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# Item Subtlety, Face Validity And The Structured Assessment Of Psychopathology

Ronald Robert Holden

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ITEM SUBTLETY, FACE VALIDITY AND THE STRUCTURED  
ASSESSMENT OF PSYCHOPATHOLOGY

by

RONALD R. HOLDEN

Department of Psychology

Submitted in partial fulfillment  
of the requirements for the degree of  
Doctor of Philosophy

Faculty of Graduate Studies  
The University of Western Ontario  
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## Abstract

The main purpose of this study was to evaluate the usefulness of two concepts of disguise in the structured self-report assessment of psychopathology. Using the Basic Personality Inventory with samples of university students, a distinction was made between the concepts of face validity and item subtlety. Face validity was viewed as the contextual relevance of structured test items whereas item subtlety was conceptualized as the lack of an obvious substantive link between test item content and its underlying construct. Under normal test-taking conditions where honest self-report was encouraged, greater face validity and lower levels of subtlety were associated empirically with higher item criterion validity.

Scale desirability, construct desirability, construct accessibility, construct unity, and item-construct substantiveness were examined as possible moderating variables of the relationships of face validity and item subtlety to criterion validity. Analyses indicated that construct accessibility might mediate the relationship of item subtlety to criterion validity whereby, with the more accessible constructs, subtle items tended to demonstrate greater empirical validity.

Next, the relative validities of subtle versus obvious and face valid versus non-face valid scales were examined under conditions in which test respondents were provided with advance test knowledge and motivation to distort

self-presentation. Results indicated that, in general, scores under faking conditions proved to be less valid than in the case where honest self-report was encouraged. Furthermore, the disguised scales proved not to be any more valid than the transparent scales under conditions where faking was induced or where information concerning the nature of the test was supplied.

Results of these studies were interpreted as supporting a rational strategy of test construction emphasizing the use of relevant test item content. Data, in general, failed to support the utility of obscured approaches to the assessment of psychopathology and it was suggested that the onus of proof must switch to those who advocate the use of disguised strategies for structured measurement.

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CHAPTER I  
INTRODUCTION

The formal assessment of psychopathology has a history which dates back to the early part of the 20th century. While psychological testing, per se, may have its roots in ancient China (Dubois, 1970; Jackson & Paunonen, 1980; Wiggins, 1973), the systematic application of structured test instruments for measuring psychopathology dates only to the work of Heymans and Wiersma (1906) and their assessment of emotional malaise (Goldberg, 1971). From this, Woodworth (1917) with his Personal Data Sheet came to introduce scales by initiating the combining of test item responses to yield a single score. Structured personality testing then, more or less, grew out from Woodworth's pioneering work.

From the psychoanalytic theories of Freud and Jung, unstructured or projective techniques arose. While psychological investigation through the use of ambiguous stimuli may be traced back to the work of Binet and Henri in the late 19th century (Rabin, 1968), it was not until the introduction of the Rorschach inkblots (Rorschach, 1921) that published projective instruments became available.

In some ways, there exist remarkable similarities between theories of projective techniques and some approaches to structured testing, particularly with empirical strategies of structured test construction employing a contrasted-groups approach to test item

selection. For example, within projective testing there is an emphasis on responses as being signs of behavior, where it is believed "... that individuals are under social pressure and often are compelled by their own personal experience to conceal what they actually think or believe or feel." (Frank, 1948, p. 36). Performance is viewed as an indicator to be interpreted. Thus, the key aspect of a projective technique is that it uncovers the private world and personality process of the subject (Frank, 1948). Goodenough (1946) states that this private world of the individual is covert and jealously guarded and Frank remarks that because of this, one must search-for signs rather than samples of behavior.

Within structured testing, the emphasis on test responses as signs rather than samples of behavior has also had a strong following (e.g., Adams & Butler, 1967; Berg, 1957, 1967; Meehl, 1945). The belief, in this instance, is that personality theories had not yet advanced to the point where the relationship between test item content and its discriminating power could be fully comprehended (Meehl, 1945). Seeman (1952, 1953), in fact, expounds this notion that subtlety is an inherent aspect of empirical test item selection, a feature common to projective techniques. Thus, manifested both within theories of projective testing and empirical approaches to structured test construction is the presence of disguise or subtlety.

What then is the exact role of subtlety in both normal personality assessment and the evaluation of psychopathology? As stated previously, subtlety appeared to be an integral component of projective techniques, whereas this was not the original intent with structured test construction. In fact, with the introduction of the structured assessment of personality, the initial strategy of test construction focussed on a rational or correspondence point of view, advocating a one-to-one relationship between verbal reports and internal states (Goldberg & Slovic, 1967; Wiggins, 1973). Thus, item subtlety was seen as being totally unnecessary since face validity and criterion validity were regarded as being synonymous. Rational approaches fell into disrepute (Ellis, 1946; Jackson, 1973; Meehl, 1945), however, and two newer test construction strategies came to the forefront. The construct approach emphasized intrascale, interitem homogeneity, the role of a substantive, theoretical link among test items' content (Loevinger, 1957), suppression of response styles, and multivariate techniques to uncover the structural bond (Jackson, 1973). The role of subtlety was not addressed in this approach. The second major new test construction strategy was the empirical approach which emphasized item selection on the basis of contrasted groups, maintaining that face validity was of little consequence and that subtle items (even those seemingly devoid of any substantive link to a criterion) would serve effectively in personality assessment. This is illustrated most fully in



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the deviation hypothesis (Berg, 1957, 1967) and a supposed corollary that particular item content is irrelevant (Adams & Butler, 1967). Although this hypothesis is open to a number of different interpretations (Goldberg & Slovic, 1967; Norman, 1963; Sechrest & Jackson, 1962), it places no importance on either face or substantive validity.

