Proverb interpretation in a schizotypal population

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PROVERB INTERPRETATION IN A SCHIZOTYPAL POPULATION

By

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B.A., University of Wisconsin, 1981

Presented in partial fulfillment of the requirements for the degree of
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Proverb Interpretation in Schizotypals

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Proverb interpretation has a long history in research and assessment of thought disorder typically noted in psychotic individuals. Recently, new scoring systems for proverbs have been devised capable of measuring subtle variants of thought disorder, including mild cognitive slippage found in normal, nonpsychotic individuals. As of yet, these systems have not been used in the assessment of subschizophrenic, schizotypal, or normal deviations of thought.

The Perceptual Aberration-Magical Ideation (Per-Mag) Scale measures specific types of body image and other perceptual aberrations, and magical ideation, or subclinical delusions. The scale is believed to tap "psychosis-proneness," sub-clinical manifestations of pathological functioning that put one at higher risk for later development of psychotic disorder. Validation work has thus far involved finding psychotic-like or schizotypal symptoms in individuals who score high on these scales.

The current research examined the interpretations of 30 Per-Mag and 30 control subjects on 10 familiar Western (same-culture) proverbs and 3 unfamiliar Chinese (different-culture) proverbs. Responses were scored using scoring systems for Bizarre-Idiosyncratic thinking and Literalness.

The hypothesis that Per-Mags would score higher than controls on Bizarre-Idiosyncratic thinking was not supported. However, a groups by type of proverb (same-versus different-culture) interaction was found for Bizarre-Idiosyncratic scores. Per-Mags scored higher than controls on different but not same culture proverbs. No interaction was found for the Literalness scores.

These results provide further support for the construct of the Per-Mag scale as tapping personality traits associated with psychosis-proneness. The difference between Bizarre-Idiosyncratic but not Literalness scores demonstrates proverb interpretation's ability to differentiate between positive and negative symptom thought disorder. The results also demonstrate the utility of proverb interpretation in the assessment and study of schizotypal and normal deviations of thought. The implications of these findings regarding the effects difficulty of proverb and the use of two scoring systems, as well as implications for future research are discussed.
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INTRODUCTION

Proverb interpretation is an established psychological assessment device in the diagnosis and study of schizophrenic thought disorder. Currently, proverb interpretation has been the focus of renewed interest, largely due to the work in thought disorder of the Harrow, Quinlan, and Marengo group at Michael Reese Medical Center and the University of Chicago (Harrow & Quinlan, 1985; Marengo, Harrow, Lanin-Kettering, & Wilson, 1986).

The work of this group and others has led to improvements both in our conceptualization and evaluation of responses to the proverb task. These improvements have allowed reliable and precise quantification of more subtle indicators of thought disorder in the speech of psychotic individuals. With this increasing precision, the question arises as to whether these new techniques of evaluating thought disorder can also discriminate sub-schizophrenic thought disorder, such as the type found in schizotypal individuals, in proverb interpretation.

Another current area of research in schizophrenia involves the identification and study of high risk individuals. One group working in this area is the Chapman group at the University of Wisconsin (Chapman &
Chapman, 1985). The Chapman group is currently developing and validating several assessment inventories for traits that they believe identify psychosis-prone individuals. Several of these inventories focus on a variety of psychotic-like or schizotypal disorders of thought. Validation studies for these scales have typically consisted of testing individuals who have scored high on these scales on other, validated indicators of schizophrenic thought disorder. These high scoring individuals have produced schizophrenic-like responses on a variety of measures.

This study examines the responses of schizotypal individuals to the proverb interpretation task. These schizotypal individuals will be identified by one of the Chapman group traits, Perceptual Aberration-Magical Ideation. Findings of psychotic-like responses in this study would both provide support for the use of proverb interpretation to identify schizotypal thought disorder and, in addition, provide further validation of the Chapman scales.

The present study also assesses the extent to which a lack of familiarity with a set of proverbs among schizotypal individuals is a factor in their predicted psychotic-like performance on those proverbs. One
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explanation of such a relationship between these two factors involves a failure to acquire cultural lore and sets of norms that can be generalized to unfamiliar proverbs. According to this viewpoint, it is this failure to acquire certain implicit culturally transmitted conceptual norms that leads to the bizarre and/or concrete responses typical of thought disordered individuals on this task (Rapaport, Gill, & Schafer, 1968).

The introductory section of this paper includes a cultural history of proverbs, an operational definition of proverb interpretation, and a history of their use in the study and diagnosis of schizophrenia. Next is a review of the various scoring systems for proverb interpretation, of research into the reliability and validity of these systems, and of the Chapman group's project as it relates to this study. Following this, the rationale for the present study is presented. The concept of positive and negative symptoms in schizophrenia is discussed as it relates to proverb interpretation, and a method of scoring responses to proverbs is proposed that draws on the conceptual distinction between positive and negative thought disorder. Then, the design of the present study is
described and the results are reported. Finally, these results are discussed in terms of proverb interpretation and its relation to Chapman group status, schizotypal personality disorder, and schizophrenia, and in terms of the limitations of the present research and its implications for future research.

A Cultural History of Proverbs

Proverbs represent the long-standing human attempt to convey precisely and succinctly bits of cultural wisdom and truth (Singer, Wynne, Levi, & Sojit, 1968). Their origins can be traced as far back as to the proverbs of Ptah-hotep. Ptah-hotep was an Egyptian vizier whose collected ethical treatise dates from 2400 B.C., making it reputedly the oldest book in the world. Centuries later, proverbs appeared in China. Confucius, Lao Tzu, and other philosophers developed proverbs into what has been regarded by many as a highly evolved art form.

Despite the Chinese intellectual tradition's elevation of proverbs to a scholarly art form, proverbs originate in folk culture. They proliferate while the oral folklore of a culture is being established (Singer, Wynne, Levi, & Sojit, 1968). In Don Quixote, one of the earliest novels in Western culture, Cervantes (1755,1986)
makes use of many proverbs that he learned from Spanish peasants. At the time, these peasants were reputed to have carried on entire sensible conversations in nothing but proverbs.

Currently, we witness the decline of oral folklore in popular culture as its role becomes replaced by mass media. As proverbs are part and parcel of this declining tradition of oral folklore, their use in our society seems also to be taking the form of an antiquated social convention.

Yet, proverbs continue to be of great utility in the study of schizophrenic thinking and in the mental status exam. Schizophrenic individuals do not do as well at the task of interpreting proverbs. It may be the information conveyed in proverbs increasingly represents a "nuance" of our communicative culture that is becoming more esoteric due to declining usage. Thought disordered individuals may "miss" picking up these rules and meanings of proverb interpretation during their cognitive development. Singer, Wynne, Levi and Sojit (1968) use the term "experience disorder" to describe the difficulties with many aspects of experiencing in schizophrenia, such as problems integrating feelings, ideas, and major set towards tasks. Viewed from such a
perspective, schizophrenics' poor performance on proverb interpretation may represent a more specific case of missed learning in their developmental histories instead of a generalized deficit in thinking abilities.

**Interpretation of Proverbs: An Operational Definition**

A problem in the literature on proverb interpretation is the lack of an operational definition of a proverb. Hertler, Chapman, and Chapman (1978) and Carpenter and Chapman (1982) do offer a brief definition of proverbs as, "figurative statements to be interpreted," but this definition misses several unique attributes that proverbs possess. Therefore, the present study will define a proverb as a brief statement which possesses the following four characteristics:

1. **A proverb contains two stems** (Friedes, Grisell, Levin, Dobie, & Cohen, 1964). A stem is defined as a sentence fragment describing some concrete object or event. For example, in the proverb, "Don't cross the bridge until you get to it," the two stems are "Don't cross the bridge..." and "...until you get to it." The concrete object or event in a proverb functions as a metaphor for an abstract concept, which is the interpretation of the proverb. This function of metaphor is related to the second attribute of proverbs:
2. To be correctly understood, both stems require desymbolization from their concrete to an abstract meaning (Benjamin, 1944). This is the act of interpretation. To return to our example, "Don't cross the bridge until you get to it," the correct desymbolization of metaphor in the first stem, "Don't cross the bridge...," is usually interpreted as some variant of "Don't worry about troubles." The second stem, "...until you get to it," is usually interpreted as "...until they come." Performing the proverbs' task successfully requires desymbolization of metaphor in each stem and then combining both to arrive at the correct interpretation, in this case, "Don't worry about troubles until they come." This example also contains the third defining characteristic of a proverb:

3. The abstract meaning includes a moral injunction (Singer, Wynne, Levi, & Sojit (1968)). Proverbs express some common fact or well known truth. Beyond this, they prescribe a course of action, a correct way in which to view events, prepare for them, or respond to them. This prescription of action constitutes a moral injunction because it provides a guide for living in keeping with the ethics and world view of a culture or subculture.
4. The proverb has a familiarity in one's native culture which arises from years of folk usage. Proverbs are a part of one's folk culture. Upon hearing a proverb, one is typically struck with a sense of recognition, a sense of having heard it somewhere before. And with this is also the sense of a "deeper," symbolic meaning being associated with it.

The Use of Proverbs in the Study of Schizophrenic Thinking and the Mental Status Exam

The work of Benjamin (1944) has traditionally been the starting point for most studies involving proverbs in psychiatric research, although Benjamin himself reported earlier use of proverbs in German psychiatric research and assessment. It was Benjamin who first described desymbolization of the proverb as the major task in proverb interpretation. Widespread use of proverbs in assessment followed the appearance of proverbs in the Mental Examiners' Handbook (Wells & Ruesch, 1944), and the introduction of the Gorham Proverbs Test (Gorham, 1956a,b,c).

All of the use of proverbs interpretation in recent research and clinical assessment focuses on the role of at least one of three dimensions of thought disorder in the identification and study of schizophrenia: abstraction, concreteness, and autistic logic. All three
indicators are related to the desymbolization task.

The indicator of "abstraction" refers to those responses that include an interpretation of the proverb with some varying degree of success. This means the response includes successful desymbolization of the metaphor from concrete to abstract meanings. Though such a response may not be an entirely accurate interpretation, it can be viewed as reflecting both an individual's understanding of the task demands and the individual's ability to perform according to them. The indicator of concreteness is observed in those responses which fail to desymbolize, and instead, interpret the proverb at face value, often in a literal or near literal manner. Recent research has focused on this more specific type of error involving concreteness, termed "Literalness" (Hertler, Chapman & Chapman, 1978) Autistic logic, and what has been more recently described as "Bizarre-Idiosyncratic thinking" (Marengo, Harrow, Lanin-Kettering & Wilson, 1986), is found in responses which are strange or socially inappropriate. Such responses reflect a lack of consensually shared communication, and strike the listener as bizarre, idiosyncratic, confused, or disorganized.
Scoring Systems for Proverb Interpretation

The Benjamin System

Benjamin's (1944) system for scoring proverb interpretation includes eight categories. These categories involve differing degrees of Literalness, or problems in abstraction, desymbolization, and generalization. Criticisms of this system include its lack of any quantitative scoring, and the overlap between several categories. For example, false desymbolization, false generalization, and false abstraction all tap very similar responses and present significant problems in attaining interrater reliability.

The Meadow System

Meadow's scoring system (Meadow, Greenblatt, & Solomon, 1953; Meadow, Greenblatt, Funkenstein, & Solomon, 1953) uses a two point scale for abstractness. Two points are given for an appropriate abstract translation of the symbols of the entire proverb, and one point is given for desymbolizing only one element of the proverb. Though successfully used in previous research, this system has been criticized by Harrow, Tucker, and Adler (1972) because it penalizes for all incorrect abstract responses, rather than specifically
for concrete responses. The scale does not differentiate between incorrect responses due to concrete responses, or due to other factors related to psychopathology, such as bizarre, personalized, or in other ways off-task responses.

The Becker System

Becker (1956) devised a scoring system involving nine categories. These categories are based on three levels of abstraction, two levels of literalness, the presence of both abstraction and literalness in the same response, vagueness, false interpretation, and absurdity. Becker (1956) defined absurdity as "a failure to interpret and/or a logically inconsistent response in terms of the task at hand" (p. 233). Each scoring category has a weighted score.

Some of the categories in the Becker System are so similar as to be superfluous, as in the case of General Literal and Literal, which are both weighted at two points. In addition, a desymbolized though inaccurate response is weighted at two points, the same score given literal responses. This fails to preserve the crucial distinction between an incorrect response that fails to keep with the task demands, as in the former case, and missing the task demand entirely, as in the latter case.
The Gorham System

Gorham's (1956a,b,c; 1957; 1961; 1963) work on proverbs includes assembling several lists of proverbs, the development of a scoring system, and gathering norms for evaluating normal, schizophrenic, organic, and other diagnostic groups. The Gorham system scores responses in terms of both abstraction and concreteness. Abstraction is scored on a three point scale where a two point response is an adequate abstraction, a one point score represents a partial success, and zero signifies a complete failure. Concreteness is scored on a six point scale "based on an appraisal of the "0" (zero) responses by the scoring clinician" (Gorham, 1956a). A problem with this concrete score is that this appraisal is based to a large degree on the clinician's judgment, with few objective guidelines and no detailed scoring criteria. In addition, though this system accurately distinguishes between schizophrenics and normals, as with the Meadow system, the scale fails to differentiate between incorrect responses due to concrete responses, or due to other factors related to psychopathology, such as bizarre or personalized responses.

The Richardson and Church System

Richardson and Church (1959) scored proverb
comprehension along three dimensions: Specific-General, Literal-Figurative, and Physiognomic-Articulated. This last category refers to the degree or lack of logical consistency in a person’s interpretation. This system was designed to study developmental shifts in cognitive functioning between childhood and adulthood, and is therefore of limited value to the study of thought disorder.

The Friedes System

Friedes, Grisell, Levin, Dobie, and Cohen (1964), through their scoring system, make the unique contribution of identifying two words in each proverb as the symbols of the proverb. These two words are critical to the proverb interpretation. Arriving at a correct interpretation requires desymbolizing these two words into their correct abstractions. In the proverb, "A drowning man will clutch at a straw," the words "drowning" and "straw" are symbols which must be interpreted, but "clutch" is not. Their innovation is to score these symbols specifically rather than the proverb as a whole.

The Shimkunas System

Shimkunas’ system scores autistic responses, or responses "thought to reflect bizarre, schizophrenic-
like ideation" (Shimkunas, Gynther, & Smith, 1967, p. 129; Shimkunas, 1970). It operationally defines an autistic response as a response that is, on the basis of the clinical experience of 11 rating psychologists, considered bizarre, idiosyncratic, inappropriate, or tangential to the meaning of the proverb. A three point scoring system for autistic responses was developed from this work. Unlike scores for concreteness and abstractness, autistic responses are unaffected by verbal IQ (Shimkunas, Gynther, & Smith, 1967). Therefore, Shimkunas concludes that autistic responses are a more accurate indicator of thought disorder.

Nonetheless, this system both ignores entirely the dimension of concreteness and has no score to describe the qualities of the autistic logic when present. This misses much of the depth in the qualitative description of thought disorder which proverbs interpretation can provide.

The Singer System

Singer, Wynne, Levi, and Sojit (1968) bring the same communication deviance perspective to proverb interpretation that they have applied with the Rorschach (Singer, 1977), the object sorting task (Wild, 1972; Wild, Singer, Rosman, Ricci, & Lidz, 1965), and the TAT
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(Singer & Wynne, 1966). They score carefully recorded verbatim oral responses rather than the more usual written responses. Included in their scoring system is a word count, a score for standard versus inverted meaning (that is, arriving at the opposite meaning of the "correct" desymbolization of each half of the proverb), Becker scoring, and Gorham scoring. Then communication deviance is scored according to twenty-four categories. These categories are grouped under the areas of problems in task orientation, desymbolization, construction-stylistic deviances, illogical reasoning, and comprehensibility.

Major problems with this system include its size, detail, unwieldy nature, and the time involved in scoring. Though the authors never report on interrater reliability, these problems with the system would pose serious difficulties in reaching acceptable levels of agreement between raters. In addition, another problem is the degree to which many of the scoring categories appear to overlap with each other, such as category 36, Vague Interpretation, under the area Construction-Stylistic Deviances and category 41a, Vagueness, under Comprehensibility.
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The Watson System

Watson (1973; 1976; Watson, Burke, & Plemel, 1979) used both the Shimkunas system and the concreteness portion of the Gorham system to score proverb interpretation. Watson obtained two scores, an Inability to Abstract score, which is actually a Gorham concreteness score, and an Autism score, which is an autistic logic score from the Shimkunas system.

The Harrow, Tucker, and Adler System

Harrow, Tucker, and Adler (1972) developed a system which includes a scale using the abstract scoring system of Meadow. A second scale for concrete responses uses a scoring system similar to Meadow's abstract system. In addition, the authors developed a four-point scale for scoring idiosyncratic thinking or bizarreness. This third scale is similar to the Shimkunas system in that it also measures the autistic logic dimension of thought disorder in proverb interpretation. very similar to that of Shimkunas' (1967) system of autistic logic. The authors expand and improve on Shimkunas' work by dividing this dimension of thought disorder into five specific areas: lack of shared communication; strange or socially deviant responses; logically incoherent statements; inconsistent, confused, or disorganized
responses; and overelaborated responses. By doing this, they are the first to operationally define the concept of autistic logic in proverb interpretation. In their research, like that of Singer (1968), careful verbatim transcriptions of oral responses are used.

The Adler and Harrow System

Adler and Harrow (1973) expanded upon the third scale of their earlier system (Harrow, Tucker, & Adler 1972) in order to construct their Manual for Assessing Components of Idiosyncratic or Bizarre Responses. This manual is also designed for use with verbatim transcripts of oral responses. The manual further defines and delineates the measure of this third, or autistic dimension of proverb interpretation. Each of the five subtypes of idiosyncratic responses in the Harrow, Tucker, & Adler system are themselves divided into two to four finer sub-categories. Also, an attempt was made to apply different numerical weighting to each subdivision. Unfortunately, criteria for the assignment of weighted scores were never completed.

The Andreasen System

Andreasen (1977) approached proverb interpretation by grouping scoreable responses into one of five
categories. In her system, each category is scored on a 1 to 3 scale for degree of thought disorder. Andreasen scored the traditional categories of correctness, abstractness, and concreteness. In addition, she scored responses on two other indicators tapping the autistic logic dimension: bizarreness and personalization.

The Hertler, Chapman, and Chapman System

Hertler, Chapman, and Chapman (1978) re-examined Gorham's (1956a) concept of concreteness in proverb interpretation and developed a scoring system for Literalness as an alternative to scoring concreteness. They define Literalness "as an active attempt to interpret the meaning of the proverb as a literal message rather than as symbols to be interpreted." (Hertler, Chapman, & Chapman, 1978, p. 551). For example, when asked to interpret the statement "When the cat's away, the mice will play," even intelligent and educated schizophrenic individuals may explain the actions of cats and mice, instead of people.

This system is an improvement over Gorham's (1956a) instructions for scoring concreteness. Though Gorham (1956a) was very detailed in his criteria for scoring abstraction, he evidently regarded concreteness
as so obvious that his criteria for it in the scoring system were very brief. In the Gorham manual, a short descriptive statement is supplemented by one example of a concrete response to each of seven proverbs.

In the Hertler, Chapman, and Chapman system, Literalness is carefully defined by a thorough set of criteria. In this system, responses are scored according to a three point scale. Employing the innovation of the Friedes System, each proverb is divided into two halves, and each half receives a Literalness score of 0 or 1. As a result, each proverb can be scored 0, 1, or 2.

The authors argue that scoring for Literalness is also an improvement over scoring for concreteness because concreteness reflects in large part a lack of accuracy which is due to intelligence. Shimkunas, Gynther, and Smith (1967) had earlier demonstrated this to be a problem with the Gorham scoring categories. Hertler, Chapman, and Chapman (1978) view concreteness in schizophrenia as:

heavily affected by a failure to focus on the task of interpretation and by other aspects of generalized deficit. Literalness should be less affected by generalized deficit because it is a
more specific type of error. Because Literalness is less a reflection of generalized deficit than concreteness, a score for Literalness should depend less on both Verbal IQ and abstraction (p. 552). Hertler, Chapman, and Chapman (1978) additionally observed that "many responses both by normal subjects of low intelligence and schizophrenics stick closely to the symbols of the proverb but yet are not literal interpretations of the proverb" (p. 551). Subjects who are unable to interpret a proverb will often simply repeat words of the proverb, give associative responses to it, or relate it to their own experience. Even though this is not evidence of a subject's interpreting the symbols literally, such responses would be scored as "concrete" by the Gorham system.

Assessing 115 schizophrenics and normals with their scoring system, Hertler, Chapman, Chapman (1978) found Literalness to be as reliable a measure as concreteness, as measured by coefficient alpha (.85 for Literalness and .84 for concreteness). High interrater reliability was also achieved ($r = .90$).

In relation to clinical status, both schizophrenics and normals received lower scores on Literalness than concreteness. Despite these lower scores,
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schizophrenics still scored significantly higher than normals on Literalness \( (p < .001) \).

Most significantly, Verbal IQ was correlated with concreteness \( (r = -.52, p < .01) \), but nonsignificantly with Literalness \( (r = -.15) \). These findings are interpreted as demonstrating that Literalness represents a more specific kind of error less affected by generalized intellectual deficit. Because of this, Literalness is more useful than concreteness in identifying and evaluating schizophrenic thought disorder as opposed to more generalized intellectual deficit.

This interpretation is further supported by the correlations between abstractness and concreteness \( (r = -.64) \) and abstractness and Literalness \( (r = -.48) \) in schizophrenic subjects. Thus abstraction scores accounted for 41% of the variance in concreteness scores but only 23% of the variance in Literalness scores. This again suggests that Literalness is a more specific kind of error, less affected by a generalized deficit that affects abstracting ability.

**The Reich System**

Reich (1981) scores proverbs interpretation by a system that he describes as that of Gorham (1956a), but
which differs markedly. Reich scored responses on a 0 to 2 scale of abstraction, as does Gorham, but also scores these responses on a 0 to 2 scale of idiosyncracy instead of concreteness. He then combined these scores "to increase the power of the numerical ratings to differentiate" psychotic from normal individuals (p.528).

The Carpenter and Chapman System

Carpenter and Chapman (1982) used three existing scales in their scoring of proverb interpretation. First, responses were scored for correct abstraction according to Gorham's (1956a) method. Next, Literalness was scored using the system developed by Hertler, Chapman, and Chapman (1978). Finally, autism was scored according to the Shimkunas, Gynther, and Smith (1967) system. Process or poor premorbid adjustment schizophrenics were found to perform more poorly than reactive or good premorbid status schizophrenics on the Proverbs test, and the differences in scores were found to be mainly due to differences in the autism score.

The Marengo System

Marengo, Harrow, Lanin-Kettering, and Wilson (1985; 1986) revised and improved upon the work of Harrow, Tucker, and Adler (1972), and Adler and Harrow (1973) in
scoring bizarre and idiosyncratic thinking. They expand upon the original Adler and Harrow (1973) definition of Bizarre-Idiosyncratic thinking, defining it as:

(a) unique to the particular subject; (b) deviant with respect to conventional social norms; and (c) frequently hard to understand or to empathize with the context from which the response arose. While these three features are central to the concept, other less frequent characteristics are verbalizations that: (d) may appear confused, contradictory, or illogical; (e) may involve sudden or unexpected contrasts; and (f) are usually inappropriate or unresourceful in relation to the task at hand (Marengo, Harrow, Lanin-Kettering, & Wilson, 1986, emphasis theirs).

Different degrees of thought disorder are scored by assigning scores of 0, .5, 1, or 3 to responses, ranging from absent to representative of severe thought disorder. These scores are assigned in five categories of Bizarre-Idiosyncratic thinking. Five categories evaluate verbal responses in terms of the structure of the language used, its content, intermixing of personal associations or tangential ideas, the response’s relationship to the proverb, and the subject’s overall
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behavior in the testing situation. Responses are first analyzed and scored according to eleven subcategories, then assigned scores on the five major categories.

The reliability of the Marengo system is well documented (Marengo, Harrow, Lanin-Kettering & Wilson, 1986). Four separate assessments of interrater reliability for total overall scores of Bizarre-Idiosyncratic thinking from a test battery of proverbs and the Weschler Adult Intelligence Scale-Revised (WAIS-R) (1981) Comprehension subtest all yielded significant correlations ($r = .67$-.93). Interrater reliabilities for each of the five categories of idiosyncratic thinking which the system scores were also significant, although their magnitudes were smaller.

In addition to interrater reliability, internal consistency of the scoring system with the proverbs test, as measured by Chronbach's alpha, was .85 for all possible combinations of item by item scores (Marengo, Harrow, Lanin-Kettering, & Wilson, 1986). When subjects were given two parallel forms of the Proverbs test (Gorham, 1956b, Proverbs Set 1 and Proverbs Set 3), the scores on these two sets of proverbs were correlated $r = .79$ (Harrow & Miller, 1980).

