Thank you again for the help you have already given us, and please do get in touch with us.

Sincerely yours,

Peter B. Field, Ph.D.
Director, Hypnosis Research
TE 6-6600, ext. 423

D. Consciousness of self vs. spontaneous response in each condition:

E. Knowledge of Children's Behavior:

1. Parent, Older Sibling, Baby-sitter, etc.:

2. Studies in Psychology:

3. Knowledge of Piagetian Theory:

F. Memory of Subject's Own Childhood: (very good-very poor)

G. What do you think was the purpose of this experiment?

APPENDIX 2

FORMULAE FOR SCALOGRAM ANALYSIS (GREEN, 1956)

Let: k = # items in scale
N = # respondents
i = any item
g = item (in rank order)

Rep_A = Coeff. of reproducibility
Rep_I = Chance reproducibility
I = Index of Consistency
$\hat{\sigma}_A$ = Standard error of reproducibility

Then:
$$Rep_A = 1 - \frac{1}{Nk} \sum_{g=1}^{k-1} n_{g+1,\,\overline{g}} - \frac{1}{Nk} \sum_{g=2}^{k-2} n_{g+2,\,g+1,\,\overline{g},\,\overline{g-1}}$$

where: $n_{g+1,\,\overline{g}}$ = # Ss scoring + on item g+1 and - on item g

$n_{g+2,\,g+1,\,\overline{g},\,\overline{g-1}}$ = # Ss + on items g+1 and g and - on items g and g-1

And:
$$\hat{\sigma}_A \sqrt{\frac{(1 - Rep_A)(Rep_A)}{Nk}}$$

$$Rep_I = 1 - \frac{1}{N^2 k} \sum_{g=1}^{k-1} n_{g+1}\, n_{\overline{g}} - \frac{1}{N^4 k} \sum_{g=2}^{k-2} n_{g+2}\, n_{g+1}\, n_{\overline{g}}\, n_{\overline{g-1}}$$

$$I = \frac{Rep_A - Rep_I}{1 - Rep_I}$$

APPENDIX 3

SCORES FOR ITEMS IN THE MATRIX OF CORRELATIONS

Subj.	R	S	M	Am	Ac	Dr	Ds	G	K	X
1	8	17	0	1	0	0	0	2	1	1
2	6	11	1	0	0	0	0	1	3	2
3	7	7	1	2	0	1	0	2	1	0
4	11	12	2	2	0	1	0	2	0	2
5	12	20	1	2	0	1	0	2	0	2
6	14	15	1	2	0	0	0	2	2	0
7	10	12	1	0	1	1	0	1	1	1
8	21	18	1	1	1	1	1	2	4	0
9	4	16	0	2	2	1	0	2	0	2
10	19	13	0	2	0	1	0	2	0	0
11	17	17	1	1	0	1	1	1	1	1
12	22	21	0	2	0	1	1	0	1	2
13	7	11	1	2	0	0	0	0	0	2
14	17	16	1	2	0	1	1	1	0	0
15	12	13	1	2	0	0	1	1	0	0
16	15	18	2	1	1	1	1	0	0	0
17	16	18	1	0	2	1	0	2	0	1
18	11	16	1	1	2	1	1	2	0	0
19	22	19	0	2	0	1	0	2	0	0
20	8	14	0	2	1	1	0	2	0	2

APPENDIX 4

SUBJECTS' REPORTED EXPERIENCES UNDER REGRESSION AND SIMULATION

Subjective Experience: Regression Condition

Subj:

1. Felt much more. "I didn't have to stop and think about it." Can't describe how I felt. Weird sensation feeling like a child.

2. "Things popped into my mind more (e.g., class inclusion) "more girls" "It just popped into my head." "I was less ashamed."

3. "I fell asleep. A man was playing with me. I was four--but I can't be four. I was four, though." "I didn't think about doing anything...I felt like a little kid--at times I didn't feel like a little kid--I felt I should be doing something, but I didn't care."

4. "I didn't trust that man (the tester). When I asked him if he was a friend of my mother's he wasn't. He didn't want to play." "The first couple of minutes when I was really 4 it was no strain, then I started to get annoyed at him for not knowing my mother. I felt four but playing a game with him--I wasn't honest with him. I wanted to go back to sleep, to get myself together, but he kept asking me questions. I felt like an adult was asking me questions." "I just answered. I didn't think about it."

5. "I was four years old. I felt really four. Just said the things that came normal to (me)."