In summarizing the role of subtlety with respect to the major test construction strategies, major differences are apparent. Projective testing regards subtlety as a virtue in general and particularly when test knowledge or defensiveness may be present, such as in the case of the assessment of psychopathology where all dimensions are usually regarded as being highly undesirable. Thus, in general, one would predict a positive relationship between subtlety and empirical validity. For the rational approach, obviousness of content is regarded as synonymous with criterion validity and, consequently, a rationalist would argue for a negative correlation between subtlety and measures of empirical validity. Empiricists, such as Berg (1957, 1967), believe that the nature of test item content is irrelevant and would predict a zero correlation between subtlety and criterion validity. Finally, construct oriented test constructors would argue the merits of scale homogeneity but would not directly address the obviousness of content.

This dissertation has four primary purposes. The first is to define more clearly the concepts of face validity and

item subtlety. This will involve theoretical definitions of what these two concepts are and, perhaps just as importantly, what they are not. The second is to investigate empirically the reliable measurement of these concepts and their relationships with criterion variables under conditions where honest self-report is encouraged. This will involve the evaluation of a free-response technique for the measurement of face validity and item subtlety as well as the determination of individual item criterion validities based on roommate report. Additionally, an examination of a number of moderator variables that may be related to test respondents' cognitions regarding test content and desirability will be undertaken. The third purpose is to contrast the relative validity of subtle and obvious scales under conditions of advance test knowledge and motivation to distort self-presentation. Toward this end, the criterion validities of disguised and undisguised subscales will be compared under a variety of faking and information conditions. Finally, the fourth is to examine the implications these findings have for test construction and future research.

CHAPTER II  
TERMINOLOGY

Previous research on item subtlety and face validity has largely left many of its terms undefined and undifferentiated (Holden & Jackson, 1979, 1981; Jackson & Paunonen, 1980). For example, many view face validity and item subtlety as complementary terms (e.g., Burkhart, Christian & Gynther, 1978; Burkhart, Gynther & Christian, 1978; Christian, Burkhart & Gynther, 1978; Duff, 1965; Gynther, Burkhart & Hovanitz, 1979). Mischel (1971) treats the terms content validity and face validity as synonymous. Lawshe (1975) confuses content validity with substantive validity. Consequently, in view of this terminological confusion, it becomes essential to specify clearly the exact meaning of at least four terms --- content validity, substantive validity, face validity, and item subtlety. This is not intended to redefine these concepts but merely to make more explicit previous interpretations in terms of their discriminant meaning.

Content Validity

Quite simply, content validity refers to the degree to which test item content is sampled representatively from a universe or domain of content, implied by a theoretical definition of the behavioral dimension being measured (American Psychological Association, 1974; Cronbach & Meehl, 1955; Dick & Hagerty, 1971; Holden & Jackson, 1979; Jackson, 1971; Lennon, 1956). It should be apparent from

this definition, that content validity is not a property of individual items, but a characteristic of a collection of items. To measure individual items with respect to content validity (e.g., Lawshe, 1975) is totally inappropriate. Furthermore, from this definition, a prerequisite toward an evaluation of content validity is a necessarily thorough understanding of the dimension being measured (Holden & Jackson, 1979). As a consequence of this consideration, it may be suggested that the best judges of content validity might be those who are well versed in the psychological theory of concern (Guion, 1977).

Substantive Validity

Distinct from content validity, is the notion of substantive validity. Rather than dealing with a collection of items, substantive validity refers to a property that is characteristic of individual items. Loevinger (1957) clearly makes this distinction. Items possess substantive validity to the degree to which they possess a theoretical link with the concerned, underlying dimension. Thus, it should be apparent that a substantive component is a necessary but not sufficient condition for content validity to exist. Consider the instance in which a test is composed of a number of repetitions of the same item. Although the item may possess a substantive, theoretical link with an underlying, behavioral dimension, the content of a single item is hardly an adequate representation of the universe of situations implied by a definition of the construct of

concern. However, like those of content validity, judgments of substantive validity are best made by those who have a high degree of proficiency in the area of psychological theorizing. In this regard, Lawshe's (1975) quantitative approach would appear to be more appropriate.

Thus, in review, evaluations of both content validity and substantive validity are dependent upon an understanding of the underlying construct being measured. Quite distinct from this are evaluations based on the judgments of relatively naive individuals who possess little or no proficiency in psychological theorizing. Of particular interest, are judgments of test item content by test respondents. Such judgments possess greater ecological validity in that they are more similar to typical assessment situations. Related to these judgments are the concepts of face validity and item subtlety.

#### Face Validity

A number of investigators have noted the desirability of employing tests which possess an appearance of measuring what, in fact, they do measure (American Psychological Association, 1974; Dick & Hagerty, 1971; Mosier, 1947). Typically, this would be desirable in the field of employment testing (Cronbach, 1970) but this may also be extended to other areas of testing. Cronbach (1970) suggests that this allows for better public relations (e.g., Dewey, 1981; Sobel, 1980) and gives the test respondent a sense of having undergone a fair, relevant evaluation.

However, in instances where testing is concerned with the measurement of undesirable traits (e.g., sadism), it has been suggested that a test displaying an unclear relationship with its items may be more appropriate (Dick & Hagerty, 1971; Jackson, 1971). The purpose of using subtle items is to prevent the respondent from ascertaining the undesirability of the particular measure and, thus prevent the respondent from answering in a defensive manner which would tend to invalidate the assessment. From these considerations, it would seem that the test constructor may be put in the predicament of wanting both to disguise the nature of the test and yet make its content as obvious as possible. This apparent quandary may be resolved, however, by the careful consideration of the definitions of face validity and item subtlety.