Validation research with the Marengo system has
produced four substantive findings. First, when using the system was used with both the Gorham Proverbs Test and the WAIS-R Comprehension subtest (which includes proverbs and verbal response tasks) Bizarre-Idiosyncratic thinking was positively correlated with linguistic errors on a structured communication task (cf. Lanin-Kettering, 1983). Second, both schizophrenic and nonschizophrenic patients who showed a disturbance of associative processes on the word association test also displayed significantly more severe idiosyncratic thinking on the WAIS-R Comprehension test than patients who did not display associative process disturbances. (Silverstein, Harrow, & Marengo, 1980). Third, correlations of scores on a combined proverbs and Comprehension test with the Object Sorting Test measure of Bizarre-Idiosyncratic thinking were significant ($r = .50, .60$) in psychiatric patients in the acute inpatient phase (Marengo, Harrow, Lanin-Kettering, & Wilson, 1986). Fourth, earlier versions of the scoring system for Bizarre-Idiosyncratic thinking have demonstrated significant correlation with measures of Communication Deviance used with schizophrenic families on the Objects Sorting Task (Wild, 1972: Wild, Singer, Rosman, Ricci, & Lidz, 1965) and the WAIS-R Comprehension test (Quinlan,
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Schultz, Davies, & Harrow, 1978). These latter results suggest a relationship between Bizarre-Idiosyncratic thinking, or positive formal thought disorder, and Communication Deviance.

Criticisms of the Reliability and Validity of Proverbs Interpretation Scores

Reliability has been reported in the literature for most of the above scoring systems. This includes the Meadow System (Meadow, Greenblatt, & Solomon, 1953; Meadow, Greenblatt, Funkenstein, & Solomon, 1953), Becker System (Becker, 1956), Gorham System (Gorham 1956b,c; 1957; 1961; 1963), Church and Richardson System (Church & Richardson, 1959), Shimkunas System (Shimkunas, Gynther, & Smith, 1967; Shimkunas, 1970), Watson System (Watson, 1973; 1976), Harrow, Tucker, and Adler System (Harrow, Tucker, & Adler, 1972), Adler and Harrow System (Harrow & Quinlan, 1977), Hertler and Chapman System (Hertler, Chapman, & Chapman, 1978), Reich System (Reich, 1981), Carpenter and Chapman System (Carpenter & Chapman, 1982), and the Marengo System (Harrow & Miller 1980; Marengo & Harrow, 1980; Marengo, Harrow, Lanin-Kettering, & Wilson, 1986). In addition, all the above studies report support for the validity of these systems through their ability to identify schizophrenic subjects, with the exception of the Church
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and Richardson system, which was designed for a different purpose.

Andreasen (1977) strongly criticizes the validity of proverbs interpretation scores because of the poor interrater reliability she has achieved using her system. Andreasen states, "...at best, proverb interpretation may have relatively good validity but poor reliability....at worst, therefore, the validity of using proverbs in a clinical situation is somewhat questionable" (p. 471). Indeed, Andreasen's findings seem irreconcilable with Spitzer and Fliess' (1974) statement that, "There is no guarantee that a reliable system is valid, but assuredly an unreliable system must be invalid" (p.341).

Andreasen notes that although Gorham (1956b) and Meadow, Greenblatt, & Solomon (1953) achieved good reliability in their studies, they did so at the expense of blindness on the part of their raters. In contrast to the diagnostic task in actual clinical settings, these studies only evaluate schizophrenics in comparison to controls. The high reliabilities attained could be due to these studies' inclusion of thought disordered individuals from only one diagnostic group and rater expectations concerning the type of thought disorder
found in a schizophrenic sample. This same criticism applies equally to almost all of the research work on proverb interpretation, which achieved reliability while comparing only a schizophrenic group to controls.

In the Andreasen study, clinicians evaluated thought disorder in psychiatric inpatients diagnosed as schizophrenic, manic, or depressed using Spitzer, Endicott, and Robin's (1975) Research Design Criteria. Subject's interpretations of proverbs were evaluated by these clinicians for the quality of their thinking without any knowledge of patient diagnosis, making this a more realistic approximation of an actual clinical setting. Andreasen interprets her findings as indicating that when the clinician is blind concerning diagnosis, reliability drops markedly. Because of this, Andreasen found proverb interpretation to be of little value as an indicator of thought disorder and of little practical use in differential diagnosis. She concluded that the widespread use of proverbs in mental status exams should be discontinued.

In response to Andreasen's critique, Reich (1981) tested his system using a method similar to that of Andreasen's (1977). Subjects were controls or either schizophrenic or manic-depressive psychiatric patients
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as diagnosed by DSM-III (1980) criteria. Reich achieved both high reliability and validity. Specifically, he found, like Andreasen, poor correlation between raters on each individual proverb, but a correlation coefficient of .82 when the scores of the four proverbs used were summed. In addition, mean scores of the schizophrenics and the manic-depressive patients were significantly different from controls.

Reich cites three differences between his and Andreasen's study to explain their different findings:
"(1) the raters took pains to learn the scoring methods used; (2) the raters gave the proverb in the standardized fashion prescribed by the manual; and (3) the scores of the four proverbs used were summed rather than examined individually" (p. 530).

He concludes that if intelligence and cultural variables are controlled, at least four proverbs are given, and scoring is done using standardized methods, proverb interpretation can achieve both high reliability and validity. Reich's conclusions are supported by the work of Harrow, Tucker, and Alder (1972), Harrow and Miller (1980), Marengo and Harrow (1985), and Marengo, Harrow, Lanin-Kettering and Wilson (1986), all of whom employed designs which specifically utilized proverbs.
interpretation to distinguish schizophrenic, and in one case manic psychiatric patients (Marengo & Harrow, 1985), from other psychotic and nonpsychotic psychiatric patients. In every case, these researchers also attained good interrater reliability.

Proverb Interpretation in Various Diagnostic Groups

Andreasen (1977) found the responses of manics to be less correct, less abstract, more concrete, more bizarre, and more personalized than those of depressives. As compared to schizophrenics, the responses of manics were more correct, more personalized, and more concrete, but not significantly different in terms of bizarreness or abstraction. Depressives, when compared to schizophrenics, responded more correctly and abstractly, and less concretely, bizarrely, and in a less personalized manner. However, because of the poor interrater reliability she achieved with her measures, Andreasen questioned the validity of these findings.

Reich (1981) was unable to refute Andreasen's criticism of proverbs interpretation as having little or no use in differential diagnosis among various disorders. Reich reported no significant difference in the scores of a schizophrenic group as compared to a
manic-depressive group using his system.

In contrast, Harrow, Tucker and Adler (1973) did find differences in the scores of schizophrenics as compared to manic-depressive and personality disordered individuals using the Adler and Harrow System (1972). In addition, Marengo and Harrow (1985), using the Marengo (1985; 1986) system, found schizophrenics and manics to score significantly higher than other psychotic and nonpsychotic patients. Both of these studies obtained good interrater reliability for the scoring systems each used.

The surprising finding by Marengo and Harrow (1985) of severe thought disorder in manic psychotic and even acutely disturbed manic nonpsychotics may actually explain why Reich (1981), using a less sophisticated scoring system, was unable to distinguish schizophrenics from manic-depressives. It may have been that the Reich scoring system was able to distinguish the presence of severe thought disorder in the schizophrenic and manic-depressive population, yet did not possess sufficient precision in its ability to provide qualitative information to distinguish between the two groups. In contrast, the Marengo system provides significantly more information about thought
disorder than the Reich system, and this added information was sufficient to distinguish between these same and other diagnostic groups in the Marengo and Harrow study. Such an interpretation of the Reich study, in conjunction with the findings of these other studies, provides strong support for the ability of proverbs interpretation to distinguish schizophrenics from other diagnostic groups, including other psychotic groups.

In addition, proverb interpretation has been used successfully to study changes in the severity of thought disorder in different phases of the illness among various diagnostic groups. When proverb interpretation is used in a battery with the Comprehension test and Object Sorting test and a composite index of thought disorder computed, early schizophrenics display more severe Bizarre-Idiosyncratic thinking than other psychotic and nonpsychotic patients, with the exceptions of manics. (Marengo & Harrow, 1985). A decline in the severity of Bizarre-Idiosyncratic thinking occurred between the acute phase and a stage of partial recovery in psychiatric disturbance and was associated with improvement in other aspects of the patient’s clinical condition (Harrow, Grossman, Silverstein, & Meltzer,
1982). In a longitudinal study, significant schizophrenic-nonschizophrenic differences in disordered thinking were found using this system at the acute phase. These differences lessened considerably at 1.5 year follow-up.

Additionally, significant associations were found between high scorers using the Marengo system and other forms of major psychopathology, such as delusions (Harrow & Marengo, 1986; Harrow, Marengo, & McDonald, 1986; Harrow, Silverstein, & Marengo, 1983; Marengo & Harrow 1985). Finally, high composite scores were found to significantly relate to the level of dysfunction in current and later overall adjustment (Harrow & Marengo, 1986; Harrow, Marengo, & McDonald, 1986; Harrow, Silverstein, & Marengo, 1983; Marengo 1983).

The Chapman Group's Psychosis-Prone Traits

Psychosis-Proneness, Schizotypy, Psychosis, and Other Psychopathology

The Chapman group has developed five true-false scales in an attempt to measure psychosis-proneness (Chapman, Edell, & Chapman, 1980, Eckblad & Chapman, 1983, Chapman et al., 1984, Mishlove & Chapman, 1985). Of particular interest to the present study is the Perceptual Aberration-Magical Ideation (Per-Mag) Scale.
As will be seen, the symptoms assessed by this scale fit the Andreasen and Olsen (1982) criteria of positive formal thought disorder, a component of their model of positive schizophrenia.

Because their work is based on the assumption that both schizophrenia, and psychosis proneness in general, represent a heterogeneity of disorders (Chapman, Edell, & Chapman, 1980), the Chapman scales were developed with the goal of isolating some of these distinct varieties of psychosis proneness (Chapman, Chapman, & Miller, 1982). Therefore, in order to study the Per-Mag trait in isolation, individuals who score high on another scale, the Physical Anhedonia Scale (Chapman, Chapman, & Raulin 1976), are excluded from the Per-Mag group. Physical Anhedonia is described as "a lowered ability to experience pleasure" (Chapman, Chapman, & Miller, 1982).

Though only longitudinal studies of individuals who score deviantly on this scale will conclusively demonstrate whether such an individual is at risk for psychosis, findings of psychotic-like or schizotypal symptoms, the Chapmans argue, would provide support for this contention (Chapman et al., 1984). Clinical reports of Bleuler (1911,1950), Fenichel (1945), Gilles (1958), James Chapman (1966), and Strauss (1969) all
described psychotic-like behavior which often preceded the onset of psychosis.

Further support for the relationship of schizotypal symptoms to psychosis-proneness is suggested by the findings of the Danish Adoption studies (Kety et al., 1968; Kendler et al., 1981). These studies reported evidence of a genetic link between chronic schizophrenia and borderline schizophrenia. Hoch and Cattell (1959) and Meehl (1964) also write about such a relationship. Since these studies, terminology has shifted somewhat, with this type of borderline schizophrenia having been reassigned the diagnosis Schizotypal Personality Disorder by DSM-III-R (1987).

The Chapman group has done one initial longitudinal study, a 25 month long-term follow up study of individuals who scored high on these scales (Chapman & Chapman, 1985). Using Loranger's (1984) data for first episode of DSM-III-R schizophrenia, one would expect about 12% of the future schizophrenics to have their first episode during this 25 month period. Using their rating scale of psychotic symptoms (Chapman & Chapman, 1980), 10% of the Per-Mag group reported psychotic symptoms.

The Chapman group also posits that psychosis-prone
individuals should show not just psychotic-like psychopathology, but other kinds of psychopathology as well. This is because psychotic individuals display not only more psychotic symptoms than normals, but also greater levels of depression, anxiety, psychosomatic complaints, socially inappropriate behavior, and poor social adjustment. This assertion is also built upon the work of Meehl (1964) and Hoch and Cattell (1959), who originally reported this.

To identify psychosis-prone individuals, the Chapman scales assess schizotypal symptoms, thought disorder, and attenuated Schneiderian first rank symptoms (Schneider, 1959). They assume these to be identifying features of psychosis-proneness. To use Meehl's (1964) term, they are "diagnostic bell ringers", just as psychotic symptoms are a "diagnostic bell ringer" for psychosis.

Perceptual Aberration

From the earliest writings on the subject (Kraepelin, 1913/1919, Bleuler, 1911/1950) to the present, much of the literature on schizophrenia has examined the unusual beliefs, feelings, and perceptions schizophrenics report concerning their bodies. The symptom of distortion of body image, has had a long
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history in the literature and occurs in a group of individuals who have been given a variety of diagnostic labels. Review of psychoanalytic literature indicates such distortion is an early symptom of schizophrenia (Fenichel, 1945), schizotypy (Rado, 1956; Meehl, 1973), latent schizophrenia (Bychowski, 1943; Federn, 1952), psychotic character (Frosch, 1970), borderline personality (Kernberg, 1967), and pseudoneurotic schizophrenia (Hoch & Cattell, 1959). Most of these writers report their impressions that these groups are at high risk to schizophrenia. Hoch, Cattell, Strahl, and Penne (1962) in a 5- to 20-year follow-up study found 20% of the individuals whom they had diagnosed as pseudoneurotic schizophrenia were later hospitalized for a schizophrenic episode. Because of this, Chapman, Chapman, and Raulin (1978) reasoned that body-image aberration, as measured by the Perceptual Aberration Scale, would be useful in identifying psychosis-prone individuals.

Their 35-item Perceptual Aberration Scale consists of 28 items measuring "transient aberrations in the perception of one's own body" (Chapman, Chapman, & Miller 1982) and 7 items measuring other perceptual aberrations. Representative items from the scale
include: "Occasionally it has seemed as if my body had taken on the appearance of another person’s body" (true), "My hands and feet have never seemed far away" (false), and "My hearing is so sensitive that ordinary sounds become uncomfortable" (true).

College students who score high on this scale have been found to display schizophrenic-like thought disorder on the Rorschach Test (Edell & Chapman, 1979). In addition, these Perceptual Aberration subjects display other well-established characteristics of schizophrenics, including deviant associations on a continued word association task (Miller & Chapman, 1983), communication deficits as measured by the Rosenberg and Cohen word-communication task (Martin & Chapman, 1983), reaction-time crossover on a task that uses regular and irregular preparatory intervals (Simons, MacMillan, & Ireland, 1982), and abnormally great negative variation in slow cortical potentials after the imperative stimulus of a reaction time test (Lutzberger et al., 1981).

of the SADS-L they used investigate schizophrenic, manic, hypomanic, and schizotypal features. Interviews were scored using a manual developed by Chapman and Chapman (1980). The Perceptual Aberration subjects were found to have significantly more psychotic-like, schizotypal, depressive, and hypomanic symptoms than controls. A more complete description of these symptoms can be found in Appendix A.

Chapman, Edell, and Chapman (1980) interpret these data as supportive of the construct validity of the Perceptual Aberration Scale as a measure that identifies subjects who are psychotic-like and schizotypal. Because many of these perceptual aberration subjects also show affective symptoms, the writers argue that the Perceptual Aberration Scale may identify two or more groups at risk for different types of psychosis. For example, one group might be at risk for psychoses labeled schizoaffective or affective disorder, while the other might be at risk for psychosis labeled as schizophrenia or schizophreniform disorder.

Magical Ideation

Meehl (1964) reported that schizotypal, or schizophrenia-prone individuals often held a "belief, quasi-belief, or semi-serious entertainment of the
possibility that events which, according to the causal concepts of this culture, can not have a causal relationship with each other, might somehow nevertheless do so" (p. 54). He termed these beliefs magical ideation. Fenichel (1945) and Hoch and Cattell (1959) describe schizophrenia-prone individuals in terms similar to Meehl's conceptualization. Spitzer, Endicott, and Gibbon (1979) found magical ideation to be a prominent feature in the borderline schizophrenia subjects from the Kety, Rosenthal, Wender, and Schulsinger (1968) Danish adoption study. In addition, the diagnosis of Schizotypal Personality Disorder in DSM-III-R (1986) uses as one of its diagnostic criteria "magical thinking, e.g., superstitiousness, clairvoyance, telepathy, '6th sense,' 'others can feel my feelings'" (p.313).

Eckblad and Chapman (1983) developed a 30 item scale to measure these beliefs in forms of causation, which by the consensual norms of our culture, are invalid. Most of the items from the scale inquire about interpretations of one's personal experience rather than belief in the theoretical possibility of magical forms of causality.

The authors note that many of these experiences
enjoy subcultural support, as in the cases of thought transmission, psychokinesis, precognition, astrology, spirit influence, reincarnation, good luck charms, and the transfer of psychical energies between people. Representative items from this category would include, "Good luck charms don't work" (false) and "Some people can make me aware of them just by thinking about me" (true).

A few items, such as those which refer to the presence of secret messages in the behavior of others or arrangement of objects, enjoy little or no cultural support. An example from this category is the item, "I have felt that there were messages for me in the way things are arranged, like in a store window" (true).

The Magical Ideation Scale and the Perceptual Aberration Scale intercorrelate quite highly ($r = .70$) (Chapman, Chapman & Miller, 1982), with the Magical Ideation Scale sharing about one half its variance with the Perceptual Aberration Scale ($\% \text{ var} = .49$) (Eckblad & Chapman, 1983). Because of the high correlation between scores on the two scales, Eckblad and Chapman reasoned the two scales tap the same trait.

If this is so, since high scoring subjects on the Perceptual Aberration scale had been found to display
more psychotic-like symptoms, schizotypal features, and affective disorder than controls as a group, high scorers on the Magical Ideation Scale are expected to do so as well, even when these latter subjects scored low on the Perceptual Aberration Scale. Eckblad and Chapman selected subjects who scored high on Magical Ideation but not Perceptual Aberration. These subjects were then interviewed using the SADS-L and scored according to the Chapman and Chapman (1980) scoring manual. As with the perceptual aberration subjects, Eckblad and Chapman (1983) found magical ideation subjects scored significantly higher on measures of psychotic, psychotic-like, and schizotypal experiences than a college student control group. A more complete description of these symptoms can be found in Appendix B.

Because magical beliefs and schizotypal experiences by, definition, overlap somewhat, Eckblad and Chapman recomputed schizotypal experiences by group after excluding those which included magical beliefs. The difference between high scorers on the scale and controls remained significant.

These findings demonstrate that not only do scores on the Perceptual Aberration Scale and the Magical
Ideation Scale correlate highly; Magical Ideation subjects who do not score high on the Perceptual Aberration Scale also perform similarly on the SADS-L to subjects who do score high on Perceptual Aberration. This further supports the construct that the two scales identify the same syndrome. It still remains for the syndrome remains to be fully defined.

The Magical Ideation Scale is believed by Eckblad and Chapman to identify some instances of this syndrome missed by the Perceptual Aberration Scale. Therefore, subjects who score highly on either the Magical Ideation Scale or the Perceptual Aberration Scale are typically combined into one group, a Per-Mag group (Chapman, Chapman, & Miller 1983).
RATIONAL FOR THE PRESENT STUDY

Positive and Negative Symptoms in Schizophrenia

Recent work studying positive and negative symptoms in schizophrenia offers a means to conceptualize the various systems of proverb interpretation as each tapping one of two different dimensions of thought disorder. The idea of positive and negative symptoms in schizophrenia originated in the work of the neurologist Hughlings-Jackson (1931), who originally proposed an approach to dividing the symptoms of schizophrenia into two groups. This division is based on whether the symptoms are positive (or florid) or negative (or defective).

Hughlings-Jackson's original conceptualization has been extended by Strauss, Carpenter, and Bartko (1974), Crow (1980), Angrist, Rotrosen, and Gershow (1979), Andreasen, Olsen, and Dennert (1982), Andreasen (1979; 1981; 1982) and Andreasen and Olsen (1982). These workers hypothesized that patients with prominent positive symptoms, which they define as delusions, hallucinations, positive formal thought disorder, or bizarre behavior, differ in important ways from patients with prominent negative symptoms. Negative symptoms, or the defect state, are defined as alogia, affective
flattening, avolition, anhedonia-asociality, and 
attentional impairment. Positive symptoms tend to 
improve with treatment, while negative symptoms do not, 
and in the end, are more crippling to the individual. A 
more complete description of positive and negative 
symptoms, and validation research to support the 
concept, can be found in Appendix C.

This validation research (Andreasen & Olsen, 1982) 
found that the negative schizophrenia group can be 
conceived of as occupying one end of a continuum. This 
group displays poor premorbid adjustment, an overall 
lower level of functioning, impaired cognitive 
capacities, and indications of previous brain injury and 
cerebral atrophy. The positive schizophrenia group, at 
the other end of the continuum, had better premorbid 
adjustment, better overall levels of functioning, normal 
sensoria and no evidence of cerebral atrophy. A mixed 
group consistently occupies a middle ground with respect 
to each of these variables. The distinction does appear 
to possess some predictive validity since it is related 
to prognosis.

Positive and Negative Symptoms and Proverb Interpretation

Responses scored by various proverb interpretation 
scoring systems as "overabstraction" (Benjamin, 1944),
"looseness of association" (Meadow, Greenblatt, & Solomon, 1953), "absurd" (Becker, 1956), "figurative" (Richardson & Church, 1959), "autistic" (Shimkunas, Gynther, & Smith, 1967), "inappropriate abstraction", "construction-stylistic deviances", "comprehensibility" (Singer, Wynne, Levi, & Cloe, 1968), "bizarreness," "personalization" (Andreasen, 1977), "idiosyncratic" (Reich, 1981), and "Bizarre-Idiosyncratic thinking" (Harrow, Tucker, & Adler, 1972; Adler & Harrow, 1973; Marengo et al., 1985, 1986) all appear to tap criteria of positive formal thought disorder. Responses scored for "Literalness" (Benjamin, 1944; Becker, 1956; Richardson & Church, 1959; Singer, Wynne, Levi, & Cloe, 1967; Hertler, Chapman, & Chapman, 1978), "impairment of abstraction" (Meadow, Greenblatt, Solomon, 1953), and "concreteness" (Gorham, 1956; Andreasen, 1977) seem associated with the deficit state. These types of thought disorder fit the criteria of negative symptoms, described in the literature as "impoverished thinking", "concrete thinking", "poor intellectual functioning" (Harrow & Quinlan, 1985), and "alogia", e.g., "poverty of content of speech" (Andreasen & Olsen, 1982).

A repeated finding in the literature is the poorer performance in proverb interpretation among poor
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premorbid or process schizophrenics as compared to good premorbid or reactive schizophrenics (Becker, 1956; Herron, 1962; Johnson, 1966; Little, 1966; Meichenbaum, 1969; Watson, 1973, 1976). Validation research on positive and negative schizophrenia (Andreasen & Olsen, 1982) found negative schizophrenia associated with poor premorbid adjustment. Since responses scored as showing Literalness or concreteness tap negative symptoms, one would expect the poorer performance of poor premorbid schizophrenics on proverbs to be due in large part to increased Literalness or concreteness. Along these lines, Harrow and Quinlan (1985) report concrete thinking as a very prominent feature in the early acute phase of chronic schizophrenics, and conceptualize it as the significant factor in chronic schizophrenia.

Carpenter and Chapman (1982), as discussed earlier, investigated this difference in performance between these two schizophrenic subtypes. They found that process, or poor premorbid schizophrenics, were not more literal than reactive, or good premorbid schizophrenics. Instead, the difference in their performance was due to the process schizophrenics' higher scores on autistic logic. Such findings at first would seem to disconfirm the hypotheses regarding differences in proverb
interpretation between these two groups.

Chapman and Carpenter interviewed all of their schizophrenic subjects with the Schedule for Affective Disorders and Schizophrenia-Lifetime Version (Spitzer & Endicott, 1977) in order to establish the presence of their psychotic symptoms. Only subjects who reported at least one of the following symptoms were retained for the study: thought broadcasting, bizarre or multiple delusions or delusions of control, paranoid delusions, delusions with hallucinations, persistent hallucination, definite thought disorder, or obvious catatonic motor behavior. All of these symptoms, except for catatonia, are positive symptoms.

Such criteria introduces a strong selection bias towards choosing subjects for both groups who present with prominent positive symptom schizophrenia. The present author argues that these individuals should receive higher scores on autistic logic. From this re-interpretation of the results, the Chapman and Carpenter data support the present study's hypothesis concerning positive and negative symptoms and their relation to proverb interpretation. This is because subject selection appears to have eliminated almost all pure negative symptom schizophrenics from the study. As a
result, it seems that the Carpenter and Chapman study was left with a very select group of process schizophrenic subjects.

From the perspective of the theory of positive and negative symptom schizophrenia, the selection process in the Chapman and Carpenter study resulted in a process schizophrenic group that was comprised of schizophrenics who possessed a number of positive symptoms, but also some negative symptoms as well. Such a group occupies a portion of the center, or mixed symptom area of the continuum that Andreasen and Olsen (1982) identified in their validation work with positive and negative symptoms. Subjects from this portion of the mixed symptom group would be predicted to present with a preponderance of positive symptoms, leading to a high number of responses scored as autistic logic. However, along with their strong presentation of positive symptoms, the theory predicts that these subjects would also possess some negative symptoms as a part of their mixed symptom cluster. These negative symptoms would contribute to their poor premorbid, or process status. In this way, the theory predicts the Carpenter and Chapman results.
A scoring system based on a re-conceptualization of proverb interpretation in terms of its relationship to positive and negative symptoms

A re-conceptualization of proverb interpretation in terms of positive and negative symptoms is suggested by a re-interpretation of much of the past literature on proverbs, and schizophrenia in general. The adoption of the proverbs test in psychiatric evaluations occurred at a time when the concrete nature of the experience of schizophrenia was stressed.

At the same conference where Benjamin (1944) presented his seminal work on proverbs interpretation, Goldstein (1941; 1944) outlined his thoughts on "abstract" versus "concrete" behavior and attitudes in schizophrenia. He stated, "there is no question that a very great concreteness is characteristic for the behavior of schizophrenics, at least, of one group" (Goldstein, 1944; emphasis mine).