6. "Your associate came in and asked me some questions. I reacted like I was four years old. I thought I was really four." "It was more spontaneous...I knew exactly what to say." "I didn't have to think--the answers came to me."

7. "It was very confusing. It wasn't nice--being asked things I didn't know and I had to answer and to stay there and I wasn't really playing. I was forced to give the answers." "It was

Subj:

sometimes spontaneous and sometimes a little false." (family sort) "Just kind of fell together....I realized it could be families...one of each..."

8. "I was four years old and I was playing with clay and dolls." "It was more real...I just did what I felt like...He asked me about a dream and I was afraid--just like I was there." (Didn't use his sketchy knowledge of Piaget on R, tried to on S.)

9. "You brought me back to the age of four. I felt like I was 4. "I knew I was here--I didn't know who Barry was. The reaction I had: I felt very young and very nice." "I didn't think about me, wasn't aware of me--like in acting when you really get into the part...I forgot about other things. I wasn't aware of being four, I just was four."

10. "One small part of me knew what was going on--but I couldn't control it. I remember the sound coming out, but I don't speak like that any more. It was just so exciting to see dolls--I mean, I hate dolls (now), they're disgusting." "Anything...it just came out, I had no control."

11. "I felt like I was four--I kept thinking about playing around in the woods, how nice it was--like playing. Most of the time I thought I was four, sometimes remembered other things. I felt better when I was four." "Sometimes I felt funny when I answered." "It felt kind of natural, but I wasn't speaking like I was four, though I felt I was four."

12. "I was me at four...I really believed I was four and the dream was very vivid and my grandfather, too." "I knew what to do with those things (test materials)."

13. "I just thought of myself as four--on my birthday--I felt I was four." "I didn't think--I looked." "I pretended that I was four--felt that I was four--It was my four-year-old birthday." (Not much diff.S and R--handles S by 'letting self go'.)

14. "I began to believe and to feel like four, thinking 'I have to behave, to be good.' It was very hard to sit there but I liked playing with the dolls--wished I had horses and cowboys." "It was very easy to get involved in it--I felt very clumsy with the clay, but I'm a sculptor--I felt like a little kid." "I wasn't thinking at all--I felt very normal doing what I was doing--natural."

Subj:

15. "When I was four (?)...Being put in an adult world is difficult, taxing...I was more spontaneous, acted like I was four and didn't give it much thought...but there was some wavering during the dream."

16. "I really felt different--when the blue thing was pulled away I felt delighted to see the toys--the clay seemed big. I made a mark and I was amazed you could make a mark and cover it up. Every question was the whole world and I really had to think to answer it. I got restless 'cause I wanted to play with the dolls." "Probably in my total senses I was aware of everything, but I still felt four." "I just couldn't begin to think about 'am I really four?' It was too far away to think about." "I felt kind of shy to do anything with the clay." "Some of the dolls looked like me. I wondered what would happen if I looked in the mirror, but I didn't. I held the doll up and let the doll look in." "It was pretty spontaneous, but twice words came to me that I thought I shouldn't know. (?) I used the word 'lavender' and I was very proud. I thought, 'oh, boy, I learned the word.'"

17. "Feeling like a child--it was nice." "It was difficult to answer. The questions seemed more difficult--sort of recognized some, but somehow it just seemed different." "Sometimes when I remembered the first time I was brought back (to 22)." "I was more four. I sort of knew (adult answers) but something blocked my mind and I wasn't sure. His questions weren't as clear to me. I had to think about him more." "I felt physically smaller." "I didn't feel as sharp; things were simpler."

18. "I didn't give it any thought." "It felt great. I was just there. I was just four. It was very free--I didn't feel any inhibitions."

19. "I acted as though I was four years old and Richard asked me some questions. I answered them as a four-year-old would. (?) I thought I was four throughout the whole thing. It was OK." "I believed I was four." "I just didn't know the answers."

20. "I thought like a four-year-old; I could see my arms and legs weren't four years old, but I thought like a four-year-old child." "I thought I was four (?) consistently." "At some moments I felt I could give a better answer, but at times I was lost for an answer--at other times I could answer--boom--right away." "I answered as I thought." "I saw the microphone and thought it was a toy."

2

Subjective Experience: Simulation Condition

Subj:

1. "I felt uncomfortable, embarrassed; felt (the tester) wasn't as believable as before." "I was looking for something that would sound better (to the tester)."