Mosier (1947) has provided a rather comprehensive review of the term, face validity (but see Turner, 1971 for a more philosophical approach). He has quite appropriately remarked that a confusion in meaning can often lead to completely erroneous interpretation of experimental results. Mosier, himself, cites at least four different interpretations of face validity. Finally he suggests that due to this ambiguity, the term be dropped from use. However proper such a suggestion may have been, the last 30 years have not seen the demise of the term and it may be suggested that perhaps, rather than deleting its use, the term may be acceptably employed, provided that it is clearly

and specifically defined. Dick and Hagerty (1971) refer to face validity as whether or not a test appears, from examining its items, to measure what one wishes to measure. This definition appears to be obscure in at least two respects. First, it is not apparent whether this definition implies a dichotomy (i.e., a test either has or hasn't face validity) or a continuum (i.e., a measurement of a degree of face validity). Secondly, it is not clear as to whom face validity should apply. This definition suggests that it ought to apply to the test constructor, yet logically, it would seem that it must apply to the test respondent. Perhaps Wiggins (1973) offers a more acceptable definition by stating that face validity refers to the degree to which a test respondent views the content of a test as relevant for the situation being considered. It should be noted that this definition implies that the test respondent has generated hypotheses concerning relevant criteria and their relationship to the test.

Extension of this concept to individual items and behavioral scales would suggest that the face validity of an item is the degree to which it appears relevant to some implicitly hypothesized behavioral scale, as judged by the individual answering the item (Holden & Jackson, 1979).

#### Item Subtlety

As has been previously stated, item subtlety has often been confused with face validity (e.g., Duff, 1965). Possibly Jackson (1971) best demonstrates a clear

understanding of subtlety. He has argued that items are subtle in that the individual is unaware of what specific traits they measure and remarks that once given a substantive definition of a particular trait, the average respondent may be quite capable of relating item content to that trait. It is of interest to note that this definition of subtlety emphasizes content rather than the usual interpretation in terms of freedom from a first factor (e.g., desirability). Furthermore, this notion of subtlety is theoretically based and empirically quantifiable and is not dependent on idiosyncratic misinterpretation (e.g., Meehl, 1945; Seeman, 1952, 1953). Consider, for example, the item, "I would enjoy the occupation of being a butcher." By itself the nature of the item's underlying construct may be rather obscure; however, given a theoretical definition of the dimension of sadism, the item's substantive link may become quite apparent.

Thus, whereas face validity concerns itself with the ability of a test respondent to relate item content to any hypothesized behavioral dimension, item subtlety is concerned with the test respondent's ability to relate an item to its actual, keyed scale. Therefore, with respect to the test respondent, face validity may be conceived of as the contextual relevance of an item while item subtlety may be viewed as the lack of an obvious, substantive link between an item and its underlying construct (Holden & Jackson, 1979). Items, as a consequence, may be subtle



because a respondent is unable to relate them to any hypothesized scale (i.e., lack face validity) or relates them to an inappropriate, implicit dimension.

CHAPTER III  
REVIEW OF PREVIOUS RESEARCH

Before continuing, an examination of previous studies of the roles of item subtlety and face validity and their relationships to measures of criterion validity is appropriate. The purpose of this review is primarily to evaluate methodologies employed in the measurement of face validity and item subtlety and secondarily to reinterpret previous findings.

McCall (1958), in an analysis of items on the D scale of the Minnesota Multiphasic Personality Inventory (MMPI), postulated that the most discriminating items would be those that were closest to describing the known symptomatology of depression. Arbitrarily, McCall divided items into categories of face valid, congruent, and irrelevant items. In his analysis, McCall noted that face valid items possessed the greatest discriminating value (for depressives and non-depressive psychotics), followed by congruent items and lastly by irrelevant items. As a conclusion, McCall states that for the D scale, discriminating power of the items is proportional to their face validity.

Closer examination of McCall's study, however, reveals a number of ambiguities and methodological problems. No reference is made to the diagnostic purity of the depressive and non-depressive groups, a point stressed by Rosen (1958). Furthermore, it is not apparent whether McCall has sought to

cross-validate his results or has based his analysis on data which may have been used to differentially diagnose the two groups. Most importantly, McCall has failed to make explicit his basis for segregating items into face valid, congruent, and irrelevant groups. A single individual's arbitrary decision based upon the proximity of item content to known symptomatology not only may be unreliable, but, in this case appears to concern itself more with substantive validity than face validity. Therefore, the superior discriminating power of what McCall referred to as face valid items may actually be interpreted as suggesting the importance of a substantive link between item content and the underlying scale and does not direct itself towards an evaluation of face validity nor item subtlety per se. Additionally, the lack of any discriminating power for the irrelevant items seems not only to support the need for substantive validity, but speaks out against the inclusion of these particular items in the MMPI. Jackson (1971), in fact, has argued that most of the MMPI's subtle items (Wiener, 1948) may actually be irrelevant items, included due to sampling errors related to items and subjects.

Duff (1965) has attempted to examine the relationship of item subtlety and discriminating power with regard to the Hy, Pd, and Sc scales of the MMPI. Duff hypothesized that there should be an inverse relationship between subtlety and power of discrimination. In this study, item subtlety was measured in terms of the percentage of graduate psychology

students who could accurately judge an item's scale and its keyed pathological response. Items were then trichotomized in terms of their degree of subtlety and correlated with empirically determined measures of item discrimination. Correlations were significant for all three scales, suggesting that the more obvious items served to offer more effective discrimination.