Although Goldstein never used proverb interpretation in research relying on them as measures of categorization, his conceptualization was an important factor in the adoption of the proverbs test in psychiatric evaluations. Since proverb interpretation was at the time already well established as a measure of intellectual capacities in the area of abstraction,
acceptance of its use as a test for this deficit in schizophrenia was rapid.

This emphasis on an impaired ability to abstract in the proverb interpretation of schizophrenics continues almost to this day. The Wells and Ruesch (1944) Mental Examiner's Handbook describes the Proverbs test as "mainly a gauge of the abstracting function" (p.115). In the most recent edition of the abridged Comprehensive Textbook of Psychiatry (Kaplan & Saddock, 1985) such an approach is still recommended. Only very recently, in the new, unabridged Comprehensive Textbook of Psychiatry (Kaplan & Saddock, 1986), has this view of proverbs interpretation been changed to that of a test of "looseness of association".

This change in the Comprehensive Textbook reflects the change in emphasis in proverbs research which began with the publication of Shimkunas, Gynther, and Smith's (1967) research. Reflecting the ongoing cognitive revolution in psychology, this new approach specifically explores the reasoning used by subjects to arrive at an abstraction during the desymbolization process of proverb interpretation. The concept of autistic logic, in later work expanded into a more detailed conceptualization of Bizarre-Idiosyncratic thinking, was
found to be a valid indicator of schizophrenia.

This approach to scoring has a number of advantages over scoring for abstractness and concreteness. It has been found to be unrelated to IQ (Shimkunas, Gynther, & Smith, 1967). Also, the delineation of categories in the Bizarre-Idiosyncratic thinking scoring system possesses the added advantage of providing some qualitative information about the nature of a particular individual's or a diagnostic group's thought disorder (Harrow, Tucker, & Adler, 1972; Adler & Harrow, 1973; Marengo, Harrow, Lanin-Kettering, & Wilson, 1985), level of disturbance, and prognosis (Harrow & Marengo, in press; Harrow, Marengo, & MacDonald, in press; Harrow, Silverstein, & Marengo, 1983; Marengo, 1983).

What these later researchers are measuring are factors that can also be described as incoherence, derailment, tangentiality, and incoherence. Such factors are defining characteristics of positive formal thought disorder (Andreasen & Olsen, 1982; Fish, 1962). Positive formal thought disorder is, to again use Meehl's (1962) term, a "diagnostic bell ringer" for positive schizophrenia in Andreasen and Olsen's (1982) conceptualization. In addition, it appears to be present in manic psychotic and acute manic nonpsychotic
individuals (Marengo & Harrow, 1985). At the other end of Andreasen and Olsen's continuum, a majority of the scoring systems reviewed measure some variant of concreteness (Benjamin, 1944; Meadow, 1953; Becker, 1956; Gorham, 1956b; Richardson & Church 1959; Singer, Wynne, Levi, & Sojit, 1968; Watson, 1973, Harrow, Tucker, & Adler, 1972; Andreasen 1977; Hertler & Chapman, 1978; Carpenter & Chapman, 1982), which is a negative symptom.

Positive Symptoms and Proverb Interpretation

Six of the proverb interpretation scoring systems reviewed above measure, at least in part, positive formal thought disorder (Shimkunas, Gynther, & Smith, 1967; Singer, Wynne, Levi, & Sojit, 1967; Andreasen, 1977; Harrow, Tucker, & Adler, 1972; Adler & Harrow, 1973; Marengo, Harrow, Lanin-Kettering, & Wilson 1985, in press). Of these six, the system which provides both the greatest amount of qualitative information balanced with efficiency in application is the Marengo system.

The Marengo system, in addition, has the greatest overlap with other contemporary conceptual approaches to thought disorder. It assumes that responses to proverbs reflecting thought disorder can be placed on a continuum extending from very severe Bizarre-Idiosyncratic
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Thinking to what Sullivan (1944) termed consensual, or normal thinking. Heavier weightings are assigned to very severe bizarre responses than to mild cognitive slips.

Although the two systems do differ in many respects, the Marengo system is closely tied to Rapaport, Gill, & Schafer's (1968) conceptual framework that views people as acquiring, over time, implicit conceptual norms about what is appropriate and what is deviant in a specific response situation. The Marengo system involves scoring consensually deviant responses along dimensions of thought disorder which, in Rapaport's terminology, could be described as "excessive distance" or a "loss of distance" from the stimulus, in this case, the proverb.

The Marengo scoring system and the Johnson-Holzman Thought Disorder Index (TDI) (1979) also show similarity. Both systems assign scores to bizarre, strange, and deviant responses, and severely deviant responses are given heavier weighting. Using scores from a sample of young schizophrenic subjects, Marengo, Harrow, Lanin-Kettering, and Wilson (1985) obtained a significant correlation (r = .61) between their proverb interpretation measures of Bizarre-Idiosyncratic
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thinking and thought disorder as measured on the TDI. The authors do not specify whether the TDI measures in this comparison were arrived at using the WAIS or Rorschach.

Andreasen's (1979a, 1979b) Scale for the Assessment of Thought, Language, and Communication (TLC) defines different language behaviors as subtypes of thought disorder. In general, as has been discussed earlier, the types of bizarre and idiosyncratic thinking tapped by the Marengo system are examples of positive formal thought disorder. The TLC contains a composite index of positive formal thought disorder. Types of thought disorder assessed by Andreasen on the TLC, such as tangentiality, incoherence, and loss of goal are also scored by Marengo as Bizarre-Idiosyncratic thinking when they appear in proverbs interpretation.

Finally, four out of the five types of pathological speech and thinking outlined in the Research Design Criteria (RDC) (Spitzer & Endicott, 1968) as constituting formal thought disorder (impaired understandability, loosening of association or derailment, illogical thinking, and neologisms) are scored as component of Bizarre-Idiosyncratic thinking by the Marengo system. Similarly, three of the specific
types of thought disorder that are in effect substituted in *DSM-III-R* (1987) for the term formal thought disorder (incoherence, marked loosening of associations, and markedly illogical thinking) are included in the Marengo system.

The present study employs a scoring system which uses the Marengo system of evaluating Bizarre-Idiosyncratic thinking to supply one half of a composite score of responses to proverb interpretation. The Bizarre-Idiosyncratic score by itself also provides a score for what the present study has termed the autistic logic or positive symptom dimension of thought disorder in proverb interpretation responses.

**Negative Symptoms and Proverb Interpretation**

The second dimension of proverb interpretation which has demonstrated utility in identifying thought disorder is that of concreteness. Beginning with Goldstein’s (1941; 1944) early theoretical work on schizophrenia, the thought disorder most traditionally associated with schizophrenia has been a deficit in the abstracting function. This conceptualization led to the widespread use of concreteness as a scoring criteria in a majority of the proverb interpretation scoring systems used to identify and study schizophrenic thought
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disorder.

With the exception of Benjamin (1944), who did not attempt to validate his system empirically, each of these studies has demonstrated the utility of concreteness in identifying a dimension of thought disorder in schizophrenics. Gorham (1956b; 1956c; 1957; 1961; 1963) in particular has worked extensively to establish norms for a variety of diagnostic populations.

It appears that concreteness does measure an important dimension of the thought disorder in many schizophrenics. In addition, as was earlier discussed, it appears to tap a factor which many theoreticians have conceptualized in terms of negative symptoms. A scoring system hypothetically tapping both positive and negative symptoms should afford both increased discrimination of diagnostic groups and richer clinical information using proverb interpretation.

As discussed, a number of problems exist with the scoring of concreteness in the Gorham System which are rectified by scoring for Literalness according to the Hertler, Chapman, & Chapman (1978) system. These researchers' findings of a nonsignificant correlation between Literalness and Verbal IQ does not support Harrow and Quinlan's (1985) contention that all measures
of impairment in abstraction should be given more attention as a component of overall intellectual and not schizophrenia-specific deficits. Instead, this finding suggests the opposite, that Literalness is a component of a schizophrenia-specific deficit.

For these reasons, the present study's scoring system uses Literalness as a second measure of thought disorder in proverb interpretation. By scoring for Literalness as well as Bizarre-Idiosyncratic thinking, the present study also provides a more specific measure of responses to the Proverbs test on a second dimension of thought disorder, concrete thinking, or the negative symptom dimension. The composite of both scores additionally provides an overall measure of both dimensions of thought disorder in proverb interpretation.

The present study does not attempt to measure the dimension of abstraction. Poor abstraction of the "correct" meaning of the proverb has been demonstrated to be an indicator of schizophrenic and possibly other forms of thought disorder (Meadow, Greenblatt, & Solomon, 1953; Becker, 1956; Gorham, 1956b,c; Watson, 1973; Carpenter & Chapman, 1982), but, it is also confounded with intelligence (Shimkunas, Gynther, &
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Smith, 1967). Because of this, scoring proverb interpretation for correct abstraction has rightfully fallen into disuse in research.

Research has instead demonstrated that what the present study terms the dimension of autistic logic, specifically Bizarre-Idiosyncratic thinking, and the dimension of concreteness, particularly Literalness, are more valid indicators of thought disorder in that they are less affected by factors of generalized deficit distinct from thought disorder, such as deficits in intelligence (Shimkunas, Gynther, Smith, 1967; Hertler, Chapman, & Chapman, 1978; Carpenter & Chapman, 1982; Harrow & Quinlan, 1985).

Hypotheses

1) It is hypothesized that the subject's familiarity ratings of the same-culture proverbs will be less than the familiarity ratings of the different-culture proverbs in the control group but not Per-Mag group. Specifically, it is hypothesized that: a) on all 13 proverbs Per-Mags will rate the proverbs as significantly less familiar than controls, b) on the first 10 (same-culture) proverbs the Per-Mags will again give significantly lower familiarity ratings than controls, and c) on the last three (different-culture)
proverbs Per-Mags will not be significantly different from controls in their familiarity ratings.

One potential explanation for thought disordered individuals' poorer performance on proverb interpretation is suggested by the concept of experience disorder. A possible ramification of this experience disorder would be missed learning in a thought disordered individual's developmental history. Specific to the proverb interpretation task, this incomplete learning history could leave the person unfamiliar with not only the conceptual norms for solving proverb interpretations, but also unfamiliar with the proverbs themselves. In such a case, the same-culture proverbs presented in this study should be familiar to the control group, but less familiar to the Per-Mag group, while the different-culture proverbs would be equally unfamiliar to both groups.

2) **Within groups, it is hypothesized that controls, but not Per-Mags, will rate the same-culture proverbs as more familiar than the different-culture proverbs.** Specifically, in a within groups comparison of the mean item familiarity of the same-culture proverbs with the mean item familiarity of the different-culture proverbs, it is predicted that familiarity will be greater for the
same than the different-culture proverbs for the control, but not the Per-Mag group. If this is not the case, it is predicted that the mean item familiarity of the different-culture proverbs subtracted from the mean item familiarity of the same-culture proverbs will be significantly greater for the control group than the Per-Mag group. These hypotheses explore in two different ways the prediction that the same-culture proverbs are familiar to the control group, but less familiar to the Per-Mag group, while the different-culture proverbs are unfamiliar to both groups.

3) It is hypothesized that the subject's familiarity ratings of the meanings of the same-culture proverbs will be less than the familiarity ratings of the different-culture proverbs in the control group but not Per-Mag group. Specifically, it is hypothesized that:

a) on all 13 proverbs Per-Mags will rate the meanings of the proverbs as significantly less familiar than controls, b) on the first 10 (same-culture) proverbs Per-Mags will again give significantly lower familiarity ratings with the meanings of the proverbs than controls, and c) on the last three (different-culture) proverbs Per-Mags will not be significantly different from controls in their familiarity ratings.
These hypotheses investigate whether any differences emerge when the familiarity with the meaning of a proverb rather than the familiarity with the proverb itself is compared for the two groups. It is predicted that familiarity with a proverb and familiarity with its meaning will be at similar levels for each group. However, another alternative is that the hypothesized unfamiliarity with proverbs in thought disordered individuals involves an unfamiliarity with the meaning or interpretation of the proverb despite having some degree of familiarity with the proverb itself. If this is the case, familiarity with proverbs between groups should be similar, while controls should be more familiar with the meaning of the proverb than Per-Mags.

4) Within groups, it is hypothesized that controls, but not Per-Mags, will rate the meanings of the same-culture proverbs as more familiar than the meanings of the different-culture proverbs. Specifically, in a within groups comparison of the mean item familiarity of the same-culture proverbs' meanings with the mean item familiarity of the different-culture proverbs' meanings, it is predicted that familiarity with the proverbs' meanings will be greater for same than different-culture
proverbs for the control, but not the Per-Mag group. If this is not the case, it is predicted that the mean item familiarity of the different-culture proverbs' interpretations subtracted from the mean item familiarity of the same-culture proverbs' interpretations will be significantly greater for the control group than the Per-Mag group. These hypotheses explore in two different ways whether the meanings of same-culture proverbs are familiar to the control group, but less familiar to the Per-Mag group, while the meanings of different-culture proverbs are unfamiliar to both groups.

5) It is hypothesized that Per-Mags will score higher than controls on the deviant proverbs interpretation scores, specifically on the composite and Bizarre-Idiosyncratic scores, but not on the Literalness score. This is because Bizarre-Idiosyncratic thinking, but not Literalness, is scored in responses that display positive formal thought disorder, which the present study argues the Per-Mag trait taps.

Mean item composite scores are compared between groups on: a) all 13 proverbs, with the prediction that Per-Mags will score significantly higher than controls, b) the first 10 (same-culture) proverbs, with the
prediction that Per-Mags will again score significantly higher than controls, and c) the last three (different-culture) proverbs, with the prediction that Per-Mags will not score significantly differently from controls. It is also predicted that the mean item score of the control group's responses on different-culture proverbs will be significantly higher than their mean item score on the same-culture proverbs.

This prediction is made because it is hypothesized that the higher score on indicators of thought disorder in the Per-Mag group is related to greater unfamiliarity with the proverbs, or alternately with the proverbs' meanings. Therefore, in the case of the same-culture proverbs, it is proposed that proverbs, or their meanings, are familiar to the control but not Per-Mag group. Because of this, Per-Mags are expected to score higher on the Composite score measure. However, in the case of different-culture proverbs, it is proposed that the proverbs, or their meanings, are equally unfamiliar to both groups. Because of this, the control group is expected to respond in a manner similar to the Per-Mag group. In other words, controls are expected to interpret proverbs with more scoreable responses if they are unfamiliar with the proverbs or their meanings.
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Mean item Bizarre-Idiosyncratic scores are compared between groups on: a) all 13 proverbs, with the prediction that Per-Mags will score significantly higher than controls, b) the first 10 (same-culture) proverbs, with the prediction that Per-Mags will again score significantly higher than controls, and c) the last three (different-culture) proverbs, with the prediction that Per-Mags will not score significantly differently from control. Alternatively, it is hypothesized that the mean item response of the control group’s responses on different-culture proverbs will be significantly higher than their mean item response to the same-culture proverbs in a within groups comparison.

Mean item Literalness scores are compared between groups on: a) all 13 proverbs, with the prediction that Per-Mags will not score significantly differently from controls, b) the first 10 (same-culture) proverbs, with the prediction that Per-Mags will not score significantly different from controls, and c) the last three (different-culture) proverbs, with the prediction that controls score significantly higher than Per-Mags. Within groups, it is predicted that the mean item response score of the control group’s responses on different-culture proverbs will be significantly higher.
than their mean item responses to the same-culture proverbs. It is additionally predicted that the mean item response score of the Per-Mag's responses on different-culture proverbs will not be significantly different from their mean item responses to the same-culture proverbs.

It is predicted that Literalness scores will not differ between groups because the present study maintains Literalness taps a dimension of negative symptoms, while the Per-Mag Scale taps positive symptoms, namely positive formal thought disorder. Because the Per-Mag trait taps positive symptoms and Bizarre-Idiosyncratic thinking scores these positive symptoms, it is predicted that the hypothesized differences between the scores of Per-Mags and controls will be found in the Bizarre-Idiosyncratic scores but not the Literalness scores. Therefore, even on unfamiliar proverbs, the Per-Mags should not score significantly different from controls on literalness.

The predictions within groups are more tentative. It is predicted that controls may respond with higher Literalness scores to the more unfamiliar different-culture proverbs as well as with higher Bizarre-Idiosyncratic scores, reflecting a tendency toward an
assumed random distribution of both positive (Bizarre-Idiosyncratic) and negative (Literal) sub-schizotypal cognitive slippage common in the speech of all normal, nonthought disordered individuals. It is thought that on these same proverbs, Per-Mags should score higher on Bizarre-Idiosyncratic thinking but not Literalness, again reflecting the positive symptoms that the Per-Mag Scale taps.

An alternative prediction is also made. Although high scorers on the Physical Anhedonia Scale are removed from the Per-Mag group, there is the possibility that some mixed symptom thought disordered individuals still remain in the Per-Mag group. These subjects could display other negative symptoms than the types associated with individuals who score high on Physical Anhedonia, such as affect flattening or avolition-apathy. Or, they could display a low level of negative symptoms, including Anhedonia. If this is the case, and the Per-Mag group is composed of both positive and mixed symptom individuals, increased Literalness scores would be expected in the Per-Mag group along with increased Bizarre-Idiosyncratic scores. Within groups, Per-Mags would score higher on different-culture than same-culture proverbs in both scoring categories.
METHOD

Subjects

Subjects were 30 male and 30 female Introductory Psychology students at the University of Montana receiving class credit for their participation in a psychology experiment. Subjects were selected from approximately 1500 Introductory Psychology students who completed the Perceptual Aberration and Magical Ideation Scales (described previously) and a number of other scales in a screening session. Subjects used in the current research were chosen to be Caucasian and below age 27.

Subjects were assigned to one of two groups on the basis of their scores. The Per-Mag group consists of subjects who scored more than two standard deviations above the mean for their sex on either the Perceptual Aberration or the Magical ideation Scale, but not the Physical Anhedonia Scale. The Control group consists of subjects who scored no more than one half standard deviation above the mean on any of these scales. There were 30 subjects in each group, and groups were matched for sex.

The Chapman Scales also include a 13 item Infrequency Scale, modeled after the Infrequency Scale
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in Jackson's (1974) Personality Research Form. The Infrequency Scale consists of items that almost everyone answers in one direction, so that a response in the keyed direction suggests an invalid test taking set. An example is, "On some occasions, I have noticed that other people are better dressed than myself." (keyed false). In the Chapmans' use of these scales, a subject is dropped from further data analysis if his or her Infrequency score is greater than 2 (Chapman et al., 1984). In the present research, a subject was dropped if his or her Infrequency score was greater than zero.

Experimental Design

Coefficient Alpha was computed for the proverb items used in this study in order to assess the internal consistency of the scales. The present study primarily utilizes a between-groups design. Between groups comparisons utilizing between groups t-tests included comparisons of: 1) familiarity with the proverbs; 2) familiarity with the proverbs' interpretations; 3) a composite score of Literalness and Bizarre-Idiosyncratic thinking; 4) a Bizarre-Idiosyncratic score; 5) a Literalness score; 6) verbal intelligence. Two 2x2 between-within ANOVAs were also performed on the Bizarre-Idiosyncratic and Literalness scores. In
addition, the first comparisons were also performed within groups between same and different culture proverbs using paired-groups t-tests.

Apparatus and Materials

The experimental tasks were conducted in one of the therapy rooms of the Clinical Psychology Center at the University of Montana. A tape recorder was used to record subject's responses and a stop watch was used to time subjects on the one timed task. Once in the room, subjects were seated opposite the experimenter at a table. A four page questionnaire provided instructions for the subject and listed the proverbs to be interpreted (Appendix D). A two page protocol for the experimenter included instructions which the experimenter read aloud to the subject and space to transcribe each response (Appendix E). Subjects were also administered a timed, ten minute version of the Quick Word Test, Level 2, Form AM (Boragata & Corsini 1964; Appendix F), a test of verbal intelligence. Level 2 of the test is normed for college freshman. This test was administered according to the procedure of Martin and Chapman (1982).

The scoring manual for assessing proverb interpretation used in the present study incorporated
adapted versions of both the Marengo System for Bizarre-Idiosyncratic thinking (Marengo, Harrow, Lanin-Kettering, & Wilson, 1985, 1986) and the Literalness scoring system (Hertler, Chapman & Chapman, 1978; cf. Appendix G). Carefully recorded verbatim transcriptions of the oral responses were made from the tape recordings by an undergraduate research assistant who was blind to subjects' group status.

The Marengo System evaluates thought disorder by assigning a score rating Bizarre-Idiosyncratic thinking. Each proverb response was scored as 0, .5, 1, or 3, ranging from thought disorder absent to severe thought disorder. In scoring, raters scored the response to each proverb as 0, .5, 1, or 3 according to 11 subcategories of Bizarre-Idiosyncratic thinking, then moved on to assigning a score for each of four categories. An overall score was then assigned on the basis of the scores in these categories.

For the purposes of this study, the Behavior category of Bizarre-Idiosyncratic thinking was not used for two reasons. This category consists of interviewer impressions of the subject's behavior during the course of the interview. Instructions for this rating include assessment of appearance and behavior unrelated both
to the experimental task and the presence or absence of thought disorder elicited by this task.

Additionally, this category has repeatedly demonstrated the weakest interrater reliability of the five rating categories of the Marengo System ($r = 0.47 - 0.98$) (Marengo, Harrow, Lanin-Kettering, & Wilson, 1986).

The scoring system for Literalness uses a three point scale of 0, 1, or 3 corresponding to Literalness absent to severe Literalness. Proverbs were divided into two stems as in the scoring system of Friedes, Grisell, Levin, Dobie, and Cohen (1964). Partial Literalness, occurring when one stem is interpreted Literally, was scored 1.

The present study revised Hertler, Chapman, and Chapman's (1978) system by assessing severe Literalness, the Literal interpretation of both stems, a score of 3 instead of 2 points. It seemed reasonable to weigh a completely Literal interpretation more heavily than a partial Literal interpretation. This is because Literally interpreting only one stem necessarily implies some understanding of and facility at the task of desymbolization as it applies to a particular proverb, whereas Literally interpreting both stems does not. Additionally, assigning severe Literalness a score of 3
makes the system more compatible with the Marengo system in terms of the possible range of scores.

The Marengo system does assign a score of .5 for instances of mild thought disorder such as a case of mild cognitive slippage. Since there is nothing analogous to this in the way that Literalness is conceptualized in the present study, no .5 score was assigned in scoring Literalness.

The first ten proverbs used in the present study were selected from Gorham's (1956b) Proverbs Test Forms I, II, III. Only true proverbs as defined by the operational definition of the current research were used. Not all of the 36 items on Gorham's Proverbs Tests are true proverbs according to the operational definition presented in this study. Some possess only one stem. Others are not figurative statements to be interpreted, but instead, are aphorisms which should be interpreted Literally (Hertler, Chapman, & Chapman 1978). Examples of this in the Gorham Tests include, "Where there's a will, there's a way," and "The more the cost, the more honor." The ten proverbs chosen from the Gorham Tests were from Form I, items 2,3; Form II, items 2,5,6,7,10; and Form III, items 2,6,9.

The last three proverbs administered were included to
test the hypothesis that the control group would receive higher Bizarre-Idiosyncratic and/or Literalness scores on unfamiliar proverbs than on familiar proverbs. To insure unfamiliarity, proverbs from another culture were chosen. Three Chinese proverbs (Bleuler & Chang, 1972) were used which fit the criteria of the operational definition of a proverb for this study. In order to insure these Chinese proverbs were unfamiliar to the subjects, a post-task questionnaire asked subjects to rate the familiarity of each proverb presented and the familiarity of the interpretation of each proverb on a five-point Likert Scale (see Appendix D).

Scores for Bizarre-Idiosyncratic thinking, Literalness, and composite scores from both these categories were recorded for each proverb, and totaled for the first ten proverbs, the last three proverbs, and all of the proverbs. Additionally, rating scores of the subject's familiarity with a proverb and familiarity with a proverb's interpretation were recorded for each proverb and totaled for the first ten proverbs, last three proverbs, and all of the proverbs. All scores were then converted to mean scores per proverb or item.

Procedure

Subjects in both groups were run individually.
Following selection for one of the two groups on the basis of their scores on the Perceptual Aberration and Magical Ideation Scales, subjects were contacted by the author and invited to participate in the study. Subjects were told they were being contacted as part of follow up research. They were told that this follow up research involved the personality inventory they had completed earlier in the academic quarter. Subjects were offered class experimental credits for their participation, and an appointment was scheduled. A small honorarium of two dollars was offered in the event a subject had fulfilled the class experimental requirements.

Upon arrival for the experiment, each subject was greeted by the experimenter, an undergraduate research assistant blind to the subject's group status. At this time, the subject was assigned an identification number, thereby making the author blind to group status of the subjects for scoring purposes. Subjects were asked to read and sign a form consenting to participate in the study and to be audiotaped (Appendix I). Then, subjects were escorted to a room and seated opposite the experimenter at a table.

Subjects were handed the four page questionnaire
(Appendix D) and asked to read along silently as the experimenter read the instructions aloud. After the instructions were read, the experimenter said, "Let's begin with the first saying," turned on the tape recorder and read the first proverb aloud. The subject then responded; this procedure was repeated for each of the remaining 12 proverbs. After the instructions were read, no further information was offered by the experimenter.

If a subject insisted that he or she could not explain the meaning of a given proverb, the experimenter said, "Go ahead and take a moment longer. We're interested about whatever ideas you have about the saying." If the person still insisted s/he had no idea of the meaning, the experimenter said, "then say what you think would be the best explanation. It is very important for the purposes of this study that you try to explain every saying as best you can."