2. "We both knew I was 19; I didn't think anything different at any time."

3. "I never really thought I was a kid--never thought about it--I was trying to fool him too much." "Hard to remember what a four-year-old thinks like. Thinking hard--it's not easy. I wasn't fooling myself."

4. "I was just pretending, and it was a strain. I never thought I was a child; I was conscious of pretending."

5. "I pretended to be four years old--thought of the answers; actually I felt 20." "Had to think for a few minutes to know what you'd say if you were four years old."

6. "A lot of questions he was asking me I didn't answer how I knew but what I remembered from four--some answers I knew but I wouldn't tell him."

7. "I felt like a rogue." "I tried to remember articles I'd read in psychology...never thought I was a child." "It was something planned."

8. "It took a while before I would be like four. I had to play it for awhile. It's like I was acting--it just came naturally after awhile. I remembered how it was when I was four--difficult in the beginning." "It was like a game; I never thought I was four; more like what you think a four-year-old would be like." (This subject tried to use some knowledge of Piaget in the simulation condition; he did not try to use it under regression.)

9. "I banged my feet all the time--children do sometimes--and I didn't answer all his questions. It's difficult to know what a four-year-old would say. I had to think a great deal." "I was very bored and I was self-conscious; a bit more aware of his patronizing attitude." "It was harder; I didn't know what a four-year-old is really like." "I was very conscious of myself; everything was very big, obvious, childish."

Subj:

10. "It was a lot of fun trying to fool him. I didn't know how to answer--don't know what a four-year-old would think." "I did it on purpose. It wasn't spontaneous at all and I kept thinking 'what am I going to say? what am I going to say?'" "I had complete control of exactly what I was going to say; I could think about it."

11. "I felt conscious of who and what I was, but I didn't find it hard to answer... Pretending to be four, even though I knew I wasn't."

12. "I didn't know what to do with (the tests); I wanted to make it into a family." "I knew I was 25; I was behaving like a four-year-old.

13. "I just let myself think that I was four--whatever occurred, occurred. To put on an act as four--you can't do it--can't remember that far back, so I let what happens happen." "I didn't always know I was 21--trying to remember four. I could think of what I was doing at certain times. Didn't feel no different."

14. "I was getting very--like I wanted to get involved but I just couldn't--I'm not much of an actress. I tried to think of what I did when I was a little girl and what my little cousins do now." "I kept forgetting to move around, if I was supposed to move around." "I was trying to use little girl words; when I was little I tried to use big words. I was really consciously trying to act four and I had somewhat of a difficulty because...I'm not four." "I kept really thinking I was 20 and 'Act four.'"

15. "It was more difficult--I had to think things through twice--had to be careful." "I wasn't sure from the commands whether I should lisp and drool, but I didn't when I was four, anyway."

16. "I got restless; it was kind of hard to try to be four--I didn't want to play with dolls, either." "I didn't feel it too much--I didn't feel the part--I tried to imagine what it would be like. I couldn't just say what I thought; I had to reflect on what I was supposed to say."

17. "I was pretending I was four. I got a feeling of four, especially when I first played with the doll; I remembered what it felt like to be four." "I felt I could concentrate on small details--fascinated by the dolls." "I felt more capable--answers came to me more easily." "I thought (the tester) was more condescending." "I wasn't quite clear about the pretending--I felt he knew I was pretending."

Subj:

18. "I felt funny--feel I acted pretty dumb--I felt awfully awkward. I knew I was 19 and I think he knew it too--I don't feel I was really being a four-year-old." "I was planning ahead, I guess that's what gave me trouble. When you're planning, you don't really listen. Y'see, sometimes if your're pretending to be someone else you can put yourself in them and act accordingly--really feel like you're them. But I was trying to imitate--taking things I remembered, like sucking my thumb--picking things I remembered; I felt inhibited. You don't really give yourself a chance to be one (a child). Your're doing two things at once."

19. "It felt strange because I was trying to give responses and act like a four-year-old child--I tried to remember what it was like to be four--I always knew I was 20." "I had to think whether a four-year-old would know the answer."

20. "It's hard, though--it's hard to talk like a four-year-old when you think 20. I knew I was 20. He kept asking questions; how does a four-year-old answer a question like that?" "I acted very similar to my nephew Bobby." "I was more aware of my surroundings and who I was and what I was doing--I always knew I was 20 pretending to answer like a child. I remember looking at the mike and thinking, 'aha, it's going on tape.'"

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