There exist, however, a number of methodological and conceptual problems with Duff's study. First, he has confused face validity and item subtlety. No distinction is drawn between the two, and the terms are used as complementary concepts. Additionally, item subtlety has been viewed in terms of graduate psychology students rather than test respondents. Although this avoids the conceptual problems of measuring face validity or item subtlety with regard to the test constructor, it fails to take into account differences in the accuracy of the implicit personality theories of graduate students and lay-persons. Indeed, Stricker (1969) has noted that wide and reliable individual differences exist with regard to test-wiseness. Duff, himself, appropriately has remarked for the need to consider item subtlety in terms of the test respondent. Finally, Duff, like McCall (1958), failed to measure adequately either face validity or item subtlety. Measures were based upon subjects being asked to relate items to their particular scales, thus failing to consider the individual's ability to generate implicit scales. Again,

therefore, it appears that this study has concerned itself with the relationship of item substantiveness to a measure of criterion validity.

In a study which has not restrained response options to the same degree as the aforementioned investigations, Mehlman and Rand (1960) examined subtlety with regard to the MMPI. Clinicians, graduate psychology students, and undergraduates in psychology were asked to generate the MMPI scales from which items had been chosen. Results indicated that for a random selection of 45 items, representing a subset of 177 MMPI items keyed for only one scale, judges were able correctly to relate items to their appropriate scales to a greater degree than expected by chance. However, although greater than that expected by random assignment, judges were only able to relate correctly 25% of the items to their scales. Furthermore, according to Mehlman and Rand, approximately 25% of the items were inaccurately identified by all graduate student judges (N = 13). Unfortunately, however, no comparison was made between criterion validities for correctly identified items and those inaccurately related to their scales. This study, showing the reliability of group consensus, does point out the stability of judged item content measures and the procedure more closely approximates an approach which does not limit the number of implicitly generated categories on which to group items.

Goldberg and Slovic (1967) have provided a rather comprehensive analysis of the relationship of what they term face validity (actually substantive validity) to criterion validity. The relationship was studied with regard to the criteria of grade point average, sociometric status, achievement, sorority joining, yielding, and dominance. "Face validity" was determined from the judgments of 56 undergraduates, rating items on a Statement Reaction Test, after having been given detailed descriptions of the six criterion variables. Thus, judges were not asked to generate hypotheses as to what criterion an item was related, nor were they required to make a selection as to an appropriate criterion, but were asked merely whether a particular item was a valid predictor of a particular criterion. Judgments were then trichotomized into categories of high, medium, and low "face validity", and correlations with criterion validities were evaluated. More importantly, point biserial correlations for the entire group of items were also determined. Results indicated that items of low "face validity" generally had low criterion validity coefficients while highly "face valid" items had a wide range of coefficients of criterion validity. It would appear, therefore, that this represents strong evidence for the role of high "face validity" in the development of an item pool. Adams (1967), however, has pointed out that the finding of a mean correlation of .19 between "face validity" and criterion validity suggests that over 96% of the total variance (Adams considers neither the percentage of reliable

variance for judgments nor the stability of criterion validities associated with the sample of about 150 university coeds) is not determined by "face validity" and thus, the relationship is of little practical use for prediction. While Adams' criticism may not be totally justified when considering reliable variance, the Goldberg and Slovic study does have some faults. For example, Goldberg and Slovic have not sought to examine the stability of the uncovered relationship for measures of obscure or undesirable traits or for differentially motivated populations. Interestingly enough, the instance where a non-significant correlation between "face validity" and criterion validity did occur was for abasement predictor items, a trait which intuitively may appear to be the least desirable dimension measured in the study. The procedure of this investigation, however, has not lent itself to an examination of what implicit hypotheses are generated for each item by individual test respondents. As with the previously cited studies, a measure of the substantive validity of test items appears to be what has actually been investigated. However, this was the prime purpose of Goldberg and Slovic's study, for they were primarily concerned with an evaluation of a corollary of Berg's (1957) deviation hypothesis relating to the relative unimportance of particular test item content. Thus, again it has been substantiveness and not face validity or item content subtlety which has been related to measures of criterion validity.

In a series of studies purporting to examine item subtlety and face validity, Gynther and his colleagues at Auburn have examined the MMPI. In an initial study, dissatisfied with previous distinctions of subtle and obvious items on the MMPI (e.g., Wiener, 1948), Christian, Burkhart, & Gynther (1978) had 138 undergraduate students rate MMPI items along a 5-point scale for the indicativeness of a psychological problem. In a followup study, Burkhart, Christian & Gynther (1978) related their subtle-obvious distinction on the MMPI to faking. Results indicated that while the obviously pathological items could be readily faked, the subtle items demonstrated a paradoxical movement in a direction opposite to that expected by the induction of a particular faking set.

While the lack of movement of subtle items toward the intended direction of faking might seem to suggest that subtle items would be useful under conditions where faking may be a problem, an alternative explanation exists. Although the endorsement pattern of MMPI subtle items was not in the direction of intended faking, it was significantly distorted in the opposite direction. As a conclusion, Burkhart et al., suggest that, in fact, the MMPI's subtle items may be unrelated to their supposed dimensions and may be more indicative of a construct of social astuteness. Jackson's (1971) suggestion that most of the MMPI subtle items are irrelevant and findings of negative correlations between many of the subtle and obvious



subscales (e.g., Burkhart, Gynther, & Fromuth, 1980; Edwards, 1970; Gynther, Burkhart, & Hovanitz, 1979) of the same MMPI dimensions would also seem to support this notion of no relation of subtle items to their intended dimensions.