Following the subject's response to all 13 proverbs, the experimenter read aloud the second set of instructions (Appendix E) as the subject read along silently. The subject then filled out the 26 Likert Scales (Appendix D). The first 13 Likert Scales allowed the subject to numerically rate from 0 to 5 how
unfamiliar to familiar he or she was with each of the 13 proverbs. The last 13 Likert Scales allowed the subject to similarly rate "how familiar you are with the meaning of the proverb, as separate from having heard the proverb someplace before."

Upon completion of these scales, the experimenter collected the subject copy of the protocol, and handed the subject a copy of the Quick Word Test. The experimenter read the standard instructions with the following alteration. Instead of being told they may take as much time as they would like, the experimenter said, "You will have ten minutes to do this test. Therefore, it is important that you work as quickly and as efficiently as you can. Any questions?" (The experimenter here answered any questions only by repeating the appropriate section of the instructions). "Then you may begin." The experimenter started the stopwatch and after ten minutes, said "stop."

Subjects were then debriefed. Any questions were then answered, experimental credits were given, and the subject was thanked for participation and dismissed.

Despite the author’s belief that the Chapman scales tap thought processes shared by normal and often creative individuals as well as psychosis-prone
individuals, the scales have been designed by the Chapman group as a psychopathology measure, specifically, measures of personality traits associated with psychosis-proneness. It would, of course, have been unethical to inform subjects as to the precise purpose for which these scales have been designed, given their experimental and unvalidated nature.

The experimenter could have truthfully informed subjects that the current investigators were studying attitudes and personality styles found in all people. Yet, there was a concern in the Department of Psychology about a subject's later coming upon a published scientific article drawn from this research project which discussed the purpose for which these scales were designed. The concern centered around an individual's rightly feeling the "good faith" agreement that researchers from the Department try to maintain with their subjects had been violated. Though truthful, such an informed consent does not entirely reveal the purpose of these scales as their authors designed them.

Therefore, as this was determined a "no risk" study by the University of Montana Institutional Review Board, informed consent was not obtained from the participants.

In the event that a subject had questions regarding
the study, the experimenter answered them by explaining that the present study is interested in styles of thinking and how people with different personality styles explain proverbs differently. The experimenter was instructed to refer any further questions directly to the author. None of the subjects in this study had questions they did not feel were answered sufficiently by the experimenter's explanation.
RESULTS

Demographic Characteristics

Subjects were all Caucasian college undergraduates ranging in age from 18 to 26 years with a mean age of 19.9 years (S.D. = 1.82). Mean verbal intelligence score on a special timed version of the Quick Word Test was 38.23 (S.D. = 11.87). The Per-Mag and Control group did not differ significantly in verbal intelligence \( t(58) = .24, p > .80 \).

Reliability

A test of interrater reliability was performed using 30 randomly selected subjects from the current research. Raters were the author and another clinical psychology graduate student.

Pearson \( r \) interrater reliabilities were computed for the Bizarre-Idiosyncratic and Literalness scores and are listed in Table 1.

Insert Table 1 about here

As can be seen from Table 2, these reliabilities compare favorably with other reliabilities reported in the literature (Marengo, Harrow, Lanin-Kettering, & Wilson, 1986; Hertler, Chapman, & Chapman, 1978).
Of note is that the reliabilities obtained in this study employed an item pool less than half the size of the pool used in the Bizarre-Idiosyncratic reliability studies cited, and two items smaller than the item pool used in the Literalness reliability study cited, yet the current research still obtained comparable reliability figures.

**Internal Consistency of the Proverb Test and Proverb Familiarity Measures**

Chronbach's alpha for familiarity with the proverb measures was .68 for the 10 same-culture proverbs and .54 for the three different-culture proverbs. Alpha for familiarity with the meaning of the proverb was .78 for the 10 same-culture proverbs and .54 for the three different culture proverbs. As can be seen in Table 3, alpha coefficients did not differ greatly between groups on these measures, except in the case of the control group's familiarity with the three different-culture proverbs, where alpha fell to .18. This score is accounted for by: 1) the small number of items, and 2) the restricted range of within the control groups.
On the proverb test used in the current research, \textit{alpha} for Bizarre-Idiosyncratic scores was .75 for the 10 same-culture proverbs and .50 for the three different-culture proverbs. For Literalness scores, \textit{alpha} was .95 for the first 10 same-culture proverbs and .76 for the three different-culture proverbs. As can be seen in Table 4, \textit{alpha} coefficients did not differ greatly between groups on any of these measures.

This indicates that the measures on this instrument are somewhat, but not overwhelmingly, internally consistent.

**Familiarity with the Proverb and its Meaning**

The mean, standard deviation, standard error of the mean, and minimum and maximum scores for the familiarity ratings assigned by subjects for each proverb and each proverb's meaning are listed in Table 5.

To test the experimental manipulation of proverb familiarity, subject ratings of their familiarity with
the proverb and familiarity with the proverb's meaning for the same and different culture proverbs were compared using a between groups t-test. The subject's mean item response ratings for their the familiarity with the proverbs and their familiarity with the proverbs' meanings are given in Table 6.

Table 6 about here

Subjects rated the last 3 different-culture proverbs significantly lower on familiarity than the first 10 same-culture proverbs. These differences were obtained both for familiarity with the proverb and familiarity with the proverb's meaning (p < .0005).

Familiarity and Group Status

The hypothesis that the subject's familiarity ratings of the same-culture proverbs would be less than the familiarity ratings of the different-culture proverbs in the control group but not Per-Mag group was not supported. As can be seen on the between group t-tests in Table 7: a) on all 13 proverbs Per-Mags did not score significantly lower than controls, b) on the first 10 (same-culture) proverbs the Per-Mags again did not score significantly lower than controls, c) on the
last three (different-culture) proverbs, Per-Mags, who were not expected to score different from controls, instead reported a tendency toward greater familiarity at the .1 level of significance. The Per-Mags reported more familiarity with these presumably unknown proverbs.

Table 7 about here

As can be seen in Table 8, on a within groups t-test comparison of the mean item familiarity of the 10 same-culture proverbs to the mean item familiarity of the 3 different-culture proverbs, the hypothesis that familiarity would be different only for controls was not supported.

Table 8 about here

Instead, familiarity with the 10 same culture-proverbs was significantly greater than the 3 different-culture proverbs for both groups (p < .0005). The alternative prediction that the difference in mean item familiarity of the same-minus different-culture proverbs would be significantly greater for the control group was also not supported. A paired-groups t-test for differences for either proverb or proverb meaning familiarity indicated
that the differences in familiarity were substantially the same for the two groups (Table 9).

Table 9 about here

Paired-group t-tests were used to test if subjects mean ratings of familiarity with the proverbs themselves differed from rated from familiarity with the meanings. As can be seen on Table 10, there was no significant difference between ratings of the familiarity with the proverb and familiarity with the meaning of the proverb for all of the proverbs or the 10 same-culture proverbs.

Table 10 about here

Interestingly, there was a significant difference in this comparison for the three different-culture proverbs (t(58) = -4.53, p < .0005). All subjects rated the meanings of the different-culture proverbs as more familiar than the proverbs themselves, indicating that subjects apparently derived a familiar moral rule from proverbs that are themselves unknown. This occurs among both Per-Mag and control subjects. The same relationship was found within both groups using
The hypothesis that the subject's familiarity ratings of the meaning of same-culture proverbs would be less than the familiarity ratings of the meaning of different-culture proverbs in the control group but not Per-Mag group was not supported. As can be seen on the between group t-tests in Table 12 the groups did not differ significantly on familiarity of the meaning ratings for either same or different culture proverbs.

This differs from familiarity with the proverb, where Per-Mags displayed a tendency toward greater familiarity than controls with the three different-culture proverbs (Table 8).

As can be seen in Table 8, in a paired-groups t-test comparison, the hypothesis that the mean item familiarity of the meaning of the 10 same would be greater for the three different-culture proverbs in the control, but not the Per-Mag group was disconfirmed. Familiarity with the 10 same culture-proverbs was
significantly greater than with the three different-culture proverbs for both groups \((p < .0005)\). The alternative prediction that the mean item familiarity of meanings of the same-culture proverbs subtracted from the mean item familiarity of the meanings of the different-culture proverbs would be significantly greater for the control than the Per-Mag group was also not supported. There was no significant difference for these mean item ratings between groups using a paired-groups t-test for proverb meaning familiarity (Table 10).

Bizarre-Idiosyncratic and Literalness Scores in Relation to Chapman Group Status

In a trend toward confirming hypothesis 5, Bizarre-Idiosyncratic scores were higher for the Per-Mag group than the control group (Table 13), but not significantly so.

Literalness scores were in all cases nonsignificantly higher for the control group overall and for the same culture proverbs. They were virtually identical for the different-culture proverbs (Table 14).
Because each group exhibited a tendency to score higher on a different scoring category than the other group, a composite proverbs deviance score would have masked an important finding of this study. Therefore, results for Bizarre-Idiosyncratic and Literalness composite scores are not reported.

In summary, the Per-Mags scored higher than controls on different culture proverbs only approaching the .10 level ($t (58) = 1.52$, $p = .13$). Contrary to the hypothesis that the Bizarre-Idiosyncratic scores of the control group for different-culture proverbs would be significantly higher than the same-culture proverbs, Bizarre-Idiosyncratic scores for the three different-culture proverbs were significantly higher than the same-culture proverbs for the Per-Mag group ($t (29) = -3.57$, $p < .005$) but not the control group ($t (29) = -1.42$, ns) (Table 15).
using between groups $t$-tests in Table 14, Per-Mags had been expected to score the same as controls on the same culture, and lower on the different culture proverbs. The first prediction held true. Contrary to the second prediction, Per-Mags and controls did not differ on the different-culture proverbs.

For the Literalness scores, in contrast to the Bizarre-Idiosyncratic scores, there was no tendency towards significant group differences for the three different-culture proverbs. Contrary to the hypothesis that the control group’s Literalness scores for different-culture proverbs would be significantly higher than for same-culture proverbs, literalness scores for different-culture proverbs were significantly higher than for same-culture proverbs within the Per-Mag group only ($t (29) = -2.39, p < .025$) but not the control group ($t (29) = -1.35, ns$, See Table 15). Thus the Per-Mag group became more literal as well as more Bizarre-Idiosyncratic on different culture proverbs.

The data also did not support the alternative prediction that increased Literalness scores would be expected in the Per-Mag group along with increased Bizarre-Idiosyncratic scores. As reported above, Per-Mags did not score significantly higher in either
scoring category. However, the other alternative hypothesis that within groups, Per-Mags would score higher on different-culture than same-culture proverbs in both scoring categories was supported.

To explore the relationship between group status and culture of the proverb in greater detail, two 2x2 between-within ANOVAs were performed on the data for the Bizarre-Idiosyncratic and the Literalness scoring systems. As can be seen on Table 16, no main effect for Per-Mag versus control group was found for Bizarre-Idiosyncratic scores.

| Table 16 about here |

A main effect was found between culture (same- versus different-culture) of the proverb, as subjects received significantly higher Bizarre-Idiosyncratic scores across groups for the different-culture proverbs compared to the same-culture proverbs ($F(1,58) = 13.76, p < .001$). Of greatest interest, a significant interaction effect was found for Bizarre-Idiosyncratic scores between groups by culture of the proverb ($F(1,58) = 4.08, p < .05$).

Figure 1 graphically depicts this relationship.
Per-Mags and controls scored virtually identically on same-culture proverbs on the Bizarre-Idiosyncratic scoring system. But on different-culture proverbs, Per-Mags scored significantly higher than controls.

As can be seen in Table 17, no main effect for per-Mag versus control was found for Literalness scores.

Again, a main effect was found for culture of the proverb; subjects in both groups scored significantly higher on Literalness scores for the different-culture proverbs as compared to the same-culture proverbs ($F(1,58) = 6.94, p < .001$). Most importantly, in contrast with the findings for the Bizarre-Idiosyncratic scores, no group by culture interaction effect was found for Literalness scores.

Figure 2 graphically depicts this relationship.

Per-Mags scored slightly lower than controls on the
Proverb Interpretation in Schizotypals

same-culture proverbs on the Literalness scoring system. On different-culture proverbs, Per-Mags scored slightly higher than controls. These differences were nonsignificant.

Relation of Verbal Intelligence to Bizarre-Idiosyncratic and Literalness Scores

As can be seen in Table 18, none of the Bizarre-Idiosyncratic scores correlated significantly with verbal intelligence, as measured by the Quick Word Test.

Table 18 about here

However, there was a significant correlation between all Literalness scores and verbal intelligence. Hertler, Chapman, and Chapman (1978) reported a significant correlation of -.15 between Literalness and verbal intelligence in their schizophrenic sample as measured by prorated scores from the Comprehension, Vocabulary, and Similarities subtests of the Wechsler Adult Intelligence Scale. Hertler, Chapman and Chapman did not test the verbal intelligence of their control sample.

Relation of Bizarre-Idiosyncratic Thinking and Literalness

As can be seen on Table 19, Bizarre-Idiosyncratic scores were not significantly related to Literalness
The Bizarre-Idiosyncratic scores accounted for less than .5% of the variance of the Literalness scores.

Relation of Bizarre-Idiosyncratic and Literalness Scores to Proverb Familiarity

Bizarre-Idiosyncratic scores were not significantly correlate with the familiarity of proverb scores (Table 20) or the familiarity of the proverb's meaning scores (Table 21).

As can be seen from these same tables, Literalness scores are negatively correlated with familiarity with the proverb and familiarity with the meaning of the proverb for all 13 proverbs and the first 10 same-culture proverbs ($p < .05$), but not for the last 3 different-culture proverbs.

Within groups, these relationships remained the same, for the Per-Mag group (Table 22).
Within the control group these negative correlations displayed a tendency towards significance at the .05 level for familiarity with the 10 same-culture ($p = .051$) and all 13 proverbs ($p = .067$) and a tendency towards significance at the .10 level for familiarity with the meaning of the 10 same-culture ($p = .099$) and all 13 proverbs ($p = .173$). As can be seen in Table 6, subjects varied widely in the familiarity with which they rated each proverb and each proverb’s meaning, so this is not just a result of restricted range.
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DISCUSSION

The current research examines the presence of thought disorder in proverbs responses in a normal, nonclinical population of college students who display schizotypal symptoms. The use of proverb interpretation has a long history in assessment and research on the severe thought disorder typically associated with schizophrenia and the other psychoses. Recent evidence has indicated that thought disorder can be found among a nonclinical group of college students hypothesized to be at risk for psychosis (Chapman, Chapman, & Raulin, 1978; Chapman, Chapman, & Edell, 1978; Chapman & Chapman, 1980; Edell & Chapman, 1983; Chapman, Edell & Chapman, 1980; Chapman, Edell & Chapman, 1980; Chapman & Chapman, 1985). The issue has arisen, then, as to whether individuals who score high on the Perceptual Aberration Scale or the Magical Ideation Scale will display psychotic-like responses on the proverb interpretation task.

This study found that the Per-Mag group produced psychotic-like responses on the proverb task only for different culture responses. Familiarity of the proverb was found to be an important intervening variable in eliciting these types of responses in this population.
When proverbs are unfamiliar and subject responses are contrasted with their responses to familiar proverbs, this study found Per-Mags perform this task in a manner similar to their performance on a variety of other assessments that are typically associated with the measurement of psychotic thought processes (Edell & Chapman, 1979; Chapman, Edell, & Chapman, 1980; Eckblad & Chapman, 1983).

Both Per-Mag and control subjects exhibit more literal responses on different culture proverbs. The finding of psychotic-like responses in the Bizarre-Idiosyncratic but not the Literalness categories is also suggestive of the type of psychosis for which the Per-Mag group may be at greatest risk: positive symptom schizophrenia and other psychoses presenting with a preponderance of positive symptoms. Literalness, which may be characteristic of negative symptom schizophrenia, also appears to tap a generalized deficit that both Per-Mags and controls exhibit in a difficult task. Additionally, a relationship was found between Literalness and verbal intelligence. This finding is compatible with the deficit model of negative symptom schizophrenia, as elaborated by Andreasen (1982) and Andreasen and Olsen (1982), that associated negative
symptoms with, among other factors, more generalized cognitive impairment.

These findings also demonstrate proverb interpretation's clinical utility in the assessment of subpsychotic or schizotypal thought disorder, found in nonpsychotic disorders such as schizotypal personality disorder. In addition, they increase our understanding of the proverb task as an assessment instrument for thought disorder and suggest numerous directions for future research.

The Relation of Proverb Interpretation to Chapman Group Status

The major finding of the study is that proverb interpretation can differentiate Per-Mags from controls if the contrast of their responses between familiar and unfamiliar proverbs is considered. In order to discriminate subclinical thought disorder of the type displayed by the Per-Mag group, the increase in Bizarre-Idiosyncratic scores in the unfamiliar proverbs as compared to the familiar proverbs must be examined. In this way alone, could Per-Mags in this study be distinguished as performing more poorly than controls on the proverb interpretation.

The same culture proverbs used in this study were apparently too familiar to discriminate subclinical
thought disorder in the Per-Mag group. This would account for the lack of any difference in the scores between groups on the same culture proverbs. It appears that the proverb must provide a sufficiently ambiguous stimulus in order to elicit thought disorder in a nonpsychotic but schizotypal population such as the Per-Mag group. This ambiguity appears to have some relationship with an optimal level of difficulty for a test item in the proverb task. Highly unfamiliar, and hence, ambiguous proverbs appear to supply test items that the Per-Mag group in this study does more poorly on in comparison to familiar proverbs.

Ambiguous proverbs, however, exhibit two effects. they are simply more difficult, leading to higher literalness in both the per-Mag and the control group. In addition, they uncover a specific deficit among the Per-Mag group, Bizarre-Idiosyncratic thinking.

The different culture proverbs comprised just such a proverb set of sufficient ambiguity to provide for optimal test item difficulty. Using a five point Likert Scale to measure familiarity, the findings suggest one should use proverbs that are rated by subjects with a familiarity of approximately two or less. In comparison, the Gorham proverbs chosen for this study
received ratings of approximately 3.5 to 5.

Viewing the findings with this issue of familiarity in mind, the data do support the basic hypotheses of the study. The Per-Mag group scored higher on Bizarre-Idiosyncratic thinking than controls when the proverbs were sufficiently unfamiliar and their responses were compared with those to the familiar proverbs. This performance by the Per-Mag group, similar to psychotic individuals' performance on both familiar and unfamiliar proverbs, adds further support to Chapman and Chapman's (1985) contention that the Per-Mag Scale does identify a group of individuals at risk for psychosis.

In addition, the finding of similar scores between Per-Mags and controls on Literalness has important new implications regarding the type of psychosis for which the Per-Mag group is at risk. The Per-Mag group is composed of individuals who report subclinical manifestations of hallucinations, i.e. body image and other perceptual aberrations, (Chapman, Chapman, & Raulin, 1978), and positive formal thought disorder, i.e. magical ideation, a type of subclinical delusion (Eckblad & Chapman, 1983). These can all be classified as subclinical manifestations of positive symptoms (Andreasen & Olsen 1982).
For research purposes, individuals who scored high on the both Per-Mag Scale and the Physical Anhedonia Scale (Chapman, Chapman, & Raulin, 1976), were not used for the Per-Mag group in this study. The purpose of excluding Anhedonics from the subject sample was to allow the study of the Per-Mag trait in isolation. But in doing this, one may be excluding the mixed positive and negative symptom individuals posited in Andreasen and Olsen's conceptualization. If this is the case, the Per-Mag group should consist largely of individuals predisposed to subclinical manifestations of positive symptoms alone.

Proverb interpretation offers a unique test of the construct, as these two scoring systems in the literature possessing highest reliability and validity tap either positive or negative symptoms. Bizarre-Idiosyncratic thinking measures a positive symptom, positive formal thought disorder (Marengo, Harrow, Lanin-Kettering, & Wilson, 1986). Literalness measures a negative symptom, what Andreasen and Olsen (1982) describe as alogia, defined as poverty of speech and poverty in the content of speech.

The hypothesis that controls but not Per-Mags would evidence increased Literalness on the unfamiliar
proverbs was not supported. It was thought that the controls should be equally predisposed to positive and negative symptom thought disorder in a situation of high item ambiguity or difficulty. The Per-Mags, because of both the type of thought disorder the scale taps and the exclusion of higher scorers on Physical Anhedonia, were thought to instead be exclusively predisposed to positive symptom thought disorder. The present study found no significantly greater amount of either positive or negative thought disorder among controls on the unfamiliar proverbs. Therefore, the hypothesis that a balanced distribution of both positive (Bizarre-Idiosyncratic) and negative (Literalness) subschizotypal thought disorder would be found within the control group under conditions of uncertainty or high task difficulty was not supported.

However, support for the contention that the Per-Mag group is predisposed to positive symptom thought disorder did surface in a manner not predicted by the hypotheses. Specifically, the finding of increased Bizarre-Idiosyncratic thinking between groups on the unfamiliar proverbs, but no difference between groups in Literalness on these same proverbs, is supportive of the contention that the Per-Mag group will evidence
subclinical manifestations of positive, and not negative symptoms, on assessments typically associated with the measurement of thought disorder, and especially in situations of high ambiguity, low structure, and high item difficulty.

To extend Andreasen and Olsen's thinking, the higher Bizarre-Idiosyncratic scores for the Per-Mag group suggests that individuals who score high on the Per-Mag scale may exhibit a proneness to positive symptom psychosis. However, the data lends one qualification to this statement. When their responses to unfamiliar proverbs are compared to their responses to familiar proverbs, Per-Mags behave in one way similar to controls; they also become significantly more Literal. Though this increase in Literalness was not as strongly significant as the increase in Bizarre-Idiosyncratic thinking, it highlights that this is a tendency toward predominately positive symptom thought disorder in the Per-Mag group, and not a "pure" positive symptom phenomenon. This increase in literalness with increase in item difficulty, in conjunction with the correlation between Literalness and verbal intelligence suggests that Literalness taps a generalized deficit unrelated to group status.
This finding can be accounted for by Andreasen and Olsen's (1982) conceptualization of positive and negative schizophrenia as areas on a continuum and not a discrete phenomena, with a mixed symptom group occupying a middle ground between the two extremes. Although high scorers on the Physical Anhedonia Scale are removed from the Per-Mag group, the results suggest that some mixed symptom thought disordered individuals remain in the Per-Mag group. These subjects are expected to exhibit other negative symptoms other than the types associated with individuals who score high on Physical Anhedonia. This explanation is in keeping with the alternative hypothesis of the study. This hypothesis predicted that the Per-Mag group would evidence increased Literalness as well as Bizarre-Idiosyncratic scores because it is composed of both positive and mixed symptom individuals. The contrast in the Per-Mag scores between familiar and unfamiliar proverb interpretation supports this alternative hypothesis. In this context, the Per-Mag group can be viewed as representing a group displaying a proneness for psychosis nearer to the positive symptom end of the positive-negative continuum.

The Proverb Interpretation Task

The results did not support the hypothesis that
controls would respond in a manner similar to Per-Mags when the proverb and/or their socially accepted interpretation is unfamiliar. Instead, the results suggest that the poorer performance on proverb interpretation among thought disordered individuals, at least on Bizarre-idiosyncratic scores, involves more than simple familiarity with the proverb. A qualification here is required regarding Literalness scores. Literalness scores were found in both groups to be related to verbal intelligence, and to a lesser degree, familiarity.

However, with regard to Bizarre-Idiosyncratic thinking, the results do lend support to the conceptualization of thought disordered individuals as having failed to acquire certain implicit culturally transmitted conceptual norms (Rapaport, Gill, & Schafer, 1968). This is because, though the Per-Mags produced psychotic-like responses on unfamiliar proverbs, controls did not respond in a more thought disordered manner on these same unfamiliar proverbs. This suggests that proverbs do not simply represent a specific instance of cultural learning that thought disordered individuals fail to acquire during development. Instead, their poorer performance is more fully
explained by viewing these unfamiliar proverbs as confronting the individual with an ambiguous situation that requires knowledge of certain conceptual norms about what is appropriate and what is deviant.

In this light, these highly unfamiliar proverbs from a foreign culture can be thought of as creating an ambiguous stimulus, much like a Rorschach card. The results suggest that controls could fall back upon a problem solving strategy and set of problem solving rules apparently not available to the Per-Mags. Therefore, despite the highly ambiguous nature of the unfamiliar proverbs, controls' responses did not become more positive symptom thought disordered. In other words, with regards to positive symptom thought disorder, the controls possessed a background of certain learned cultural norms that include conceptual norms about what is appropriate and what is deviant in this specific response situation. Sullivan (1944) termed this ability consensual, or normal, thinking.

From this perspective, the results can be viewed as indicating that Per-Mags have not acquired certain conceptual norms as they relate to this particular situation, and that this leads to responses that are more highly thought disordered. Lacking many of these
norms, the Per-Mags had little to aid them in structuring their responses. As a result, many of their responses to the unfamiliar proverbs can be viewed, to use Rapaport’s terminology, as representing cases of "excessive distance" or of a "loss of distance" from the proverb.

Positive thought disordered individuals’ higher Bizarre-Idiosyncratic scores can not be explained simply as the result of intellectual or cognitive deficits, or even as an attentional impairment such as failure to focus on the task. These factors can be thought of as the generalized cognitive deficit model of thought disordered individuals’ poorer performance on this and other tasks. The results do suggest that this generalized deficit model does have validity in explaining the performance of individuals who scored high on Literalness. This is because Literalness scores were correlated with intelligence in the current research, is related to familiarity and item difficulty, and is found not to be a deficit specific to Per-Mags.