Burkhart, Gynther, and Christian (1978) pursuing the idea that subtle MMPI items are related to social astuteness, examined the relationships between subtlety scores and both psychological mindedness (using the California Psychological Inventory - Psychological Mindedness scale, Gough, 1968) and intelligence (as measured by the American College Test). For intelligence, results failed to indicate any significant relationship between American College Test scores and subtlety scores either under standard conditions or under faking instructions. With respect to psychological mindedness, higher scorers endorsed more subtle and fewer obvious items under standard conditions. There were no significant relationships under fake-bad instructions and, under fake-good instructions, highly psychological minded subjects endorsed fewer subtle items. While these results do argue for an alternative interpretation of MMPI subtle items, they do not preclude an interpretation of psychopathological meaningfulness. That is, there may well exist a relationship between social astuteness and psychopathology.

In a more recent study, Gynther, Burkhart, and Hovanitz (1979) evaluated the concurrent validity of subtle versus face valid scales for the MMPI's Pd scale. The Gynther et

al. criterion consisted of 30 self-report "non-conformity" items, including those concerned with stealing, lack of responsibility, and social brashness, similar in content and desirability level to certain Pd scale items. Results indicated that obvious items contributed greater predictive power to the Pd scale than either neutral or subtle items. There was some evidence, however, that subtle items did contribute some significantly unique variance to criterion prediction for males. This finding could not be replicated with females. The authors conclude that although obvious items may offer superior concurrent validity, there may yet be a unique contributory aspect of subtle items to discriminatory power.

Using the Ma scale of the MMPI, Hovanitz and Gynther (1980) examined subtle and obvious scale concurrent validities using a variety of criterion variables. Criteria consisted of Zuckerman's (1977) Sensation Seeking Scale (Form V), an Activity-level Biographic Questionnaire, and the Porteus Maze Test scored both for errors and for time taken for completion. Results of the analysis indicated that the obvious Ma scale was superior at predicting some criteria while the subtle Ma scale was superior at predicting other criteria. Furthermore, the hypomania criteria failed to intercorrelate substantially. As a conclusion, the authors state that hypomania may not be a homogeneous construct and that the subtle scale of the Ma scale has definite predictive validity.

In the Auburn group's most recent study, Burkhart, Gynther, and Fromuth (1980) examined the relative predictive validity of subtle versus obvious items on the MMPI Depression scale. Criteria consisted of the Beck Depression Inventory (Beck, 1967), the Profile of Mood States (McNair, Lorr, & Droppleman, 1971) and an abbreviated version of the Pleasant Events Schedule (MacPhillamy & Lewinsohn, 1974). Results indicated that not only was the obvious Depression scale vastly superior to its subtle counterpart, the subtle Depression scale significantly correlated in the reverse direction with two of the three criteria. Again, as a conclusion, the authors stress the relative merits of using face valid items.

The findings of Gynther and his associates are indeed interesting. They do not, however, address the usefulness of item subtlety. Ratings of MMPI items were for general psychopathological content and were not in terms of specific dimensions as Jackson (1971) has suggested. Not surprisingly, therefore, Christian et al.'s (1978) ratings show that items from the Mf and Si scales are the most subtle. This does not mean that these items are the most subtle with respect to the specific scales on which they are keyed, but that they are subtle with regard to psychopathology. For example, based on Christian et al.'s ratings, Mf items are subtle indicators of psychopathology but not necessarily subtle with respect to a masculinity-femininity dimension. As a result of these

considerations, it is not clear that Gynther et al. (1979) have given an evaluation of subtlety in terms of specific content. For the Pd scale (Gynther et al., 1979) subtlety in terms of general psychopathology, not subtlety based on the specific dimension of psychopathic deviance, was related to a specific criterion of nonconformity. A similar argument exists for the studies using the Ma and D scales.

Rather than defining subtlety in terms of a specific dimension of psychopathology, it was defined in terms of general psychopathology in the Gynther et al. (1979) evaluation of the criterion validity of subtle and obvious items. Therefore, this study must be viewed as indicating that more face valid (i.e., contextually relevant for a psychopathology assessment situation) items are more empirically valid. Item subtlety, however, is viewed as the obviousness of a substantive link between test item content and its keyed dimension (Jackson, 1971). Thus, while Gynther's studies do address themselves toward the usefulness of face valid scales, they fail to speak toward the role of item subtlety.

Holden and Jackson (1979) sought to approach the measurement of face validity and item subtlety in a manner consistent with the typical assessment situation in which respondents are not advised as to the particular personality dimensions being measured. Concerned with the priming of constructs (Higgins, Rholes, & Jones, 1977; Rosenberg & Sedlak, 1972), a free-sort procedure (Stricker, Jacobs, &

Kogan, 1974) was employed. Ninety-three undergraduates were asked to sort 80 items, 16 from each of the Abasement, Achievement, Affiliation, Autonomy, and Dominance scales of the Personality Research Form, Form E (PRF, Jackson, 1974). Subjects were asked to sort into groups those test items that referred to the same personality trait or to its direct opposite. Items not deemed relevant to a personality inventory could be placed in a "miscellaneous" category. No restriction was placed on the number of groups a subject could choose to use or on the number of items that could be placed into a group. Following the sorting task, subjects were asked to write down their rationale for each of their item groups. Subjects were then presented with a list of the 20 PRF content scales along with descriptions of high scorers and defining trait adjectives for each of the trait scales and were asked to equate, if appropriate, their group descriptions with single PRF scale names. Face validity scores for each item were based on the proportion of subjects who related the item to any hypothesized dimension, rather than placed it in a "miscellaneous" category. Subtlety scores for each item were determined by the proportion of subjects who failed to relate the item to its keyed scale. Using a variety of self-report measures, results indicated that, in general, across all items, there was a tendency for the more face valid items to have greater criterion validity ( $r(78) = .50$ ). Furthermore, there was also a trend for less subtle items to have greater empirical validity ( $r(78) = -.36$ ).