However, the lack of a correlation between Bizarre-Idiosyncratic scores and intelligence, along with the failure of the control group to respond in a manner similar to the Per-Mags on this measure for the
unfamiliar proverbs is instead suggestive of a more specific form of deficit. This explanation views thought disordered individuals' as having specific difficulties with a wide range of experience that involve cognitively integrating social norms and expectations, and one's own feelings and ideas about them. The term "experience disorder" (Singer, Wynne, Levi & Sojit, 1968) conveys the consequences of this failure to acquire certain important aspects of social learning during development.

The Deficit Model of Psychotic and Schizotypal Thought Disorder in Relation to Positive and Negative Symptoms

The finding of a correlation between verbal intelligence and Literalness, but not verbal intelligence and Bizarre-Idiosyncratic thinking, has important implications regarding the two types of thought disorder that each scoring system appears to tap. It suggests that the negative symptoms tapped by Literalness are more associated with a generalized cognitive deficit, while the positive symptoms tapped by Bizarre-Idiosyncratic thinking are not. Instead, the departures from consensual norms and consensual thinking associated with the positive symptom group are more indicative of the experience disorder described by Singer et al. (1968) than a generalized cognitive
deficit.

Interestingly, this is in keeping with the position of proponents of models stressing positive and negative symptoms. Their research connects negative schizophrenia with poor premorbid adjustment, poor response to neuroleptic therapy, chronic course and outcome, and a cognitive impairment (Andreasen & Olsen, 1982) (emphasis mine). From their strongly biological perspective, this group of researchers hypothesizes the involvement of a different underlying pathological process in negative symptom schizophrenics that differentiate them from the positive symptom group, such as atrophic changes in the brain (Crow, 1980). Positive symptoms are hypothesized to correlate with better premorbid adjustment, better response to neuroleptic medication, and a less severe course of illness. The underlying pathologic process here is hypothesized to be neurochemical (Andreasen & Olsen, 1982).

**Implications for Proverb Interpretation in Clinical Assessment**

Research has demonstrated proverb interpretation to be useful in the assessment of thought disorder in schizophrenia, mania, and other psychotic conditions (Marengo & Harrow, 1975). The current research expands
this demonstrated utility into the realm of nonpsychotic thought disorder. Of critical importance with nonpsychotic individuals are proverbs of sufficient unfamiliarity to "pull" for thought disorder from this group.

It is important to note that the current research findings of differences between Per-Mags and controls are subtle, and based on somewhat complicated scoring techniques that required highly trained scorers in order to insure reliability. The complexity of the scoring task and subtle nature of the differences between groups probably does preclude widespread clinical application of a proverbs test that would use normative data to identify thought disorder of the type associated with schizotypal personality disorder.

However, one can also look clinically at how an individual handles shifting from familiar to unfamiliar proverbs instead of simply an individual's overall scores on the proverb task. Per-Mags performed markedly more poorly on unfamiliar proverbs in comparison to familiar proverbs in their scores on both scoring systems. In contrast, controls did about the same on both familiar and unfamiliar proverbs. It is this difference in scores associated with the shift from
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familiar to unfamiliar proverbs that holds the most promise for a reliable clinical device using proverb interpretation with schizotypal personality disorder.

In addition, the findings demonstrate that Bizarre-Idiosyncratic scores and Literalness scores are not correlated. This indicates that the two scores measure two different types of thought disorder. The research suggests that by using both of these scoring systems to score proverb interpretation, one can measure positive and negative symptom thought disorder. If this is the case, and the recent research findings on positive and negative schizophrenia continue to be substantiated, the current research has important implications. Use of proverb interpretation in the assessment of schizophrenia, beyond its usefulness in diagnosis, could also address such factors as prognosis, course, and responsivity to medication.

**Limitations of the Present Research**

Three limitations of the present research are noted. First, too few unfamiliar proverbs were used. This resulted in a low coefficient alpha for the measures based on these proverbs. A larger set of unfamiliar proverbs would have allowed both higher interrater reliability and internal consistency, thereby
strengthening the findings.

Second, the question remains unresolved whether the more highly thought disordered performance of the Per-Mags is caused simply by a global difficulty with the proverb, or instead, some more specific type of difficulty, related to unfamiliarity and specifically related to the proverbs’ association with a different culture. This is because there were no unfamiliar same culture proverbs in the study.

Third, the findings of his study would have been additionally strengthened by a finding of a significant relationship between proverb familiarity and Literalness and Bizarre-Idiosyncratic scores on all the proverb sets. Such a relationship between familiarity and scores would have provided additional evidence that the higher different culture proverb interpretation scores were directly related to decreased familiarity, and not some other unidentified covariate. The finding of no significant correlations between Bizarre-Idiosyncratic thinking and familiarity, and Literalness and familiarity on the three different culture proverbs, could be due to a number of different factors. These include the wide individual differences with which proverb familiarity was rated and the somewhat low
internal consistency of the familiarity measures. Alternately, the explanation for this lack of correlation could instead be due to the involvement of some as yet unidentified factor that covaries with overall familiarity with the proverb.

Implications for Further Research

A replication of this study employing more unfamiliar proverbs and a third set of unfamiliar same-culture proverbs drawn from the more unfamiliar Gorham proverbs and elsewhere, would add further support to the present study's findings and clear up some of the above questions arising from methodological shortcomings of the present research. Along this line, a study to simply establish normative data on proverb familiarity would be useful, as would a study to more precisely define the level of proverb unfamiliarity needed for the assessment of subpsychotic thought disorder.

Among nonclinical populations, the study of proverb interpretation among high scorers on another Chapman scale, the Physical Anhedonia Scale (Chapman, Chapman, & Raulin, 1976) holds great interest. Anhedonia, the inability to experience pleasure, is a negative symptom (Andreasen, 1982; Andreasen & Olsen, 1982). According to the predictions of the positive and negative symptom
model of Bizarre-Idiosyncratic thinking and Literalness presented in the current research, high scores on the Physical Anhedonia are expected to also score high on Literalness, but not Bizarre-idiosyncratic thinking. A replication of the present study using a third Anhedonic group would test this.

The findings point to the utility of proverb interpretation using these two scoring approaches in the research and assessment of thought disorder associated with schizotypal personality disorder. Research using proverbs with this diagnostic group as identified by a device such as the Structured Clinical Interview for DSM-III-R - Personality Disorders (SCID-II) (Spitzer & Williams, 1986) would be useful in two areas.

First, the indications from the current research are that proverb interpretation holds potential as a useful diagnostic procedure in the assessment of this personality disorder. Research is needed to investigate this further. Second, the findings provide preliminary support for the idea that the two scoring systems tap positive and negative symptoms. This is of potentially great utility in resolving the ongoing controversy regarding the diagnostic criteria for schizotypal personality disorder. Recent family based studies have
suggested that schizotypal personality disorder is best characterized by negative symptoms (Kendler, 1981). Because of this, Gunderson and Siever (1985) have proposed redefining schizotypal personality disorder to emphasize negative symptoms. Jacobserg, Hymowitz, Barasch, Frances (1986) have provided clinically-derived evidence that argues against this point of view. Proverb interpretation measures employing the current research's scoring scheme could potentially prove useful in the continuing direct test of these two positions using both family-based and clinically-derived samples.

Finally, research is needed with schizophrenics divided into positive and negative symptom subgroups using both the Bizarre-Idiosyncratic and Literalness scoring systems. This research would provide a direct test of the idea that the scoring systems each tap either positive or negative symptoms. Such a study could use schizophrenics as identified by structured interview such as the Structured Interview for DSM-III-R - Patient Version (SCID-P) (Spitzer, Williams, & Gibbon, 1986). Using the Scale for the Assessment of Negative Symptoms (SANS) (Andreasen, 1981), and the diagnostic criteria for positive and negative schizophrenia (Andreasen & Olsen, 1982), one could identify groups of
positive, negative, and mixed symptom schizophrenia individuals. Scores on Literalness and Bizarre-Idiosyncratic thinking could then be compared between groups.

Summary and Conclusions

The present research found that proverb interpretation can differentiate Per-Mags from controls, if the proverbs are sufficiently unfamiliar. The findings were also supportive of the contention that Per-Mags are prone to positive symptom psychosis. The results also supported the view that Per-Mags have not acquired certain conceptual norms as a part of a larger experience disorder, and that this factor, not a generalized cognitive deficit, leads to their more highly thought disordered responses. These findings all have implications for the utility of proverb interpretation in the clinical assessment of schizotypal personality disorder. Finally, limitations of the present research are noted. Future research can address these limitations, as well as contribute to our understanding of the schizotypal personality disorder diagnosis, and of the positive and negative schizophrenia continuum model.
NOTES

The author would like to thank Dr. John Wang for his assistance here.

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TABLE 1

Interrater Reliability for Bizarre-Idiosyncratic and Literalness Scores

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<thead>
<tr>
<th>Proverb Set</th>
<th>Bizarre-Idiosyncratic</th>
<th>Literalness</th>
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<td>Proverbs 1-10</td>
<td>.89</td>
<td>.99</td>
</tr>
<tr>
<td>Proverbs 11-13</td>
<td>.83</td>
<td>.98</td>
</tr>
<tr>
<td>Proverbs 1-13</td>
<td>.88</td>
<td>.99</td>
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TABLE 2

Interrater Reliability for Bizarre-Idiosyncratic and Literalness Scores As Reported in the Literature

<table>
<thead>
<tr>
<th>Proverb Set</th>
<th>Bizarre-Idiosyncratic</th>
<th>Literalness</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Marengo, Harrow, Lanin-Kettering &amp; Wilson 1986)</td>
<td>(Hertler, Chapman, Chapman 1978)</td>
<td></td>
</tr>
<tr>
<td>Overall score on Gorham Proverbs Test (16 proverbs)</td>
<td>1) .93</td>
<td></td>
</tr>
<tr>
<td>and WAIS-R Comprehension Subtest (10 items) 4 studies</td>
<td>2) .88</td>
<td></td>
</tr>
<tr>
<td>Overall score from 15 proverbs selected from the Gorham Proverbs Test (Forms A, B, &amp; C)</td>
<td>.90</td>
<td></td>
</tr>
</tbody>
</table>
**TABLE 3**

*Chronbach's Alpha For Familiarity With The Proverb Within Groups*

<table>
<thead>
<tr>
<th>Proverb Set Group</th>
<th>Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FAMILIARITY OF THE PROVERB</strong></td>
<td></td>
</tr>
<tr>
<td>PER-MAG</td>
<td></td>
</tr>
<tr>
<td>Proverbs 1-10</td>
<td>.72</td>
</tr>
<tr>
<td>Proverbs 11-13</td>
<td>.69</td>
</tr>
<tr>
<td><strong>FAMILIARITY OF THE PROVERB'S MEANING</strong></td>
<td></td>
</tr>
<tr>
<td>PER-MAG</td>
<td></td>
</tr>
<tr>
<td>Proverbs 1-10</td>
<td>.76</td>
</tr>
<tr>
<td>Proverbs 11-13</td>
<td>.65</td>
</tr>
<tr>
<td><strong>FAMILIARITY OF THE PROVERB</strong></td>
<td></td>
</tr>
<tr>
<td>CONTROL</td>
<td></td>
</tr>
<tr>
<td>Proverbs 1-10</td>
<td>.64</td>
</tr>
<tr>
<td>Proverbs 11-13</td>
<td>.18</td>
</tr>
<tr>
<td><strong>FAMILIARITY OF THE PROVERB'S MEANING</strong></td>
<td></td>
</tr>
<tr>
<td>CONTROL</td>
<td></td>
</tr>
<tr>
<td>Proverbs 1-10</td>
<td>.80</td>
</tr>
<tr>
<td>Proverbs 11-13</td>
<td>.40</td>
</tr>
</tbody>
</table>

**TABLE 4**

*Chronbach's Alpha For Bizarre-Idiosyncratic Scores and Literalness Scores Within Groups*

<table>
<thead>
<tr>
<th>Proverb Set Group</th>
<th>Bizarre-Idiosyncratic alpha</th>
<th>Literalness alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PER-MAG</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proverbs 1-10</td>
<td>.79</td>
<td>.98</td>
</tr>
<tr>
<td>Proverbs 11-13</td>
<td>.44</td>
<td>.76</td>
</tr>
<tr>
<td><strong>CONTROL</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proverbs 1-10</td>
<td>.70</td>
<td>.91</td>
</tr>
<tr>
<td>Proverbs 11-13</td>
<td>.55</td>
<td>.76</td>
</tr>
</tbody>
</table>
TABLE 5

Mean, Standard Deviation, Standard Error of the Mean, and Minimum and Maximum Scores for Familiarity of Proverbs and Familiarity of Proverb Meaning

<table>
<thead>
<tr>
<th>Familiarity of Proverb</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>S.E. of Mean</th>
<th>Minimum</th>
<th>Maximum</th>
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</thead>
<tbody>
<tr>
<td>FAMILIAR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proverb 1</td>
<td>3.63</td>
<td>1.45</td>
<td>.18</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Proverb 2</td>
<td>3.50</td>
<td>1.40</td>
<td>.18</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Proverb 3</td>
<td>4.57</td>
<td>.85</td>
<td>.11</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Proverb 4</td>
<td>4.55</td>
<td>.96</td>
<td>.12</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Proverb 5</td>
<td>2.73</td>
<td>1.31</td>
<td>.17</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Proverb 6</td>
<td>3.83</td>
<td>1.35</td>
<td>.17</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Proverb 7</td>
<td>4.93</td>
<td>.25</td>
<td>.03</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Proverb 8</td>
<td>3.83</td>
<td>1.34</td>
<td>.17</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Proverb 9</td>
<td>4.37</td>
<td>.94</td>
<td>.12</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Proverb 10</td>
<td>3.75</td>
<td>1.46</td>
<td>.18</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>UNFAMILIAR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proverb 11</td>
<td>1.48</td>
<td>.85</td>
<td>.11</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Proverb 12</td>
<td>1.32</td>
<td>.65</td>
<td>.08</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Proverb 13</td>
<td>1.25</td>
<td>.57</td>
<td>.07</td>
<td>1</td>
<td>3</td>
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</table>

<table>
<thead>
<tr>
<th>Familiarity of Proverb Meaning</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>S.E. of Mean</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>FAMILIAR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proverb 1</td>
<td>3.35</td>
<td>1.38</td>
<td>.17</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Proverb 2</td>
<td>3.68</td>
<td>1.31</td>
<td>.16</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Proverb 3</td>
<td>4.38</td>
<td>.92</td>
<td>.11</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Proverb 4</td>
<td>4.42</td>
<td>.96</td>
<td>.12</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Proverb 5</td>
<td>2.93</td>
<td>1.29</td>
<td>.16</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Proverb 6</td>
<td>3.58</td>
<td>1.28</td>
<td>.16</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Proverb 7</td>
<td>4.87</td>
<td>.34</td>
<td>.04</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Proverb 8</td>
<td>3.57</td>
<td>1.28</td>
<td>.16</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Proverb 9</td>
<td>4.42</td>
<td>1.00</td>
<td>.12</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Proverb 10</td>
<td>3.67</td>
<td>1.31</td>
<td>.16</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>UNFAMILIAR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proverb 11</td>
<td>1.95</td>
<td>1.40</td>
<td>.13</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Proverb 12</td>
<td>1.62</td>
<td>.83</td>
<td>.10</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Proverb 13</td>
<td>1.65</td>
<td>1.06</td>
<td>.13</td>
<td>1</td>
<td>4</td>
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</table>

1 = Very unfamiliar 5 = Very familiar
Proverb Interpretation in Schizotypals

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TABLE 6
Comparison of the First 10 and Last 3 Proverb Scores on Familiarity Across Groups

<table>
<thead>
<tr>
<th>Proverb Set</th>
<th>Mean Score per Proverb</th>
<th>t</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Familiarity Proverb</td>
<td>3.98</td>
<td>1.35</td>
<td>25.65</td>
</tr>
<tr>
<td>Familiarity Meaning</td>
<td>3.89</td>
<td>1.74</td>
<td>18.26</td>
</tr>
</tbody>
</table>

TABLE 7
Mean Familiarity with the Proverb

<table>
<thead>
<tr>
<th>Proverb Set</th>
<th>Mean Score per Proverb</th>
<th>t</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proverbs 1-10</td>
<td>4.04</td>
<td>3.90</td>
<td>.87</td>
</tr>
<tr>
<td>Proverbs 11-13</td>
<td>1.47</td>
<td>1.23</td>
<td>1.81</td>
</tr>
<tr>
<td>Proverbs 1-13</td>
<td>3.45</td>
<td>3.29</td>
<td>1.29</td>
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</tbody>
</table>

TABLE 8
Mean Familiarity with Proverb and Familiarity with Meaning of Proverb Within Groups

<table>
<thead>
<tr>
<th>Type of Familiarity</th>
<th>Mean Score per Proverb</th>
<th>t</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUP</td>
<td>Proverbs 1-10</td>
<td>Proverbs 11-13</td>
<td></td>
</tr>
<tr>
<td>PER-MAG</td>
<td>Familiarity with Proverb</td>
<td>4.04</td>
<td>1.47</td>
</tr>
<tr>
<td></td>
<td>Familiarity with Meaning</td>
<td>3.93</td>
<td>1.77</td>
</tr>
<tr>
<td></td>
<td>Familiarity with Proverb</td>
<td>3.90</td>
<td>1.23</td>
</tr>
<tr>
<td></td>
<td>Familiarity with Meaning</td>
<td>3.84</td>
<td>1.71</td>
</tr>
</tbody>
</table>
TABLE 9

Mean Difference between Familiarity of Same Versus Different Culture Proverbs

<table>
<thead>
<tr>
<th></th>
<th>Mean Score per Proverb</th>
<th>( t )</th>
<th>( p )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Familiarity with Proverb</td>
<td>2.57</td>
<td>2.67</td>
<td>-.47</td>
</tr>
<tr>
<td>Familiarity with Meaning</td>
<td>2.16</td>
<td>2.12</td>
<td>.16</td>
</tr>
</tbody>
</table>

TABLE 10

Mean Familiarity with Proverb Compared to Mean Familiarity with the Meaning of the Proverb Across Groups

<table>
<thead>
<tr>
<th>Proverb Set</th>
<th>Mean Score per Proverb</th>
<th>( t )</th>
<th>( p )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Familiarity of Proverb</td>
<td>Familiarity of Proverb Meaning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proverbs 1-10</td>
<td>3.97</td>
<td>3.88</td>
<td>1.51</td>
</tr>
<tr>
<td>Proverbs 11-13</td>
<td>1.35</td>
<td>1.74</td>
<td>-4.53</td>
</tr>
<tr>
<td>Proverbs 1-13</td>
<td>3.37</td>
<td>3.39</td>
<td>-.39</td>
</tr>
</tbody>
</table>
Proverb Interpretation in Schizotypals

TABLE 11
Mean Familiarity with Proverb Compared to Mean Familiarity with the Meaning of the Proverb Within Groups

<table>
<thead>
<tr>
<th>Proverb Set</th>
<th>Mean Score per Proverb</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUP</td>
<td>Familiarity of Proverb</td>
<td>Familiarity of Proverb Meaning</td>
<td></td>
</tr>
<tr>
<td>PER-MAG</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proverbs 1-10</td>
<td>4.04</td>
<td>3.93</td>
<td>1.21</td>
</tr>
<tr>
<td>Proverbs 11-13</td>
<td>1.47</td>
<td>1.77</td>
<td>-2.67</td>
</tr>
<tr>
<td>Proverbs 1-13</td>
<td>3.44</td>
<td>3.43</td>
<td>.18</td>
</tr>
<tr>
<td>CONTROL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proverbs 1-10</td>
<td>3.91</td>
<td>3.84</td>
<td>.54</td>
</tr>
<tr>
<td>Proverbs 11-13</td>
<td>1.23</td>
<td>1.71</td>
<td>-3.569</td>
</tr>
<tr>
<td>Proverbs 1-13</td>
<td>3.29</td>
<td>3.35</td>
<td>- .79</td>
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</table>

TABLE 12
Mean Familiarity with the Meaning of the Proverb

<table>
<thead>
<tr>
<th>Proverb Set</th>
<th>Mean Score per Proverb</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Per-Mag</td>
<td>Control</td>
<td></td>
</tr>
<tr>
<td>Proverbs 1-10</td>
<td>3.93</td>
<td>3.84</td>
<td>.54</td>
</tr>
<tr>
<td>Proverbs 11-13</td>
<td>1.77</td>
<td>1.71</td>
<td>.30</td>
</tr>
<tr>
<td>Proverbs 1-13</td>
<td>3.43</td>
<td>3.35</td>
<td>.58</td>
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</tbody>
</table>

TABLE 13
Mean Bizarre-Idiosyncratic Scores

<table>
<thead>
<tr>
<th>Proverb Set</th>
<th>Mean Score per Proverb</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Per-Mag</td>
<td>Control</td>
<td></td>
</tr>
<tr>
<td>Proverbs 1-10</td>
<td>.61</td>
<td>.61</td>
<td>.04</td>
</tr>
<tr>
<td>Proverbs 11-13</td>
<td>.89</td>
<td>.69</td>
<td>1.52</td>
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<td>Proverbs 1-13</td>
<td>.68</td>
<td>.62</td>
<td>.62</td>
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</table>
### TABLE 14
Mean Literalness Scores

<table>
<thead>
<tr>
<th>Proverb Set</th>
<th>Mean Score per Proverb</th>
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<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Per-Mag</td>
<td>Control</td>
<td></td>
</tr>
<tr>
<td>Proverbs 1-10</td>
<td>.20</td>
<td>.28</td>
<td>-.46</td>
</tr>
<tr>
<td>Proverbs 11-13</td>
<td>.41</td>
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<td>.05</td>
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<tr>
<td>Proverbs 1-13</td>
<td>.25</td>
<td>.31</td>
<td>-.33</td>
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</table>

### TABLE 15
Mean Bizarre-Idiosyncratic and Literalness Scores Within Groups

<table>
<thead>
<tr>
<th>Scoring System</th>
<th>Mean Score per Proverb</th>
<th>t</th>
<th>p</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Proverbs 1-10</td>
<td>Proverbs 11-13</td>
<td></td>
</tr>
<tr>
<td>Bizarre-Idiosyncratic</td>
<td>.61</td>
<td>.89</td>
<td>-3.57</td>
</tr>
<tr>
<td>Literalness</td>
<td>.20</td>
<td>.41</td>
<td>-2.39</td>
</tr>
<tr>
<td>Bizarre-Idiosyncratic</td>
<td>.61</td>
<td>.69</td>
<td>-1.42</td>
</tr>
<tr>
<td>Literalness</td>
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<td>.40</td>
<td>-1.35</td>
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</table>
Proverb Interpretation in Schizotypals

TABLE 16

2 X 2 Between-Within ANOVA
(Group by Culture of Proverb)
of Bizarre-Idiosyncratic Scores

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per-Mag/Control</td>
<td>.31</td>
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<td>.31</td>
<td>&lt;1.00</td>
<td>.33</td>
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<tr>
<td>S(Per-Mag/Control)</td>
<td>18.43</td>
<td>58</td>
<td>.32</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Same/Different</td>
<td>.98</td>
<td>1</td>
<td>.98</td>
<td>13.76</td>
<td>&lt;.0005</td>
</tr>
<tr>
<td>Per-Mag/Control X Same/Different Culture</td>
<td>.29</td>
<td>1</td>
<td>.29</td>
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<td>.048</td>
</tr>
<tr>
<td>S(Per-Mag/Control) X Same Different Culture</td>
<td>4.125</td>
<td>8</td>
<td>.07</td>
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<td></td>
</tr>
<tr>
<td>Total</td>
<td>24.13</td>
<td>119</td>
<td>1.97</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TABLE 17

2 X 2 Between-Within ANOVA
(Group by Culture of Proverb)
of Literalness Scores

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per-Mag/Control</td>
<td>.03</td>
<td>1</td>
<td>.03</td>
<td>&lt;1.00</td>
<td>.86</td>
</tr>
<tr>
<td>S(Per-Mag/Control)</td>
<td>56.43</td>
<td>58</td>
<td>.97</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Same/Different</td>
<td>.84</td>
<td>1</td>
<td>.84</td>
<td>6.94</td>
<td>.011</td>
</tr>
<tr>
<td>Per-Mag/Control X Same/Different Culture</td>
<td>.06</td>
<td>1</td>
<td>.06</td>
<td>&lt;1.00</td>
<td>.49</td>
</tr>
<tr>
<td>S(Per-Mag/Control) X Same Different Culture</td>
<td>7.01</td>
<td>58</td>
<td>.12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>64.37</td>
<td>119</td>
<td>3.02</td>
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</tbody>
</table>

TABLE 18

The Correlation of Bizarre-Idiosyncratic and Literalness Scores with the Quick Word Test

<table>
<thead>
<tr>
<th>Proverb Set</th>
<th>Bizarre-Idiosyncratic</th>
<th>Literalness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>r</td>
<td>p</td>
</tr>
<tr>
<td>Proverbs 1-10</td>
<td>.004</td>
<td>.49</td>
</tr>
<tr>
<td>Proverbs 11-13</td>
<td>.15</td>
<td>.12</td>
</tr>
<tr>
<td>Proverbs 1-13</td>
<td>.03</td>
<td>.42</td>
</tr>
</tbody>
</table>