In a subsequent study, Holden and Jackson (1981) sought to examine the relative usefulness of subtle versus obvious scales under conditions of faking and of advance test knowledge. Using the same item subtlety judgments as in the previous study, items for each scale were subjected to a median split and dichotomized into subtle and obvious subscales. Results demonstrated that subtlety as a factor did not interact with either faking instructions or advance information about the test to produce a more valid assessment (as measured by a number of self-report criteria). The authors state that this not only suggests that subtlety is not a virtue under conditions of honest self-report, but where distortion is present and disguise may intuitively seem to be advantageous, subtle scales are not superior to obvious ones.

While the work of Holden and Jackson (1979, 1981) appears to support the notion that, in general, item content subtlety is not a virtue, their results have yet to be extended to the domain of psychopathology. Furthermore, Holden and Jackson examined only a small number of scales, all of which were of moderate desirability and which represented relatively accessible dimensions to lay persons. An extension of previous work into the area of psychopathology would provide for a number of important extensions. Initially, it would serve to replicate previous general relationships. Additionally, both by itself and in conjunction with previous work, it would allow for an

examination of the moderating variables that may influence the general relationships. For example, the relationship of item subtlety with criterion validity may be moderated by variables related to test transparency and desirability (e.g., Curran & Cattell, 1976) such as construct accessibility, unity of the trait, substantive representation of the trait by its items, desirability of the trait, and/or desirability of the scale. Similar moderator effects may be present for the relationship between face validity and criterion validity. By incorporating a greater number of scales, these moderating effects may be analyzed with greater power. Furthermore, the results from a study with psychopathological constructs may be combined with Holden and Jackson's (1979) previous findings to lend even greater power to this analysis of moderating variables.

## CHAPTER IV

### THE BASIC PERSONALITY INVENTORY

The major test instrument used in the present series of studies was the Basic Personality Inventory (BPI; Jackson, 1976). Accordingly, a review of some of the psychometric properties of this relatively new inventory is highly appropriate.

#### Development of the BPI

The BPI is a 12-scale, 240-item, true-false inventory measuring relatively uncorrelated components of psychopathology similar to those underlying the MMPI. The 12 scales of the BPI include Hypochondriasis, Depression, Denial, Interpersonal Problems, Alienation, Persecutory Ideas, Anxiety, Thinking Disorder, Impulse Expression, Social Introversion, Self Depreciation, and Deviation. Scale names and corresponding descriptions of low and high scorers appear in Table 1.

The constructs underlying the BPI (except Deviation) are based on a multimethod factor analysis of the Differential Personality Inventory (DPI; Jackson & Messick, 1971) and the MMPI. Briefly, the development of the BPI constructs was based upon a sample of 282 white male psychiatric patients admitted at Minnesota State Hospital, Willmar, Minnesota (Hoffmann, Jackson, & Skinner, 1975). These patients were administered 41 measures (the standard 13 MMPI clinical and validity scales and the 28 DPI scales).



Table 1\*

BASIC PERSONALITY INVENTORY  
SCALE DESCRIPTIONS

<u>SCALE</u>	<u>LOW SCORER</u>	<u>HIGH SCORER</u>
Hypochondriasis	Is without excessive bodily concern or preoccupation with physical complaints. Absenteeism due to ill health likely to be below average.	Frequently thinks he is sick. Complains regularly of peculiar pains or bodily dysfunctions. Discusses such topics, frequently revealing a preoccupation with his complaints.
Depression	Reports a usual feeling of confidence, cheerfulness, and persistence, even when experiencing disappointment. Has an optimistic attitude about his future.	Inclines to be down-hearted and show extreme despondency; considers himself to be inadequate; may be listless, remote and preoccupied; looks at his future pessimistically.
Denial	Accepts his feelings as part of himself; not afraid to discuss unpleasant topics. Can answer questions about himself frankly; avoids impression management. Shows normal affect.	Lacks insight into his feelings and the causes of his behavior. Avoids unpleasant, exciting or violent topics. Relatively unresponsive emotionally.
Interpersonal Problems	Experiences less than average irritation from noise, changes in routine, disappointment and mistakes of others; respects authority and prefers clearly defined rules and regulations; cooperates fully with leadership and readily accepts criticism from others.	Is often extremely annoyed by little inconveniences, frustrations or disappointments; will frequently be uncooperative, disobedient, and resistant when faced with rules and regulations; reacts against discipline and criticism.

<u>SCALE</u>	<u>LOW SCORER</u>	<u>HIGH SCORER</u>
Alienation	Ordinarily displays ethical and socially responsible attitudes and behavior; reports a sense of obligation toward society and its laws.	Expresses attitudes markedly different from common social codes; is prone to depart from the truth and behave in an unethical and untrustworthy manner; feels little or no guilt.
Persecutory Ideas	Trusts others and doesn't feel threatened. Accepts responsibility for the events in his life and doesn't attribute maliciousness to others.	Believes that certain people are against him and are trying to make his life difficult and unpleasant. Inclined to brood.
Anxiety	Remains calm and unruffled even when confronted by unexpected occurrences. Takes things as they come without fear or apprehension. Maintains self control even in a crisis situation.	Easily scared. Little things, even an idea, can throw him into a frenzy of anxiety. Afraid of novelty and of the possibility of physical or interpersonal danger.
Thinking Disorder	Has no difficulty distinguishing his daydreams from reality. Is able to concentrate normally and to maintain sensible conversations.	Is markedly confused, distractable and disorganized. Cannot remember even simple things from day to day. Reports that he feels he is living in dream-like world, that people appear different to him and that he feels different from them.
Impulse Expression	Appears to be even-tempered and level-headed; carefully considers the future before acting; generally has the patience to cope with a lengthy and tedious task.	Lacks ability to think beyond the present and to consider the consequences of his action; is prone to undertake risky and reckless actions; inclined to behave irresponsibly; finds routine tasks boring.

<u>SCALE</u>	<u>LOW SCORER</u>	<u>HIGH SCORER</u>
Social Introversion	Enjoys company. Likes to talk and knows many people. Spends much of his time with others.	Avoids people generally. Has few friends and doesn't say much to those he has. Seems to be uncomfortable when around others. Prefers asocial activities.
Self Depreciation	Manifests a high degree of self-assurance in dealings with others. Not afraid to meet strangers; speaks with confidence about a variety of topics; believes in his own ability to accomplish things.	Degrades himself as being worthless, unpleasant, and undeserving. Generally expresses a low opinion of himself and refuses credit for any accomplishment.
Deviation	Generally shows behavior patterns similar to those of a majority of people. Tends to be free from unusual symptoms and modes of thought.	Displays behavior patterns very different from most people's. Admits to unusual and pathological characteristics.

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A complete components analysis of the MMPI was performed and the factor loadings were rotated such that only one scale maximally loaded on each orthogonal factor. Such an orthogonalizing transformation highlights the unique contribution of each MMPI scale to the battery and is statistically advantageous as it eliminates the item overlap problem (Hoffmann, Jackson, & Skinner, 1975). Next, a principal components analysis of the DPI was undertaken. Although a common factor solution of the DPI would generally interpret only six or seven factors, an eleven factor solution accounting for 77.89% of the total variance was extracted in an attempt to account for additional reliable scale variance. These 11 DPI principal components were then rotated to an hypothesized pattern based on theoretical links of the DPI constructs to individual MMPI scales. Finally, based on implicit factor scores, an intercorrelation matrix was calculated between the 13 MMPI and 11 DPI factors and this matrix was factored. The first 11 factors (eigenvalues exceeding unity) were then extracted and rotated to a varimax criterion. The results are displayed in Table 2. These hypothesized higher-order DPI factors then served as the constructs underlying 11 of the BPI scales.

Once these BPI constructs had been defined, orthogonal factor scores derived from the analysis together with a minimum redundancy item analysis were employed as the criterion for selecting DPI items to develop new scales

Table 2\*

Results of Rotated Solution of MMPI Orthogonalized Scales  
and DPI Hypothesized Factors\*\*

MMPI	FACTOR										
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI
L	-12	<u>58</u>	-04	-07	04	-11	22	24	-34	-01	-11
F	28	19	09	-13	-03	24	02	12	-01	-02	<u>62</u>
K	-18	-10	-06	32	<u>-54</u>	07	-04	00	<u>-44</u>	01	07
Hs	-15	-06	<u>86</u>	00	02	11	01	05	-03	-12	-03
D	-04	02	02	-02	-11	07	<u>70</u>	-06	15	-03	19
Hy	08	-05	23	-10	-19	<u>-71</u>	07	09	02	15	14
Pd	<u>59</u>	-23	08	21	27	-03	23	-09	-30	02	-13
Mf	-09	-57	-15	-21	-02	-06	13	22	-10	-09	09
Pa	-27	-07	-05	-16	49	02	02	09	-28	26	11
Pt	-20	-20	07	18	01	09	27	18	29	37	-18
Sc	18	04	04	24	12	05	-08	<u>71</u>	14	-07	00
Ma	29	-03	06	-12	-18	23	-11	07	00	<u>64</u>	01
Si	-11	02	-06	<u>61</u>	25	-11	04	-10	12	09	39
DPI											
Denial	-07	<u>89</u>	-07	-04	-01	04	-01	05	-01	-10	15
Depression	05	-01	00	02	08	-08	<u>83</u>	00	-04	00	-02
Hypochondriasis	09	07	<u>89</u>	-02	-01	-14	<u>03</u>	03	05	05	04
Interpersonal conflict	<u>84</u>	02	-09	-06	-02	-01	-07	09	03	09	13
Social alienation	05	-02	13	-05	-06	<u>78</u>	05	05	03	18	13
Persecutory ideas	09	02	01	13	<u>85</u>	10	-04	08	04	-08	00
Anxiety	-08	-07	00	06	01	01	09	06	<u>79</u>	03	02
Cognitive											
disorganization	-07	-02	05	-10	01	-05	01	<u>82</u>	-04	10	03
Impulse expression	-02	02	-11	07	10	-09	01	-04	01	<u>78</u>	-01
Desocialization	-06	-09	-03	17	02	-10	12	-03	00	-02	<u>78</u>
Self-depreciation	06	05	01	<u>81</u>	-11	06	-01	12	-01	-02	-04

\* After Hoffmann, Jackson, and Skinner (1975).

\*\* Decimals omitted. Salient scales are underlined.

(Jackson, 1975a). This minimum redundancy item analysis was a variant of a previous technique (Jackson, 1974) where, in this case, there was an attempt to maximize the ratio of the relevant item-factor score correlation to the sum of the squares of the irrelevant item-factor score correlations. Unlike previous procedures (e.g., Jackson, 1974) no differential weighting based on inter-scale correlations was employed.

After these items had undergone this selection procedure, revisions were undertaken for a number of reasons. First, items were rewritten to enhance their substantive reflections of their underlying constructs, to simplify them, and to eliminate item overlap with the DPI. Then items were modified in order to shorten them, to introduce greater substantive clarity, to simplify them, and to balance each of the eleven 20-item scales with equal numbers of true-keyed and false-keyed items. Finally, an additional scale, the Deviation scale, was added. This final scale, not used in the present series of studies, does not represent a proper construct but includes 20 true-keyed rationally developed items designed to assess diverse critical pathological behaviors.