### TABLE 19

The Correlation of Bizarre-Idiosyncratic with Literalness Scores

<table>
<thead>
<tr>
<th>Proverb Set</th>
<th>r</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proverbs 1-10</td>
<td>-.08</td>
<td>.28</td>
</tr>
<tr>
<td>Proverbs 11-13</td>
<td>-.03</td>
<td>.40</td>
</tr>
<tr>
<td>Proverbs 1-13</td>
<td>-.07</td>
<td>.30</td>
</tr>
</tbody>
</table>

### TABLE 20

The Correlation of Bizarre-Idiosyncratic and Literalness Scores with Familiarity of the Proverb

<table>
<thead>
<tr>
<th>Proverb Set</th>
<th>Bizarre-Idiosyncratic</th>
<th>Literalness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>r</td>
<td>p</td>
</tr>
<tr>
<td>Proverbs 1-10</td>
<td>.12</td>
<td>.18</td>
</tr>
<tr>
<td>Proverbs 11-13</td>
<td>-.05</td>
<td>.35</td>
</tr>
<tr>
<td>Proverbs 1-13</td>
<td>.08</td>
<td>.28</td>
</tr>
</tbody>
</table>

### TABLE 21

The Correlation of Bizarre-Idiosyncratic and Literalness Scores with Familiarity of the Proverb's Meaning

<table>
<thead>
<tr>
<th>Proverb Set</th>
<th>Bizarre-Idiosyncratic</th>
<th>Literalness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>r</td>
<td>p</td>
</tr>
<tr>
<td>Proverbs 1-10</td>
<td>.16</td>
<td>.12</td>
</tr>
<tr>
<td>Proverbs 11-13</td>
<td>-.007</td>
<td>.48</td>
</tr>
<tr>
<td>Proverbs 1-13</td>
<td>.15</td>
<td>.12</td>
</tr>
</tbody>
</table>
Table 22
The Correlation of Bizarre-Idiosyncratic and Literalness Scores with Familiarity of the Proverb Within Groups

<table>
<thead>
<tr>
<th>TYPE OF FAMILIARITY</th>
<th>Bizarre-Idiosyncratic</th>
<th>Literalness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( r )</td>
<td>( p )</td>
</tr>
<tr>
<td>Proverb Set</td>
<td>( r )</td>
<td>( p )</td>
</tr>
<tr>
<td>FAMILIARITY OF THE PROVERB PER-MAG</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proverbs 1-10</td>
<td>.06</td>
<td>.38</td>
</tr>
<tr>
<td>Proverbs 11-13</td>
<td>-.07</td>
<td>.35</td>
</tr>
<tr>
<td>Proverbs 1-13</td>
<td>-.04</td>
<td>.43</td>
</tr>
<tr>
<td>FAMILIARITY OF THE PROVERB’S MEANING PER-MAG</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proverbs 1-10</td>
<td>.08</td>
<td>.34</td>
</tr>
<tr>
<td>Proverbs 11-13</td>
<td>-.16</td>
<td>.20</td>
</tr>
<tr>
<td>Proverbs 1-13</td>
<td>.03</td>
<td>.43</td>
</tr>
<tr>
<td>FAMILIARITY OF THE PROVERB CONTROL</td>
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<td></td>
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<tr>
<td>Proverbs 1-10</td>
<td>.19</td>
<td>.16</td>
</tr>
<tr>
<td>Proverbs 11-13</td>
<td>-.15</td>
<td>.22</td>
</tr>
<tr>
<td>Proverbs 1-13</td>
<td>.17</td>
<td>.18</td>
</tr>
<tr>
<td>FAMILIARITY OF THE PROVERB’S MEANING CONTROL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proverbs 1-10</td>
<td>.24</td>
<td>.11</td>
</tr>
<tr>
<td>Proverbs 11-13</td>
<td>.16</td>
<td>.20</td>
</tr>
<tr>
<td>Proverbs 1-13</td>
<td>.26</td>
<td>.09</td>
</tr>
</tbody>
</table>
Figure 1

Bizarre-Ideosyncratic Scores

Mean Score per Proverb

0.8
0.88
0.9
0.86
0.84
0.82
0.8
0.78
0.76
0.74
0.72
0.7
0.68
0.66
0.64
0.62
0.6
0.58
0.56
0.54
0.52
0.5
0.48
0.46
0.44
0.42
0.4
0.38
0.36
0.34
0.32
0.3
0.28
0.26
0.24
0.22
0.2
0.18
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0.00

Same Culture

Different Culture

Per-Mag

Control
Proverb Interpretation in Schizotypals

FIGURE 2
Literateness Score

Mean Score per Proverb

Same Culture
Different Culture
APPENDIX A

Psychotic-like, Schizotypal, and Other Symptoms in Perceptual Aberration Subjects

On the SADS-L, Perceptual Aberration subjects reported more psychotic-like symptoms than control subjects in five areas: transmission of one's own thoughts, passivity experiences, voice experiences and other auditory hallucinations, visual experiences, and other personally relevant aberrant beliefs (Chapman, Edell, & Chapman 1980). Transmission of thoughts refers to the belief that the subjects could transmit their thoughts to others or that others could see, hear, or receive their thoughts. Passivity experiences refer to a belief or suspicion that thoughts or feelings are put into one's head by others, or experiences of robot-like behavior believed to be controlled by others. Voice experiences refer to inner voices experienced as different than one's thoughts. Visual experiences consist of visual hallucinations. Aberrant beliefs range from bizarre delusional beliefs to nonbizarre ideas of reference, or mistaken ideas of mistreatment or being observed.

In addition, and of particular interest to the present study, these workers found high scoring subjects on this scale to display more symptoms from a list of schizotypal symptoms (Chapman & Chapman, 1980) than control subjects. This list of symptoms was selected from the schizotypal symptom list of the SADS-L and the lists of Hoch and Cattell (1959) and Meehl (1964). These schizotypal symptoms were depersonalization (experiences of a part of one's body as not attached or present, not one's own, acting on its own, or of a person's feeling of being someone else); derealization (one's surroundings feeling unreal or other people seeming strange); ideas of reference, extreme suspiciousness, and paranoid ideation, the personalization of action, motives, or events; out of body experiences (leaving the body and observing it from outside, or the body acting without or separate from the mind); feeling physically cut off from others (a sharp separation and isolation from others); complaints of difficulties in concentrating, of speech being mixed up, and deviant vocalizations (garbled, mumbled, too fast or soft speech), reported by the subject; odd communication (scored by the examiner); and social withdrawal (preferring to be alone, or not enjoying or having
In addition, perceptual aberration subjects on the SADS-L exceeded the control group in numbers meeting the criteria for major depressive syndrome. They also reported more hypomanic episodes than controls, and reported having seen a psychiatrist or psychologist more frequently than controls.
APPENDIX B

Psychotic, Psychotic-like, Schizotypal, and Other Symptoms in Magical Ideation Subjects

The types of psychotic and psychotic-like experiences reported by the magical ideation subjects were thought broadcasting (transmission of one’s own thoughts); auditory experiences (voice experiences and other auditory hallucinations); other personally aberrant beliefs; and telepathic reception. Telepathic reception of thoughts refers here to the experience of receiving thoughts from other people telepathically. It was not included in the published version of the scoring manual (Chapman & Chapman, 1980) because few subjects scoring high on the Perceptual Aberration Scale reported it.

Subjects scoring high on the Magical Ideation Scale also reported a higher mean number of schizotypal experiences than controls on the SADS-L (Eckblad & Chapman, 1983). These schizotypal experiences were: sense of presence (the experience of some force or entity present when none actually is there); frequent illusions or marginal hallucinations not deviant enough to be scored as psychoticlike; deja vu phenomena (when reported to occur frequently); confusion lasting at least 15 minutes after waking as to whether an event had occurred in dream or reality; other hypnogogic phenomenon (usually out-of-body experiences); depersonalization and derealization; interpersonal strangeness (interviewer ratings of oddness in speech or affective communication); avoidance of or conflictual interpersonal relationships; dissociative states; and poverty of thought (where one has remarkably little to say about important things in one’s life).
APPENDIX C

Positive and Negative Schizophrenia

Positive Schizophrenia

1. At least one of the following is a prominent part of the illness.
   a. Severe hallucinations that dominate the clinical picture (auditory, haptic, or olfactory) (The judgment of severity should be based on various factors such as persistence, frequency, and effect on lifestyle.)
   b. Severe delusions (may be persecutory, jealous, somatic, religious, grandiose, or fantastic) (The judgment of frequency should be made as described for severity.)
   c. Marked positive formal thought disorder (manifested by marked incoherence, derailment, tangentiality, or illogicality.)
   d. Repeated instances of bizarre or disorganized behavior

2. None of the following is present to a marked degree.
   a. Alogia
   b. Affective flattening
   c. Avolition-apathy
   d. Anhedonia-asociality
   e. Attentional impairment

Negative Schizophrenia

1. At least two of the following are present to a marked degree.
   a. Alogia (e.g., marked poverty of speech, poverty of content of speech)
   b. Affective flattening
   c. Anhedonia-asociality (e.g., inability to experience pleasure or to feel intimacy, few social contacts)
   d. Avolition-apathy (e.g., anergia, impersistence at work or school)
   e. Attentional impairment

2. None of the following dominates the clinical picture or is present to a marked degree.
   a. Hallucinations
   b. Delusions
   c. Positive formal thought disorder
   d. Bizarre behavior
Mixed Schizophrenia

This category includes those patients that do not meet criteria for either positive or negative schizophrenia, or meet criteria for both.

(Andreasen & Olsen, 1982)

The division of symptomatology into positive and negative symptoms is reminiscent of Bleuler’s (1911/1950) distinction between fundamental and accessory symptoms. Andreasen and Olsen (1982) observed that this distinction has also been recognized for quite some time by clinicians who see large numbers of schizophrenics.

Current investigators have hypothesized that negative symptoms are on one end of a continuum of disorders which are correlated with poor premorbid adjustment, poor response to neuroleptic therapy, chronic course and outcome, and a cognitive impairment. Approaching schizophrenia from a strongly biological perspective, they hypothesize a different underlying pathological process in negative schizophrenia which differentiates it from the positive symptom group, such as atrophic changes in the brain (Crow, 1980). Positive symptoms are hypothesized to correlate with better premorbid adjustment, better response to neuroleptic medication, and a less severe course of illness. The underlying pathologic process here is hypothesized to be neurochemical by these researchers.

Andreasen and Olsen (1982) identified the diagnostic criteria for positive and negative symptoms using three instruments. They base their criteria on the Schedule for the Assessment of Negative Symptoms (Andreasen, 1981; Andreasen, 1982), the Scale for the Assessment of Thought, Language, and Communication (TLC) (Andreasen, 1979), and a modified version of the Schedule for Affective Disorders and Schizophrenia (SADS) (Spitzer & Endicott, 1977) to develop a global rating of hallucinations, delusions, and bizarre behavior. When a rating of at least 4 was assigned on a scale of 0 to 5 to a symptom, the symptom was considered present to a prominent degree.

Andreasen and Olsen’s (1982) validation work with positive and negative symptoms demonstrated negative symptoms are highly correlated with each other, as are positive symptoms. But, correlations between positive and negative symptoms are negative, suggesting that positive and negative symptoms are at opposite ends of a
continuum. In addition, a group of schizophrenics possessing mixed positive and negative symptoms emerged. This group is hypothesized to occupy a middle ground on such a continuum.
I am going to read you some sayings. For example, the saying, "Large oaks from acorns grow" could mean that great things may have small beginnings. Now please tell me what each saying means. Try to answer every one.

1. A rolling stone gathers no moss.
2. All is not gold that glitters.
3. Rome was not built in a day.
4. When the cat's away the mice will play.
5. Strike while the iron is hot.
7. Don't judge a book by its cover.
8. It never rains but it pours.
9. The grass is always greener in the other fellow's yard.
10. Too many cooks spoil the broth.
11. True gold does not fear fire.
13. Paper can not wrap up a fire.
Below are the proverbs listed again. We are interested in how often you have heard these proverbs used before you heard them today. There is a line beneath each proverb with the words "Very Unfamiliar", "Somewhat Unfamiliar", "Marginally Familiar", "Somewhat Familiar", and "Very Familiar" printed beneath it. Circle the group of words beneath the line which best describe how familiar you are with the proverb.

1. A rolling stone gathers no moss.

   Very Unfamiliar Somewhat Unfamiliar Marginally Familiar Somewhat Familiar Very Familiar

2. All is not gold that glitters.

   Very Unfamiliar Somewhat Unfamiliar Marginally Familiar Somewhat Familiar Very Familiar

3. Rome was not built in a day.

   Very Unfamiliar Somewhat Unfamiliar Marginally Familiar Somewhat Familiar Very Familiar

4. When the cat's away the mice will play.

   Very Unfamiliar Somewhat Unfamiliar Marginally Familiar Somewhat Familiar Very Familiar

5. Strike while the iron's hot.

   Very Unfamiliar Somewhat Unfamiliar Marginally Familiar Somewhat Familiar Very Familiar


   Very Unfamiliar Somewhat Unfamiliar Marginally Familiar Somewhat Familiar Very Familiar

7. Don't judge a book by its cover.

   Very Unfamiliar Somewhat Unfamiliar Marginally Familiar Somewhat Familiar Very Familiar

8. It never rains but it pours.

   Very Unfamiliar Somewhat Unfamiliar Marginally Familiar Somewhat Familiar Very Familiar

9. The grass is always greener in the other fellow's yard.

   Very Unfamiliar Somewhat Unfamiliar Marginally Familiar Somewhat Familiar Very Familiar

10. Too many cooks spoil the broth.

    Very Unfamiliar Somewhat Unfamiliar Marginally Familiar Somewhat Familiar Very Familiar

11. True gold does not fear fire.

    Very Unfamiliar Somewhat Unfamiliar Marginally Familiar Somewhat Familiar Very Familiar

<table>
<thead>
<tr>
<th></th>
<th>Very Unfamiliar</th>
<th>Somewhat Unfamiliar</th>
<th>Marginally Familiar</th>
<th>Somewhat Familiar</th>
<th>Very Familiar</th>
</tr>
</thead>
</table>

13. Paper can not wrap up a fire.

<table>
<thead>
<tr>
<th></th>
<th>Very Unfamiliar</th>
<th>Somewhat Unfamiliar</th>
<th>Marginally Familiar</th>
<th>Somewhat Familiar</th>
<th>Very Familiar</th>
</tr>
</thead>
</table>

Finally, we are interested in knowing how familiar you are with the meaning itself of the proverb, as separate from having heard the proverb someplace before. Circle the group of words beneath the line which best describes how familiar you are with the meaning of the proverb.

1. A rolling stone gathers no moss.

<table>
<thead>
<tr>
<th></th>
<th>Very Unfamiliar</th>
<th>Somewhat Unfamiliar</th>
<th>Marginally Familiar</th>
<th>Somewhat Familiar</th>
<th>Very Familiar</th>
</tr>
</thead>
</table>

2. All is not gold that glitters.

<table>
<thead>
<tr>
<th></th>
<th>Very Unfamiliar</th>
<th>Somewhat Unfamiliar</th>
<th>Marginally Familiar</th>
<th>Somewhat Familiar</th>
<th>Very Familiar</th>
</tr>
</thead>
</table>

3. Rose was not built in a day.

<table>
<thead>
<tr>
<th></th>
<th>Very Unfamiliar</th>
<th>Somewhat Unfamiliar</th>
<th>Marginally Familiar</th>
<th>Somewhat Familiar</th>
<th>Very Familiar</th>
</tr>
</thead>
</table>

4. When the cat's away the mice will play.

<table>
<thead>
<tr>
<th></th>
<th>Very Unfamiliar</th>
<th>Somewhat Unfamiliar</th>
<th>Marginally Familiar</th>
<th>Somewhat Familiar</th>
<th>Very Familiar</th>
</tr>
</thead>
</table>

5. Strike while the iron's hot.

<table>
<thead>
<tr>
<th></th>
<th>Very Unfamiliar</th>
<th>Somewhat Unfamiliar</th>
<th>Marginally Familiar</th>
<th>Somewhat Familiar</th>
<th>Very Familiar</th>
</tr>
</thead>
</table>


<table>
<thead>
<tr>
<th></th>
<th>Very Unfamiliar</th>
<th>Somewhat Unfamiliar</th>
<th>Marginally Familiar</th>
<th>Somewhat Familiar</th>
<th>Very Familiar</th>
</tr>
</thead>
</table>

7. Don't judge a book by its cover.

<table>
<thead>
<tr>
<th></th>
<th>Very Unfamiliar</th>
<th>Somewhat Unfamiliar</th>
<th>Marginally Familiar</th>
<th>Somewhat Familiar</th>
<th>Very Familiar</th>
</tr>
</thead>
</table>

8. It never rains but it pours.

<table>
<thead>
<tr>
<th></th>
<th>Very Unfamiliar</th>
<th>Somewhat Unfamiliar</th>
<th>Marginally Familiar</th>
<th>Somewhat Familiar</th>
<th>Very Familiar</th>
</tr>
</thead>
</table>

9. The grass is always greener in the other fellow's yard.

<table>
<thead>
<tr>
<th></th>
<th>Very Unfamiliar</th>
<th>Somewhat Unfamiliar</th>
<th>Marginally Familiar</th>
<th>Somewhat Familiar</th>
<th>Very Familiar</th>
</tr>
</thead>
</table>
10. Too many cooks spoil the broth.

<table>
<thead>
<tr>
<th>Very</th>
<th>Somewhat</th>
<th>Marginally</th>
<th>Somewhat</th>
<th>Very</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unfamiliar</td>
<td>Unfamiliar</td>
<td>Familiar</td>
<td>Familiar</td>
<td>Familiar</td>
</tr>
</tbody>
</table>

11. True gold does not fear fire.

<table>
<thead>
<tr>
<th>Very</th>
<th>Somewhat</th>
<th>Marginally</th>
<th>Somewhat</th>
<th>Very</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unfamiliar</td>
<td>Unfamiliar</td>
<td>Familiar</td>
<td>Familiar</td>
<td>Familiar</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Very</th>
<th>Somewhat</th>
<th>Marginally</th>
<th>Somewhat</th>
<th>Very</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unfamiliar</td>
<td>Unfamiliar</td>
<td>Familiar</td>
<td>Familiar</td>
<td>Familiar</td>
</tr>
</tbody>
</table>

13. Paper can not wrap up a fire.

<table>
<thead>
<tr>
<th>Very</th>
<th>Somewhat</th>
<th>Marginally</th>
<th>Somewhat</th>
<th>Very</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unfamiliar</td>
<td>Unfamiliar</td>
<td>Familiar</td>
<td>Familiar</td>
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</table>
I am going to read you some sayings. For example, the saying, "Large oaks from acorns grow" could mean that great things may have small beginnings. Now please tell me what each saying means. Try to answer every one.

1. A rolling stone gathers no moss.

2. All is not gold that glitters.

3. Rome was not built in a day.

4. When the cat's away the mice will play.

5. Strike while the iron is hot.


7. Don't judge a book by its cover.

8. It never rains but it pours.
9. The grass is always greener in the other fellow’s yard.

10. Too many cooks spoil the broth.

11. True gold does not fear fire.


13. Paper can not wrap up a fire.
APPENDIX F

Proverb Interpretation in Schizotypals
Literalness

Literalness is defined as an active attempt to interpret the words of the proverb as a literal message rather than as symbols to be interpreted. This system scores each proverb on a 3-point scale. This follows from dividing each proverb into two halves.

The thirteen proverbs are divided as follows:

1. A rolling stone gathers no moss.
2. All is not gold that glitters.
3. Rome was not built in a day.
4. When the cat's away the mice will play.
5. Strike while the iron is hot.
7. Don't judge a book by its cover.
8. It never rains but it pours.
9. The grass is always greener in the other fellow's yard.
10. Too many cooks spoil the broth.
11. True gold does not fear fire.
13. Paper can not wrap up a fire.

Each proverb is scored as 0 for no literalness, or 1 if one of the proverb stem is interpreted literally. If both stems are interpreted literally, a score of 3 is assigned.

Certain words in each half of the proverb must be interpreted, or desymbolized, to obtain a correct interpretation. For example, in the first proverb, "A rolling stone gathers no moss," rolling stone and moss are symbols that must be interpreted, but gathers is not. If rolling stone or moss are repeated in the answer, a score for literalness must be considered. However, the appearance of gathers in the answer need not imply literalness. For example, the responses "People who move around a lot, never gather close friends," is an adequate, desymbolized interpretation rather than a literal one.
The thirteen proverbs are listed below with critical words requiring desymbolization in boldface:

1. A rolling stone gathers no moss.
2. All is not gold that glitters.
3. Rome was not built in a day.
4. When the cat's away the mice will play.
5. Strike while the iron is hot.
7. Don't judge a book by its cover.
8. It never rains but it pours.
9. The grass is always greener in the other fellow's yard.
10. Too many cooks spoil the broth.
11. True gold does not fear fire.
13. Paper can not wrap up a fire.

For the sake of brevity, the scoring principles will be illustrated with responses to the proverb "Rome was not built in a day." The two halves of this proverb are Rome and was not built in a day. The symbols to be desymbolized in an acceptable response are Rome, built, and day.

An entire proverb is considered completely unscoreable if the entire response consists of any of the following:

1. An "I don't know," without further elaboration.
2. A reference to a personal experience of the subject as a substitute for interpreting the proverb, for example, "I have never been to Rome."
3. A response that has no recognizable relationship either to the literal meaning of the proverb or to a possible interpretation of the proverb. Responses can be judged as falling in this category even if they contain one or more of the symbols of the proverb, for example "Rome is in Italy."
4. A repetition of the proverb without further elaboration, for example, "Rome was not built in a day."
5. A repetition of only part of the proverb without further elaboration, for example, "Built in a day."
6. A semantic associate or a clang associate to one of the symbols without further elaboration, for example, "Paris" or "Cathedral domes."
7. Any single word other than "yes" or "no" and other than an equivalent to yes or no such as "absolutely." An example of the unscoreable response is Italy.
8. A bizarre or autistic response, with or without
further elaboration, for example, "Roman vices accentuate carnal lust" or "Roman vices can't be learned quickly."

9. No response whatever.

Note, however, that many of these kinds of responses are scored if the subject adds other words in the response. See examples below.

A proverb receives a total literalness score of 3 if:

1. The response
   a. is a reason for the verity of the proverb as literally stated, or
   b. is an elaboration of its meaning and the explanation or elaboration is based on either physical attributes of the symbols or associates to the symbols in the proverb, for example, "Rome is a big city."

2. The response is yes or no or an equivalent response.

3. Both halves of the proverb receive a literalness score of 1 by the criteria listed below.

   When the response is scoreable, one half is scored 1 for literalness if:
   1. The response half includes a repetition of a symbol or symbols from the proverb half, for example, "Rome took a long time to complete." Rome is a repetition of a symbol. Took a long time to complete is an appropriate desymbolized response for the proverb half. The total literalness score is 1.

   2. A synonym for a symbol or a rewording of a symbol from the proverb half is included in the response, for example, "The capital of Italy took a long time." Capital of Italy is a synonym for the symbol Rome. The total literalness score is 1.

   3. The response half includes physical attributes of a symbol from the proverb half, for example, "A big city can't be built in a day." A big city states physical attributes of the symbol Rome. Built in a day is a repetition of a symbol. Both halves earn a literalness score of 1. The total literalness score for the proverb is 3.

   4. The response half is primarily a semantic associate to a symbol from the proverb half, for example, "It took more than one day to build Paris." Paris is a semantic associate to Rome. It took more than one day is a rewording of not built in a day. The total literalness score is 3.

   A scoreable response meeting none of the criteria for literalness receives a literalness score of 0.
The overall score for bizarre-idiiosyncratic thinking is the first global evaluation of the record. It represents an assessment of each response from the point of view of its fit within the current verbal context and what is generally considered appropriate and understandable in our society. The extent to which a response as a whole is bizarre as well as the extent to which it meets the criteria of any or all of the specific types of bizarre-idiiosyncratic thinking varies greatly. In the present scoring system, we evaluate degrees of bizarre-idiiosyncratic thinking by assigning scores of
0.5, 1, or 3, ranging from absent to severe bizarre-idiosyncratic thinking. Several examples of responses at each level of bizarre-idiosyncratic speech are provided here. A large number of other examples with the appropriate overall score for bizarre-idiosyncratic thinking are presented in Section 2 of the addendum.

**Overall Score Values**

0 = Idiosyncratic verbalizations are absent.

0.5 = Minimal bizarre qualities. Verbalizations that contain some mildly strange material. The response is slightly "off" but in a social situation the verbalization is not strange enough to draw considerable attention. Mild cognitive slips would be scored here. Two examples of responses scored "0.5" are presented below:

Q. Why does land in the city cost more than land in the country? A: Because land is scarce and people need land to build on. So it will be one of the ways from New York to Florida stretching and expanding, trying to survey.

Q. Why should people pay taxes? A: Taxes are necessary. Obsessive takes help the government to give a whole lots on it.

1 = A definite idiosyncratic or bizarre response. This type of response is noticeably unusual or strange, but usually understandable. Most responses in which bizarre or idiosyncratic aspects are present will receive this rating. These responses would clearly be noticeable for their strangeness in a social situation. Two examples are presented below:

Q. Why should we keep guns from dead people? A: These matters shouldn't be "subsumed" or de-stated by people who are bad. They're not good.

Q. Rome was not built in a day. A: It's true. In the summer I have to work inside, hate to work outside. If you have to work inside, it's more work. And this has got to be done some.

2 = A very severe bizarre response. Such responses reflect a very serious deviation from conventional statements, may contain considerable confusion, and are very socially atypical. It is often hard to understand why that response was given to that particular question. This type of response is very rarely found in normal population and is even infrequent among patients. Two examples are presented below:

Q. When the cat’s away the mice will play. A. Yeah. On the earth, up at the top, in the middle. XYZ. The end. the beginning of the end of the beginning.

Q. One swallow doesn’t make a summer. A. Boy, that’s greedy as hell, man, that’s real greedy. That’s like pulling my actual back.

Total scores for the proverbs and comprehension tests range from 0 to 24. In assigning the overall score for potential bizarre-idiosyncratic thinking to each response, the rater is essentially assessing how strange or deviant the response is in relation to more conventional answers. In those cases where unconventional answers are given, the rater is assessing how extreme it is, at first glance, to understand the reason that a particular response was given or to empathize with the processes involved in arriving at the answer. Even responses that one can understand or empathize with may at times be scored, since they may show odd features or deviate from social convention in an unusual or unexpected manner. However, responses that deviate from the conventional answer and that are also difficult to understand are assigned even more severe ratings for bizarre-idiosyncratic thinking.

As outlined above, an overall score of 0 is assigned when the response is not bizarre or idiosyncratic in any way. An overall score of 0.5 is assigned when the response is slightly off, contains cognitive slips that are not grossly deviant. In a social situation, this response would not really startle people or raise deep questions. This score is meant to capture slight deviations, some of which are expected to be found in normal records as well. An overall score of 1 is assigned to a response that is clearly idiosyncratic or bizarre. An overall score of 2 is assigned only to extremely unusual or very bizarre statements.

It should be noted that in scoring bizarre-idiosyncratic thinking, incorrect answers are not penalized, since lack of knowledge does not represent strangeness or bizarreness. However, incorrect answers in which it is difficult to understand why the particular incorrect answer was given, and incorrect answers that have no relationship at all to the question, will usually involve bizarre or strange thinking and be scored as such.

The overall score has emerged in our research as the most accurate estimate of bizarre-idiosyncratic thinking. It is based on a judgment of positive thought disorder in the response as a whole and is based both on the scorer’s understanding of the definition of bizarre-idiosyncratic thinking, as well as on the coherence and appropriateness of the response. The overall score is a qualitative assessment of the degree of idiosyncrasy reflected in a response.
SECTION 1. SPECIFIC CATEGORIES AND SUBCATEGORIES OF BIZARRE-IDIOSYNCRATIC THINKING

In addition to overall response scores for bizarre-idiosyncratic thinking, we have outlined a system for subsequent evaluations of each response focusing on criteria constructed to delineate specifically the anomalies of positive thought disorder. Five categories and eleven subcategories of bizarre-idiosyncratic thinking (based on both traditional and newer concepts of thought disorder) provide the criteria for evaluating components of bizarre-idiosyncratic verbalizations in greater detail. These major categories and subcategories represent various types of bizarre ideas, behavior, and language. They also provide one way of categorizing some of the different types of bizarre behavior one can find in responses to specific tasks, as well as in people's day-to-day behavior.

The presence of these components of disordered speech and language can be independently studied in light of different theoretical predictions, developments at different points in the unfolding of, or recovery from, a particular disorder, and in understanding differences among clinical populations. With bizarre-idiosyncratic thinking as a more general construct, these categorical evaluations provide the opportunity to study particular kinds of language disorders.

We have found these subtypes of bizarre-idiosyncratic verbalizations and behavior useful, and we do score them in our own research. We should emphasize, however, that scoring or attending to these specific criteria is not absolutely necessary for attaining the overall score for bizarre-idiosyncratic thinking. One can utilize the overall system of assessment of bizarre-idiosyncratic thinking on the basis of the criteria outlined in the previous pages without attending to the detailed and specific subcategories noted in the following pages. Interested readers might wish to study the system for categorizing bizarre-idiosyncratic thinking outlined below. We should again note, however, that even if one uses the following subcategories, the initial overall rating of bizarre-idiosyncratic thinking should be made first before scoring these individual subcategories.

In terms of the specific components, we have used five basic categories to study both the subject's linguistic form (i.e., the manner in which ideas are communicated) and the content of the responses (i.e., the ideas themselves). In Section 2 of this addendum we have provided detailed examples of specific responses and how they should be scored within the five categories and eleven subcategories of bizarre-idiosyncratic responses. It should be noted that these categories are not exclusive and many responses will be scored for several types of component problems, particularly since problems in form and problems in content are often difficult to tease apart.

The Five Categories of Bizarre-Idiosyncratic Thinking

I. Linguistic Form and Structure: Here, the structure of language within the response is under scrutiny. A problem in this area implies that it is difficult to understand the subject's statement owing to distortions in word use, grammatical form, or the linkage of words and phrases. A response also may be communicated poorly. Questions are raised in terms of peculiarities in the individual's verbal style, the linguistic structure of the response, or gaps in communication that may interfere with the clear communication of meaning.

II. The Content of the Statement: The Ideas Expressed: Under primary consideration are the ideas presented within the response. This category pertains to peculiarities within a response such as idiosyncratic reasoning, unusual attitudes, and disorganized or confused ideas. Evaluations are made in terms of the ideas or attitudes the
rather than all of a question. However, while these eleven subtypes of bizarre-idiosyncratic thinking may be important, they do not represent an exhaustive list of all possible types of bizarre behavior and ideas, or all the possible dimensions with which one can look at these phenomena. There are a vast number of ways one can be strange and bizarre, and a vast number of ways one can deviate from social convention in a personal or idiosyncratic manner.

Eleven Subcategories of Bizarre-Idiosyncratic Verbalizations

CATEGORY I: LINGUISTIC FORM AND STRUCTURE

1. Strange Verbalizations
   A. Single words used in an unusual or peculiar manner (which are, in the rater's best judgment not attributable to intellectual or cultural deficits).
   B. Mild or moderate cognitive slippage in regard to sentence structure, the expression of ideas, or the construction of new words (the new word is close in form to the correct word).
   C. Neologisms (a new word with private meaning). Real neologisms (involving a private meaning) are very unusual, and are scored a "3."
   D. Artificial, pedantic, or stilted language, inappropriate to the level of discourse in the testing situation.

2. Lack of Shared Communication
   A. Responses that are not explicitly stated.
   B. Small gaps in communication, in which words are not explained or referents are unclear.
   C. Larger gaps in communication, in which phrases are not explained. Elements of private language may be apparent with unshared or unexplained concepts or ideas.
   D. Disorganized or poor linkage between consecutive words, phrases, or sentences within the response.

3. Responses Involving Coherent but Odd Ideas

4. Responses that are Deviant with Respect to Social Convention

5. Peculiar or Idiosyncratic Reasoning or Logic
   A. Responses that are incorrect and illogical in terms of common knowledge about people, events, or the environment.
   B. Responses violating a logical paradigm, such as predicate logic.
   C. Self-contradictory responses or responses with confused logic.
   D. Responses with peculiar, autistic logic.

6. Confused or Disorganized Ideas
   A. Combinations of words put together in a manner that only dimly makes sense.
   B. Grammatically correct sentences that do not hold a logical thought.

CATEGORY III: INTERMIXING

7. The Overelaborated Response
   A. Irrelevant wandering within a partially correct or correct answer.
   B. Elaboration that is far too extensive, to the point where the original question is almost lost from sight.
   C. Intermingling of Personal Concerns or Associations into the Response.

CATEGORY IV: RELATIONSHIP BETWEEN QUESTION AND RESPONSE

8. Attending to Part Rather Than Whole: associations or interpretations of a word or phrase that suggest that the subject's response is not based on the question as a conceptual whole, and that also make the response appear strange or idiosyncratic.

9. The Lack of a Relationship between the Subject's Statement and the Question Asked—almost as if a different question is being asked.

10. Strange Behavior—including physical and affective behavior.

In scoring a response according to the list of major categories and subcategories outlined above, the subject's response is first analyzed and scored according to each of the eleven subcategories, and then assigned scores on the five major categories. The presence of one type of subcategory of bizarre-idiosyncratic thinking in a response (e.g., lack of shared communication) does not exclude the simultaneous presence of another type or subcategory from that same response (e.g., intermingling or an overlaborated response).

The categories listed above were constructed to focus on the distinct properties of a response that may contribute to an overall impression of unusual or odd verbal behavior. However, at times, although a category score is indicated (i.e., something unusual occurs in linguistic style or in how a response is stated), the idiosyncrasy is not attributable to any specific subcategory or behavioral indicator. In such instances, a category score for bizarre-idiosyncratic thinking is still justified, while the individual behavioral descriptors are left blank.

As we have indicated, we conceive of the categories and the subcategories that comprise them as a list of possible aspects of idiosyncratic thought and language that are not exhaustive. The overall response score is a general barometer of bizarre-idiosyncrasy, and the
categories and their loci are probes for the components of such verbal behavior. Thus, it is possible that any one response may be scored for overall bizarreness but may not fit neatly into any of the outlined categories or subcategories, with all of the categories and subcategories consequently rated as 0.

On the other hand, if a score of 1 is assigned for any of the five categories, an overall score of at least 1 is logically indicated, as the overall response or part of it is clearly bizarre or idiosyncratic. Although the overall score should be at least as great as that given in any individual category, the accumulation of category scores may, and often does, add up to more than the overall score.

As we have indicated, many responses will be scored in more than one category or subcategory. In a sample of hospitalized schizophrenic patients, for example, we found that of those responses scored for bizarre-idiiosyncratic language and thought, approximately 50 percent were scored in one subcategory, 30 percent in two subcategories, and 20 percent in three or more subcategories. This ratio, however, may differ with varying populations.

SECTION 2. BEHAVIORAL INDICATORS AND SCORING EXAMPLES OF BIZARRE-IDIOSYNCRATIC RESPONSES

1. Linguistic Form and Structure

This category addresses the subject's verbal style, the particular way a response is worded, and the manner of communication. A problem in this category implies that it is difficult to understand what the subject means owing to: (a) alterations of language, or (b) gaps in verbal communication. We have listed below, in the left-hand column, some of the types of linguistic behaviors that may receive a score in this category. A typical range of scores is also listed below in the right-hand column for the various types of bizarre-idiiosyncratic responses. While the ranges listed below may provide helpful guidelines, other more (or less) pathological scores can be assigned, depending on the severity of the particular bizarre responses.

This Category Includes

<table>
<thead>
<tr>
<th>Peculiar Word Form or Use</th>
<th>Points Typically Scored</th>
</tr>
</thead>
<tbody>
<tr>
<td>Using incorrect words</td>
<td>5-1</td>
</tr>
</tbody>
</table>

Additional Scoring Guidelines

1. Rates should be cautioned against scoring unconventional modes of speech attributable to low intellect or to subcultural habits, if the subject has had little opportunity to learn about more conventional modes of expression.

2. To merit a score of 1 for this category, the damage done to the response must be at least moderately severe. Although rare, extremely severe slips in word use occasionally occur and in some cases might be sufficiently pathological to be assigned a score of 3.

3. Scores for slippage in regard to word structure and use are influenced by: (a) the subject's ability to correct stumbling or awkward grammar (reduces score usually .5 point); (b) the extent of pedantry; and (c) the damage done to the comprehensibility of the response.

4. Scores for vague, diffuse expressions resulting from some gap in communication are on a continuum of poorly explained responses. Scoring is influenced by: (a) the subject's further explication of any vague comments after inquiry (reduces score); (b) the extent of the demand for understanding placed on the rater (increases score); and (c) the amount of real or specific information given.

5. The rater must be particularly careful not to consider incorrect answers or concrete interpretations of proverbs as examples of scoreable responses in this category. A problem in expression implies that it is difficult to understand what the subject means because of (a) alterations of normal language usage, or (b) gaps in the communication of ideas.

6. Strange verbalizations occurring after inquiry merit a lower score.

7. The disorganized linkage of ideas includes responses in which the grammatical structure is very poor. In less serious forms of this phenomenon, dangling phrases, missing verbs, and missing con-
Appendix

More serious forms of Category II, which are described as disorganized logical and social disorganization, contribute to a disorganized sentence structure. They are characterized by a breakdown in the foundation of an idea and are also scored in Category II.

Phrase and word salads are defined as words that are strung together in a meaningless fashion. Distinctions between 1- and 3-point responses are dependent upon the pervasiveness of the disorganization and the degree of structure.

Examples of Category I* Linguistic Form and Structure

<table>
<thead>
<tr>
<th>Subcategory Score</th>
<th>Notes on Subcategory Score</th>
<th>Overall Scores</th>
<th>Additional Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Peculiar Word Form or Use:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>THE WIFE IS THE KEY TO THE HOUSE</td>
<td>5</td>
<td>Peculiar use of the word “key” in a sentence</td>
<td>.5</td>
</tr>
<tr>
<td>“Hurt! Doesn’t make any rhetorical sense at all. Urr... it is rhetorical—no sense to me at all.”</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROME WAS NOT BUILT IN A DAY</td>
<td>5</td>
<td>Because “Hasten makes waste” is corrected, a score of 1 is reduced to 0.</td>
<td>.5</td>
</tr>
<tr>
<td>“You should take your time; hurrying makes pace as they say, or haste makes waste. You should never really work too fast.”</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A STREAM CANNOT RISE HIGHER THAN ITS OWN SOURCE</td>
<td>5</td>
<td>The word “conservative” is odd in this context</td>
<td>.5</td>
</tr>
<tr>
<td>“I guess it means the stream is conservative even if it rains it is not enough to overflow it; it’s a conservative stream if it never rises above its peak—I never rise above what it really is.”</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BARKING DOGS SELDOM BITE</td>
<td>5</td>
<td>This case shows idiosyncratic verbalization in relation to a loose use of words</td>
<td>.5</td>
</tr>
<tr>
<td>“A dog with a bark normally, his bark is worse than his bite, is sadder, is better.”</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WHAT SHOULD YOU DO IF YOU'RE THE FIRST PERSON TO SEE SMOKE AND FIRE?</td>
<td>5</td>
<td>Slightly pedantic</td>
<td>.5</td>
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<td>“I'd go to the usher or person with an air of officiousness.”</td>
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* Appendices typically contribute to a disorganized sentence structure. They are characterized by a breakdown in the foundation of an idea and are also scored in Category II.
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Addendum

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</tr>
<tr>
<td>2. To merit a score of 1 for this category, the damage done to the response must be at least moderately severe. Although rare, extremely severe slips in word use occasionally occur and in some cases might be sufficiently pathological to be assigned a score of 3.</td>
</tr>
<tr>
<td>3. Scores for slippage in regard to word structure and use are influenced by: (a) the subject's ability to correct stumbling or awkward grammar (reduces score usually 5 point); (b) the extent of pedantry; and (c) the damage done to the comprehensibility of the response.</td>
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<tr>
<td>4. Scores for vague, diffuse expressions resulting from some gap in communication are on a continuum of poorly explained responses. Scoring is influenced by: (a) the subject's further expliation of any vague comments after inquiry (reduces score); (b) the extent of the demand for understanding placed on the rater (increases score); and (c) the amount of real or specific information given.</td>
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<tr>
<td>5. The rater must be particularly careful not to consider incorrect answers or concrete interpretations of proverbs as examples of scoreable responses in this category. A problem in expression implies that it is difficult to understand what the subject means because of (a) alterations of normal language usage, or (b) gaps in the communication of ideas.</td>
</tr>
<tr>
<td>6. Strange verbalizations occurring after inquiry merit a lower score.</td>
</tr>
</tbody>
</table>
| 7. The disorganized linkage of ideas includes responses in which the grammatical structure is very poor. In less serious forms of this phenomenon, dangling phrases, missing verbs, and missing con-
420 Append/*

junctions typically contribute to a disorganized sentence structure. More serious forms impress the rater as lacking the foundation of an idea and also scored in Category II.

8. Phrase and word salads are defined as words that are strung together in a meaningless fashion. Distinctions between a 1- and 3-point response are dependent upon the pervasiveness of the disorganization and the extent of incoherence.

II. The Content of the Statement, The Idea Expressed

This category pertains to peculiarities within a response that reflect confusion with regard to various aspects of conventional belief systems and social norms.

Examples of Category II:

<table>
<thead>
<tr>
<th>Subcategory</th>
<th>Notes on Subcategory Score</th>
<th>Overall Scores</th>
<th>Additional Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peculiar Word Form or Use: THE WIFE IS THE KEY TO THE HOUSE</td>
<td>Peculiar use of the word &quot;key&quot;—substantive makes sense at first but does not make sense to me at all.</td>
<td>.5</td>
<td>.5</td>
</tr>
<tr>
<td>ROME WAS NOT BUILT IN A DAY</td>
<td>&quot;You should take your time. Waste makes pace as they say, or haste makes waste. You should never really work too fast.&quot;</td>
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<td>.5</td>
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<tr>
<td>A STREAM CANNOT RISE HIGHER THAN ITS SOURCE</td>
<td>&quot;I guess it means the stream is conservative even if it rains it is not enough to overflow it. It's a conservative stream if it never rises above its peak—I never rises above what it really is.&quot;</td>
<td>.5</td>
<td>.5</td>
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<tr>
<td>BARKING DOGS SELDOM BITE</td>
<td>&quot;A dog with a bark normally, the bark is worse than his bite, is badder, is better.&quot;</td>
<td>.5</td>
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<tr>
<td>WHAT SHOULD YOU DO IF YOU'RE THE FIRST PERSON TO SEE SMOKE AND FIRE?</td>
<td>&quot;I'd go to the usher or person with an air of officiation.&quot;</td>
<td>.5</td>
<td>.5</td>
</tr>
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</table>

Addendum
<table>
<thead>
<tr>
<th>Example of Category I: Subcagegory o Linguistic Form and Structure</th>
<th>Subcategory Score</th>
<th>Notes on Subcategory Score</th>
<th>Overall Score</th>
<th>Additional Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>WHY ARE PEOPLE WHO ARE BORN DEAF USUALLY UNABLE TO TALK?</td>
<td>.5</td>
<td>Slight alteration of an existing word—we know what the subject intended to say.</td>
<td>.5</td>
<td></td>
</tr>
<tr>
<td>&quot;They can't hear vocal tones and it's difficult to form speech because they can't hear others talking.&quot;</td>
<td>.5</td>
<td>An inappropriate level of discourse is used. However, the original statement, giving another proverb, is correct and not bizarre.</td>
<td>.5</td>
<td>Receives a .5 rather than 1 because bizarreness is stimulated by inquiry.</td>
</tr>
<tr>
<td>A STREAM CANNOT RISE HIGHER THAN ITS SOURCE</td>
<td>.5</td>
<td>Adds syllable to forcefit a word. Also responds at an inappropriate level of discourse.</td>
<td>.5</td>
<td>Although the response involves an idea that accurately answers the question, the response is pedantic, and also fits other criteria for bizarre language.</td>
</tr>
<tr>
<td>&quot;A good seed grows a good plant. IQ That means that if you have a good start you'll probably...&quot;</td>
<td>1</td>
<td>Very pedantic—too abstract—out of proportion with the task.</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>DON'T JUDGE A BOOK BY ITS COVER</td>
<td>1</td>
<td>&quot;Intoxicate&quot; is inappropriate here. The idea of &quot;poison&quot; also is idiosyncratic.</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>&quot;A facade of refinement hides an attitude of racism.&quot;</td>
<td>1</td>
<td>&quot;Intoxicate&quot; is inappropriate here. The idea of &quot;poison&quot; also is idiosyncratic.</td>
<td>1</td>
<td>Also scored for confused idea, lack of shared communication, odd out of place, lack of relation to the proverb, and illogic.</td>
</tr>
<tr>
<td>&quot;Why should we keep away from bad company?&quot;</td>
<td>1</td>
<td>&quot;Intoxicate&quot; is inappropriate here. The idea of &quot;poison&quot; also is idiosyncratic.</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>&quot;So you don't intoxicate yourself with poison.&quot;</td>
<td>1</td>
<td>&quot;Intoxicate&quot; is inappropriate here. The idea of &quot;poison&quot; also is idiosyncratic.</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>THE GRASS IS ALWAYS GREENER IN THE OTHER FELLOW'S YARD</td>
<td>1</td>
<td>Word play spoils the response.</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>&quot;Don't trouble trouble till trouble troubles you.&quot;</td>
<td>3</td>
<td>Neologisms are presented.</td>
<td>3</td>
<td>Also scored for confused idea, lack of shared communication, odd out of place, lack of relation to the proverb, and illogic.</td>
</tr>
<tr>
<td>DON'T SWAP HORSES WHEN CROSSING A STREAM</td>
<td>3</td>
<td>Neologisms are presented.</td>
<td>3</td>
<td>Also scored for confused idea, lack of shared communication, odd out of place, lack of relation to the proverb, and illogic.</td>
</tr>
</tbody>
</table>
| "That's wishful thinking. Double vision (Wish
be?) It's like walking across a person's eyes and reflecting personality. I works on you, like dying and going to the spiritual world, but turning in the visual world (Wish?)." | 5 | Subject comments without any attempt at clearly verbalized interpretation. | 5 | Meets a criterion of bizarreness—is inappropriate for the task at hand. |
| Lack of Shared Communication: SPEECH IS THE PICTURE OF THE MIND | 5 | Subject comments without any attempt at clearly verbalized interpretation. | 5 | Meets a criterion of bizarreness—is inappropriate for the task at hand. |
| "That's true." | 5 | The comment is on an implicit, unstated interpretation. | 5 | Meets a criterion of bizarreness—is inappropriate for the task at hand. |
| WHERE THERE'S A WISH, THERE'S A WAY | 5 | The grammar is poor and disorganized. However, the rater is able to understand the meaning of the awkward verbalization. | 5 | |
| "You can't do everything yourself." | 5 | The grammar is poor and disorganized. However, the rater is able to understand the meaning of the awkward verbalization. | 5 | |
| TO FIDDLE WHILE ROMEO BURNS | 5 | The grammar is poor and disorganized. However, the rater is able to understand the meaning of the awkward verbalization. | 5 | |
| "To amuse oneself when the avoidance of responsibility shouldn't be."

...
### Appendix

**Examples of Category I**

<table>
<thead>
<tr>
<th>Subcategory Score</th>
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<th>Additional Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of Shared Communication</td>
<td>5</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td><strong>WHY DOES LAND IN THE CITY COST MORE THAN LAND IN THE COUNTRY?</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;Land in the city is more of a public concern to have a house in the city, so there are more taxes on it.&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>WHEN THE CATS ARE AWAY, THE MICE WILL PLAY</strong></td>
<td>1</td>
<td>The last part of this response seems disconnected from the rest of the response.</td>
<td>1</td>
</tr>
<tr>
<td>&quot;When law and order is out, the group under will slack off and tend to go away, instead of a set law that is restricting them will think more of them.&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>THE USED KEY IS ALWAYS BRIGHT</strong></td>
<td>3</td>
<td>The rater is impressed with a large amount of missing information.</td>
<td>3</td>
</tr>
<tr>
<td>&quot;The right path, you'll know the right path.&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>ROME WAS NOT BUILT IN A DAY</strong></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;Yeah, it means never. We're together, We're here together.&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Although in a number of these examples, scores in other categories in addition to Category I are appropriate, only Category I scores will be noted and explained in this point.

---

**Additional Scoring Guidelines**

1. **Conjunctive**
   - Such as: additive, conjunctive, so that, and, or, then.
   - Examples: "They are both tall, they are both handsome, they are both successful." 5.3

2. **Speculative**
   - Questions or statements that are purely hypothetical or conjectural.
   - Examples: "If I were king, I would..." 5.3

3. **Self-contradictory**
   - Responses violating a logical paradigm, such as predicate logic.
   - Examples: "If a + b = c and a + b = d then c = d or a = b and b = c.

4. **Score for peculiar or idiosyncratic reasoning or logic requirement:**
   - "Any response that does not clearly follow the standard rules of logic, even if it contains some trace of logic, may be scored if it is possible to determine the reasoning from the context or the pattern of the response in question.

   The criterion for scoring such responses is the presence of a logically consistent structure and the coherence of the response. The rater should consider the overall coherence and organization of the response in determining whether it should be scored as a Category II response.

5. **If an illegitimate response comes after an inquiry or encouragement, a lenient scoring is in order.**

---

**Proverb Interpretation in Schizophrenics**

- Although in a number of these examples, scores in other categories in addition to Category I are appropriate, only Category I scores will be noted and explained in this point.
<table>
<thead>
<tr>
<th>Examples of Category II</th>
<th>The Content of the Statement</th>
<th>Subcategory Score</th>
<th>Notes on Subcategory Score</th>
<th>Overall Score</th>
<th>Additional Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coherent but Odd Ideas:</td>
<td>WHY ARE CHILD LABOR LAWS NEEDED?</td>
<td>5</td>
<td>Subject does not seem to be communicating what was originally intended</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&quot;So the old can help the young. [G] What's the question? [Repeat question] It's a matter of distributing responsibility so the young don't have all the responsibility.&quot;</td>
<td>1</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>WHY ARE PEOPLE WHO ARE BORN DEAF USUALLY UNABLE TO TALK?</td>
<td>3</td>
<td>Strange ideation emerges in both the idea of birds verbally telling us that it is summer, and the &quot;twist&quot; that the birds are inaccurate and it really is not summer.</td>
<td>3</td>
<td>Clearly idiosyncratic with several odd ideas.</td>
</tr>
<tr>
<td></td>
<td>&quot;Because they have nothing to talk about except that they are bored.&quot;</td>
<td>1</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ONE SWALLOW DOESN'T MAKE A SUMMER</td>
<td>3</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&quot;Just because a bird says it's summer and acts like it's summer, it really isn't.&quot;</td>
<td>1</td>
<td></td>
<td>1</td>
<td></td>
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<tr>
<td></td>
<td>Deviant with Respect to Social Convention:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>IT'S BETTER TO BE HAPPY THAN WISE</td>
<td>5</td>
<td>This response is considered deviant in terms of conventional beliefs.</td>
<td>1</td>
<td>Unusual with regard to outlook, and deviates from social convention.</td>
</tr>
</tbody>
</table>
| | "Real happiness, the retarded don't know how good they've got it."

WHAT WOULD YOU DO IF WHILE IN THE MOVIES YOU WERE THE FIRST PERSON TO SEE SMOKE AND FIRE? "Just keep quiet. [G] Just ignore it—then it's from the movie screen."

WHAT WOULD YOU DO IF WHILE IN THE MOVIES YOU WERE THE FIRST TO SEE SMOKE AND FIRE? "To start picking up all the paper from the floor so it wouldn't burn." "Why are people born deaf usually unable to talk? "Because nobody wants to have anything to do with stupid people like that. They should all be put away in home." IF YOU WERE LOST IN THE FOREST IN THE DAYTIME, HOW WOULD YOU FIND YOUR WAY OUT? "I'd walk around in circles until I got dizzy and fell down asleep and dream about a passageway—wouldn't you?"

Peculiar Reasoning or Logic: ONE SWALLOW DOESN'T MAKE A SUMMER "Because two swallows make the summer more beautiful." A response that is illogical. This response is also strange in terms of common knowledge about the environment. 5 1 1
## Proverb Interpretation in Schizotypals

### Example of Cufi's 

The content of the sentence

<table>
<thead>
<tr>
<th>Subcategory Score</th>
<th>Notes on Subcategory Score</th>
<th>Overall Score</th>
<th>Additional Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Peculiar Answering or Logic</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>IF YOU WERE LOST IN THE FOREST IN THE DAYTIME, HOW WOULD YOU FIND YOUR WAY OUT?</strong></td>
<td>1</td>
<td>1</td>
<td>May also contain confusion of ideas (&quot;in relation to my house&quot;); although this is unclear from subject's presentation.</td>
</tr>
<tr>
<td>&quot;First of all, I always know where the sun goes out and in. East and West, if I go into the forest I know where I go in, in relation to my house, so I can know where the closest way out is.&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>ONE SWALLOW DOESN'T MAKE A SUMMER</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;Summers are warm and it takes more than one summer to cool off.&quot;</td>
<td>3</td>
<td></td>
<td>An illogical response.</td>
</tr>
<tr>
<td><strong>WHY SHOULD WE KEEP AWAY FROM BAD COMPANY?</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;Is that a question? Why is Jesus to me. Like asking Jesus the question-so it's none of my business. You know how he hung on the cross in like a 'Y.' So he's why to me. You'll have trouble with every 'why question you ask me until I have this straightened out. That wasn't me talking—that was Peter the Apostle.&quot;</td>
<td>3</td>
<td>3</td>
<td>A severe type of bizarre response.</td>
</tr>
</tbody>
</table>

### Confused Ideas:

**WHY DOES LAND IN THE CITY COST MORE THAN LAND IN THE COUNTRY?**

"Land in the city, it's more of a public concern to have a house in the city, so there are more taxes on it."  

<table>
<thead>
<tr>
<th>Subcategory Score</th>
<th>Notes on Subcategory Score</th>
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<th>Additional Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Argument</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>WHEN THE CATS AWAY THE MICE WILL PLAY</strong></td>
<td>1</td>
<td>1</td>
<td>Also score in Category I.</td>
</tr>
<tr>
<td>&quot;When law and order are out, the group under will slack off and tend to go away instead of a set law that is restraining them will think more of them.&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SHALLOW BROOKS ARE NOISY</strong></td>
<td>1</td>
<td>1</td>
<td>Also scored in Category I (&quot;make a sand&quot;).</td>
</tr>
<tr>
<td>&quot;Because they flood or make a sand.&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>DON'T COUNT YOUR CHICKENS UNTIL THEY'RE HATCHED</strong></td>
<td>1</td>
<td>1</td>
<td>Difficult to empathize with—missing communication is also apparent (Category II).</td>
</tr>
<tr>
<td>&quot;One chicken might go bad, and if it had twelve, but then only eleven, so don't count on it.&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>DON'T CROSS YOUR BRIDGES TILL YOU COME TO THEM</strong></td>
<td>3</td>
<td>3</td>
<td>A score in Category III is also appropriate here.</td>
</tr>
<tr>
<td>&quot;Working continually a person can only imagine.&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>WHEN THE CATS AWAY THE MICE WILL PLAY</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;If something has to do with freedom to do with something you want to do. When they're gone you can do whatever it is. Do you want it another way? When something is injured or you have been injured then you aren't like you were catching mice.&quot;</td>
<td>3</td>
<td>3</td>
<td>Also scored in Category III as a bizarre overelaborate response.</td>
</tr>
<tr>
<td><strong>WHY ARE PEOPLE WHO ARE BORN DEAF USUALLY UNABLE TO TALK?</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;When you swallow in your throat like a key it comes out, but not a scissors. A robin, too, it means spring.&quot;</td>
<td>3</td>
<td>3</td>
<td>Rater is impressed by lack of organization and coherence in the response.</td>
</tr>
</tbody>
</table>

### Additional Notes

<table>
<thead>
<tr>
<th><strong>Verbalizations</strong></th>
<th><strong>Confused and Contradictory</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WHEN THE CATS AWAY THE MICE WILL PLAY</strong></td>
<td>4</td>
</tr>
</tbody>
</table>
features. It may show an intermingling of fragments or parts of the patient's problems or concerns into the response, or the response will become extensively and needlessly elaborated. It will move away from the typical correct answer and shift into the direction of the subject's associations.

Some intermingling contains weak or mild evidence that the irrelevant material added might possibly be a consequence of personal concerns, and thus a case of intermingling. Unless there is moderate or strong evidence that the extra material is related to personal concerns, it is scored as an overelaborated response.

### Additional Scoring Guidelines

1. Intermingled material will usually be of a personal nature or contain affectively loaded words. The content may represent conflicts, wishes, concerns, attitudes or problems, that are inserted at the beginning, middle, or end of the response. As a criterion for scoring, the response would contain more than a casual personal reference—i.e., the intermingled material should make the response appear strange. Response-relevant personal examples that are appropriate are not scored for this category.

2. A score of 3 for intermingling applies to only the very obviously intermingled material that does not fit at all, and that makes the response seem extremely strange or bizarre (e.g., extensive anecdotals by the patient about himself or his own past or current experience).

3. If intermingling occurs after inquiry, leniency in scoring is called for; (what is scored a 3 prior to inquiry is scored 1 postinquiry; 1-point responses are dropped to 5-point scores postinquiry).

4. Do not score story telling or explanations that, in response to inquiry, are clarifications of an appropriate response.

5. Scores of 5-3 for overelaborated responses and irrelevant wandering pertain to short transgressions—a phrase or one sentence—in which the subject overattends to one aspect of the question or to one idea or thought. In this type of tangential wandering, although the subject is off the track, we can usually identify the association that governs the speech.

6. If the wandering is more extensive than a phrase or one sentence, 3 points are scored for the loss of distance. In these cases, the elaboration is so extensive that the original question is almost lost from sight.

### IV. The Relationship between Question and Response

The emphasis in this category is on determining if the subject is able to address the task of interpreting the proverb or responding to a question.

### Additional Scoring Guidelines

1. At times, the individual partially interprets the proverb and then goes off on a loosely associated tangent. In these cases, the interpretative task has not been ignored, but the individual has overincluded tangential topics within the response. These bizarre responses should be scored under Category III.

2. Attention to a particular aspect of the proverb rather than understanding the proverb as a whole will be scored when there is a failure to interpret the stimulus material. That is, attention is given to a particular word or phrase only to the extent that the word or phrase dominates the entire response and leads the subject away from consensus responses.

3. A 3-point response in this category is characterized as so grossly bizarre that it is hard to match the response with the item given. It is hard to think of an extenuating circumstance or justification for these responses.

4. By contrast, a 1-point response contains a hint as to how the response is related to the proverb or question asked. However, even
<table>
<thead>
<tr>
<th>Examples of Category III Interpretation</th>
<th>Subcategory Score</th>
<th>Notes on Subcategory Score</th>
<th>Overall Score</th>
<th>Additional Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>The Oversimplified Response</strong></td>
<td></td>
<td></td>
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</tbody>
</table>
| IF YOU WERE LOST IN THE FOREST IN THE DAYTIME, HOW WOULD YOU GO ABOUT FINDING YOUR WAY OUT?  
  "Go up the main road if there was one, and if there wasn’t, I wouldn’t go back into the woods. There are swamps, poison oak, poison ivy, snakes, etc."  
WHEN THE CATS AWAY THE MICE WILL PLAY  
"When something bad occurs, you know that you’re doing something wrong, but if the authority is gone, then it’s not wrong anymore. Thus, it’s like taking advantage of it, the authority that’s gone, and then you won’t feel guilty about it, etc., etc." | 5 | The subject overestimates one aspect of the question. | 1 | This response contains some material that may be related to personal concerns (e.g., guilt) and is scored for intermingling. |
| **A Rolling Stone Gathers No Moss**    |                  |                          |              |                  |
| "That was yesterday thing. If you keep yourself moving towards your goal, whatever it may be and if you keep the goal in mind when you make decisions then you are most likely not to be led astray by feeling sorry for yourself, or greed, or that type of thing. And if you just forget about your goals and values and give up hope and say the hell with everything, deteriorate, then you can get yourself in trouble." | 3 | Here the amount of extra material is extensive. | 3 | Also scored for intermingling. |
| **The Intermingled Response**          |                  |                          |              |                  |
| A STREAM CANNOT RISE HIGHER THAN ITS SOURCE  
"A father is no son’s master, nor a son’s master his father. I was talking about age not wisdom, but I’ll say age."  
THE USED KEY IS ALWAYS BRIGHT  
"In the future, the key to my parent’s house is a key for me to come there for anything at all. That’s the way I want it."  
DON’T SWAP HORSES IN THE MIDDLE OF A STREAM  
"You shouldn’t switch bosses or switch friends with another just because he seems handy—he might not be. May only be pretending. Stand your ground." | 5 | The answer is a personalized example of what the abstract, consensus answer depicts. It is slight intermingling. | .5 | It is only mildly idiosyncratic. |
| **The Book of Proverbs**                |                  |                          |              |                  |
| "Proverb Interpretation in Schizotypals" |                  |                          |              |                  |

Continued
<table>
<thead>
<tr>
<th>Examples of Category III: Innumeration</th>
<th>Subcategory Score</th>
<th>Notes on Subcategory Score</th>
<th>Overall Score</th>
<th>Additional Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>WHY SHOULD WE KEEP AWAY FROM BAD COMPANY?</td>
<td>1</td>
<td>In this example there is an overt reference to the self concerning a topic that is important to the patient. However, upon inquiry, the subject gives the consensual response, making it slightly less idiosyncratic.</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>ROMEO WAS NOT BUILT IN A DAY</td>
<td>1</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>SHALLOW BROOKS ARE NOISY</td>
<td>1</td>
<td>“Sin and grief” took out of place in the answer and are not part of the consensual or typical response. They probably have a certain importance for the subject.</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>A DROWNING MAN WILL CLUTCH AT A STRAW</td>
<td>3</td>
<td>This answer is clearly affected by the subject's concern over his status and asking for help. This is a case of severe innumeration.</td>
<td>3</td>
<td>The response reflects a radical departure from the original question. While one can understand that the response has been influenced by both the original question and the subject's concerns, it is somewhat irrelevant. In any event, it is very</td>
</tr>
</tbody>
</table>

Appendix

With this clue, the response cannot be characterized as an appended
### Proverb Interpretation in Schizotypals

#### Examples of Category IV: The Relation between Question and Response

<table>
<thead>
<tr>
<th>Sentence</th>
<th>Subcategory Score</th>
<th>Notes on Subcategory Score</th>
<th>Overall Score</th>
<th>Additional Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ONE SWALLOW DOESN'T MAKE A SUMMER</strong>&lt;br&gt;“When you swallow something, it could be all right, but the next minute you could be coughing, and drearness and all kinds of miserable things coming out of your throat.”&lt;br&gt;TOD MANY COOKS SPOIL THE BROTH&lt;br&gt;“Too many killing people are around here.”</td>
<td>1</td>
<td>The individual overincludes tangential themes associated to the most dominant meaning of the word “swallow.”</td>
<td>1</td>
<td>We should note even when the word “swallow” is interpreted in terms of its alternate meaning, the response to it is still strange. Category III is also scored.</td>
</tr>
<tr>
<td><strong>THE MORE COST THE MORE HONOR</strong>&lt;br&gt;“The more the bad man cares, the worse he gets.”</td>
<td>1</td>
<td>Although one can recognize pieces of the original proverb, the response fails to address the main theme of the question.</td>
<td>3</td>
<td>The examiner has little idea of where the response has come from.</td>
</tr>
<tr>
<td><strong>DON'T SWAP (TRADE) HORSES WHEN CROSSING A STREAM</strong>&lt;br&gt;“Horses run courses, there are racetracks all over the country.”</td>
<td>1</td>
<td>Focus on the part (word “horse”) rather than the whole, so that the proverb is interpreted in a strange and irrelevant manner.</td>
<td>3</td>
<td>Also scored in Category I.</td>
</tr>
</tbody>
</table>

### The Lack of a Relation between the Subject’s Statement and the Question Asked:

<table>
<thead>
<tr>
<th>Sentence</th>
<th>Subcategory Score</th>
<th>Notes on Subcategory Score</th>
<th>Overall Score</th>
<th>Additional Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WHY SHOULD WE KEEP AWAY FROM BAD COMPANY?</strong>&lt;br&gt;“Say your prayers.”</td>
<td>3</td>
<td>There is little trace of the original question; the examiner or scorer has only a vague hint of where the response has come from.</td>
<td>3</td>
<td>This type of response is very inappropriate and unresourceful to the task.</td>
</tr>
<tr>
<td><strong>WHY SHOULD PEOPLE PAY TAXES?</strong>&lt;br&gt;“Show me the time to reason.”</td>
<td>3</td>
<td>Again, it almost seems as if a different proverb or question is being answered.</td>
<td>3</td>
<td>Also scored in Categories I and II.</td>
</tr>
<tr>
<td><strong>THE GRASS IS ALWAYS GREENER IN THE OTHER FELLOW'S YARD</strong>&lt;br&gt;“There's a baby in my young man that calls me daddy.”&lt;br&gt;DONT THROW GOOD MONEY AFTER BAD&lt;br&gt;“Don't go to bed with your mother or your sister if you want to go to sainthood.”</td>
<td>3</td>
<td></td>
<td>2</td>
<td>Also scored in Category III.</td>
</tr>
</tbody>
</table>
BARKING DOGS SELDOM BITE
"People who appear to be tough and abrasive may be very kind, considerate, and compassionate when they are not yelling." (Subject begins to cry softly)

A STREAM CANNOT RISE HIGHER THAN ITS SOURCE
"You can't go higher than your abilities." (Subject goggles at examiner.)

RICHES SERVE A WISE MAN BUT COMMAND A FOOL
"You should always spend your money wisely, honey." (Grabs examiner's hand)

WHY SHOULD WE KEEP AWAY FROM BAD COMPANY?
"Damn you. Why did you ask me that?"

IT NEVER RAINS BUT IT POURS
"God's rule comes in huge storms." (Covers her head with her coat and giggles.)

THE WIFE IS THE KEY TO THE HOUSE
"I agree with that." (Sings, "A house is not a home without a wife.

GOLD GOES IN ANY GATE EXCEPT HEAVEN'S:
"When you go in everything looks golden. Then comes the knock (Subject knocks table). Then who's there? (Knocks again, "Who's there?") (Uses profane language)

WHAT SHOULD YOU DO IF WHILE IN THE MOVIES YOU WERE THE FIRST PERSON TO SEE SMOKE AND FIRE?
"Report the fire! (yells) FIRE! FIRE!" (Runs around room wildly)

<table>
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<tr>
<th>Examples of Category V: Behavior</th>
<th>Subcategory Score</th>
<th>Notes on Subcategory Score</th>
<th>Overall Score</th>
<th>Additional Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>BARKING DOGS SELDOM BITE</td>
<td>5</td>
<td>The patient's personal concerns have overtly influenced her behavior, although this has occurred in a way that one can understand or empathize with.</td>
<td>5</td>
<td>Also scored in Category III.</td>
</tr>
<tr>
<td>&quot;People who appear to be tough and abrasive may be very kind, considerate, and compassionate when they are not yelling.&quot; (Subject begins to cry softly)</td>
<td>5</td>
<td>Slightly inappropriate affect.</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>&quot;People who appear to be tough and abrasive may be very kind, considerate, and compassionate when they are not yelling.&quot; (Subject begins to cry softly)</td>
<td>1</td>
<td>Loss of conventional social restraint.</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>RICHES SERVE A WISE MAN BUT COMMAND A FOOL</td>
<td>3</td>
<td>Unusual behavior and affect</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>&quot;You should always spend your money wisely, honey.&quot; (Grabs examiner's hand)</td>
<td>3</td>
<td>Inappropriate activities and speech.</td>
<td>3</td>
<td>Also scored in Categories I and IV.</td>
</tr>
<tr>
<td>&quot;You should always spend your money wisely, honey.&quot; (Grabs examiner's hand)</td>
<td>3</td>
<td>Extreme activity level, grossly inappropriate affect and speech.</td>
<td>3</td>
<td>Not scored in any other category.</td>
</tr>
</tbody>
</table>
SECTION 3. SCORING SHEETS AND PRACTICE PROTOCOLS

SUBJECT 1

Comprehension Subtest (Wais, 1955)

3. What is the thing to do if you find an envelope in the street that is sealed, and addressed, and has a new stamp?

Put it in the mailbox.

4. Why should we keep away from bad company?

You hit the nail on the head on what brought me into this place, will my, there's people, and we pray for them but we must stay away from them.

5. What should you do if while in the movies you were the first person to see smoke and fire?

Try to put it out. That's what I do here. I tell them not to smoke. You don't holler help because you cause panic.

6. Why should people pay taxes?

They have to, to help the other half live.

7. What does this saying mean? "Strike while the iron is hot."

IDK. (Might mean?) If the iron was hot, I'd mess my shirt. If not, I'd burn my shirt. I'd have to test it first so I wouldn't be burnt. I don't want to be burnt.

8. Why are child labor laws needed?

It's very important because of all our children going to college, there's such a vast amount of people. We need labor laws that will help them get a job—like myself.

9. If you were lost in the forest in the daytime, how would you go about finding your way out?

I've been lost in the forest, kept going around in circles. The sun didn't shine, I was scared. Then this leg is shorter than the other. I found my way out.

10. Why are people who are born deaf usually unable to talk?

Because they can't hear what you're saying—but that's not so they do talk to you eventually through Braille because I've driven with them. Handicapped people I drove for.

11. Why does land in the city cost more than land in the country?

Because it's incorporated.

12. Why does state require people to get a license in order to get married?

It's mostly for the women's welfare. They have it binding so the women can protect the children's interest in case there's the mishap of a divorce—then they're protected.

13. Saying mean? "Shallow brooks are noisy."

Somebody, you listen to them, it's the same melody all day long. (Melody?) If you listen to it rain it puts you to sleep.

14. Saying mean? "One swallow doesn't make a summer."

I don't know.

Proverbs Test (Gorham, 1956)

PROVERBS TEST I

Circle One: TP, F, F, F, F, F, F

Directions: I am going to read you some sayings. For example, the saying, "Large oaks from little acorns grow" could mean that great things may have small beginnings. Now, I want you to tell me what the saying means rather than to just tell me more about it. Try to answer every one.

1. Where there's a will, there's a way.

There's a way then. You just put your whole self in, you put a lot
Proverb Interpretation in Schizotypals
Proverb Interpretation in Schizotypals
APPENDIX H

SCORE SHEET FOR LITERALNESS

<table>
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<th>Proverb Number</th>
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<th>Stem 1</th>
<th>Stem 2</th>
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SCORE SHEET FOR COMPOSITE SCORE

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Proverb Interpretation in Schizotypals
This is a study of attitudes and thinking styles. You will be given a list of thirteen proverbs and asked to explain their meaning. Your responses will be audiotaped/videotaped. Afterwards, we will ask you to rate how familiar each of these proverbs were to you. Finally, you will be given a list of words and asked to find words which mean the same thing.

Many people find the proverbs interesting. In addition, you will be helping to advance knowledge of some of the psychological processes which make up thinking styles.

If you have any questions about the experiment, you can talk to the experimenter afterward, or contact the investigator, Jim Allen, at 243-6137 during business hours.

Subjects are free to discontinue at any time without penalty.

I have read this statement and agree to audiotaping and/or videotaping and participating in this study.

________________________
(signature)
APPENDIX J

IRB Human Subjects Proposal

1. Description of the research. This study evaluates proverbs interpretation in a normal population showing schizotypal symptoms. Proverbs interpretation is a part of most every mental status exam. In addition, it has a long history in assessment and research of the type of thought disorder most typically found in schizophrenia. Recently, new scoring systems have been devised for use with proverbs. The most recent of these systems, developed by Marengo and others at Michael Reese Medical Center, is capable of measuring extremely subtle variants of thought disorder, including mild cognitive slippage of the type found in the speech of normal, nonthought disordered individuals. As of yet, no one has used this system in the assessment of subschizophrenic, schizotypal, or normal deviances of thought.

The Chapman group at the University of Wisconsin have developed a set of measures which they believe tap "psychosis-proneness," sub-clinical manifestations of pathological functioning which put one at a higher risk for later development of psychotic disorder. Validation work thus far has involved finding psychotic-like or schizotypal symptoms in individuals who score high on these scales.

The intent of the present study is twofold. By examining the responses of subjects on proverb interpretation who have taken the Chapman instruments it will first, extend the use of proverb interpretation into the realm of the study and assessment of Schizotypal Personality Disorder. Second, it will also provide further support for the construct validity of the Chapman scales as taping personality traits associated with psychosis-proneness. Additionally, some of the factors involved in the hypothesized poorer performance of schizotypals will be examined by manipulating the familiarity of the proverbs presented.

2. The subjects of the study may benefit slightly by learning how psychological research is conducted. Many find the questionnaires and proverbs interesting. The primary benefits of this research, however, will be for
scientists and clinicians working in the area of psychiatric assessment and thought disorder.

3. Subjects from the Psychology 110 subject pool have already been administered the Chapman inventories as part of Dr. David Schuldberg’s ongoing research project on personality styles and creativity. Dr. Schuldberg’s project has IRB approval. Subjects scoring high or low on one of the Chapman traits will be recontacted and invited to participate further in the present study. This will fulfill experimental credit requirements for their Psychology 110 course. If they have fulfilled this requirement, a small honorarium will be offered.

Subjects will be scheduled to be individually seen by a undergraduate research assistant blind to experimental or control group status. Subjects’ interpretations of thirteen proverbs will be videotaped. Subjects will then rate their familiarity with each proverb presented on a paper and pencil instrument. Following this, the Quick Word Test, a brief paper and pencil test of verbal intelligence will be administered. This test will establish the groups to be roughly equivalent in intelligence, a potential confounding variable. All procedures involve either paper and pencil or short verbal responses.

4. Subjects will be members of the Psychology 110 pool.

5. The subjects responses will be anonymously coded. The interviewer will be blind to the subjects’ group status. Data will be analyzed as a group. Therefore, the study is considered no-risk.

6. In the extremely unlikely event that a subject experiences psychological discomfort, he or she will be offered further debriefing as necessary. The unusual items on these scales will be discussed as experiences many “normal” people commonly experience from time to time, despite the fact that some of the experiences sound a little “crazy”. It will be discussed that frequency of these experiences is probably more important than simply their occurrence in an individual. If an individual then does reveal the frequent occurrence of such experiences, the researcher can then discuss a referral to the Clinical Psychology Center, where this research will be taking place.
7. All questionnaire data and proverbs responses will be identified only by a code number and findings will refer only to groups of individuals. Face-sheet information by which subjects could be identified (necessary to permit re-contacting subjects) will be kept separately from data from this study. The information keying these two sets of data is safeguarded by Dr. David Schuldberg, the principal investigator of the larger study to which the present study is an offshoot.

8. Despite the current investigators' belief that the Chapman scales tap thought processes shared by normal and often creative individuals as well as psychosis-prone individuals, the scales have been designed by Dr. Chapman as a psychopathological measure, specifically, personality traits associated with psychosis-proneness. It would, of course, be unethical to inform subjects as to the precise purpose for which these scales have been designed, given their experimental and unvalidated nature alone.

One could truthfully inform subjects that the current investigators are studying attitudes and personality styles found in all people. Yet, there is a concern in the Department of Psychology of a subject later coming upon a published scientific article drawn from this research project which discusses the purpose for which these scales were designed. The concern centers around an individual rightly feeling the "good faith" agreement that researchers from the Department try to maintain with their subjects has been violated. Though truthful, such an informed consent does not entirely reveal the purpose of these scales as their author designed them.

9. Not applicable.

10. Covered in 5-8 above and in the American Psychological Association's Ethical Guidelines for Research with Human Subjects.

James Allen
Graduate Student
Department of Psychology

David Schuldberg, Ph.D.
Masters Thesis Chair
Assistant Professor
Department of Psychology