#### Internal Consistency

With the emphasis on high relevant item-factor correlations for item selection, it would be expected that the scales of the BPI should show substantial internal consistencies. Furthermore, with an emphasis on construct

identification and careful item revision, homogeneity should be fostered to a greater extent. Table 3 reports KR-20's for a number of samples. Reddon's (1980) random sample is based on 1444 public high school students (838 females; 606 males) in the province of Alberta. Holden, Burton, and Conley (1981) based their data on 196 adults (102 females; 94 males) selected randomly from a voters' list in a small southwestern Ontario community. The data of Holden, Helmes, Fekken and Jackson (1982) are based on 123 first-year university students (70 females; 53 males) while Holden, Helmes, Jackson and Fekken (1982) employed 435 inpatients from a provincial psychiatric hospital.

In general, all these reliabilities are quite acceptable and lend credence to the notion that, at least at a gross level, items within a scale reflect a similar construct. This becomes particularly evident with the psychiatric sample where the variance of scale scores is greater and reliabilities are higher (mean = .78).

#### Test-Retest Stability

Two studies of the stability of test scores have been undertaken with the BPI. Holden, Helmes, Fekken, and Jackson (1982) used a one month retest interval with 123 first-year university students (70 females; 53 males). Kilduff (1979) using an identical interval employed 168 university undergraduates (97 females; 71 males). Results from these two studies showing acceptable stability for all scales are reported in Table 4.

Table 3

Basic Personality Inventory  
Coefficient Alpha

Scale	Reddon*	Holden**	Holden***	Holden****
	N=1444	N=196	N=123	N=435
Hypochondriasis	.77	.81	.75	.80
Depression	.80	.84	.86	.88
Denial	.61	.68	.59	.65
Interpersonal Problems	.72	.69	.68	.71
Alienation	.72	.63	.56	.72
Persecutory Ideas	.73	.76	.68	.77
Anxiety	.57	.78	.81	.81
Thinking Disorder	.72	.65	.67	.79
Impulse Expression	.74	.68	.69	.74
Social Introversion	.79	.77	.75	.83
Self Depreciation	.73	.63	.74	.86
Deviation	.66	.64	.61	.80
Mean	.71	.71	.70	.78

\* After Reddon (1980).

\*\* After Holden, Burton, and Conley (1981).

\*\*\* After Holden, Helmes, Fekken, and Jackson (1982).

\*\*\*\* After Holden, Helmes, Jackson, and Fekken (1982).



Table 4

## Basic Personality Inventory

## Test-Retest Reliability

Scale	Holden*	Kilduff**
	N=123	N=168
Hypochondriasis	.73	.74
Depression	.85	.85
Denial	.63	.67
Interpersonal Problems	.77	.82
Alienation	.77	.81
Persecutory Ideas	.78	.71
Anxiety	.78	.75
Thinking Disorder	.71	.64
Impulse Expression	.78	.78
Social Introversion	.87	.82
Self Depreciation	.77	.62
Deviation	.69	.70

\* After Holden, Helmes, Fekken, and Jackson (1982).

\*\* After Kilduff (1979).

### Item Factor Structure of the BPI

Holden, Reddon, Jackson, and Helmes (1982) have examined the factor structure of the BPI at the item level. Employing samples of 182 normal adults, 352 psychiatric inpatients, and 1485 high school students and three random data sets of corresponding sample size, the BPI items were intercorrelated, subjected to a principal components analysis, and orthogonally rotated to a target matrix which was based on the scoring key of the BPI. Table 5 shows the mean absolute factor loadings of keyed and non-keyed items in the rotated factor loading matrices. Table 6 displays the number of keyed items loading in the targeted direction in the rotated factor matrices and Table 7 shows the degree of congruence (Harman, 1976) between the rotated item factors and their respective targets. In general, one can appreciate that these data demonstrate both convergent and discriminant validity for the BPI at the item level.

### Validity

To date, two main studies have examined the validity of the BPI scales. Jackson (1975a) used peer-rated item responses, self adjective ratings, and peer adjective ratings as criteria for a university undergraduate sample. Subjects were 96 university residence roommate pairs consisting of a total of 102 females and 90 males. Jackson (1975a), rather than providing validities in terms of scale-criteria correlation coefficients, reports the results of a multimethod factor analysis (Table 8). From this

Table 5  
Basic Personality Inventory Item Factor Loadings

Scale	Adult (N=182)		Psychiatric (N=352)		High School Sample (N=1485)	
	Real Data		Real Data		Real Data	
	Keyed	Non-Keyed	Keyed	Non-Keyed	Keyed	Non-Keyed
Hypochondriasis	.354	.099	.395	.080	.352	.074
Depression	.432	.110	.383	.128	.352	.091
Denial	.273	.128	.279	.107	.248	.127
Interpersonal Problems	.226	.118	.258	.124	.299	.072
Alienation	.241	.117	.271	.110	.316	.082
Persecutory	.272	.128	.344	.104	.277	.109
Ideas	.334	.125	.328	.126	.288	.096
Anxiety Thinking	.243	.118	.315	.116	.303	.096
Disorder	.254	.109	.266	.101	.309	.085
Impulse Expression	.342	.114	.408	.096	.407	.071
Social Introversion	.211	.124	.360	.134	.279	.112
Self Depreciation	.289	.117	.328	.111	.312	.092
Mean						

\* After Holden, Reddon, Jackson, and Helmes (1982).

Table 6\*\*  
 Number of Keyed Items Loadings in the Targeted Direction  
 in Rotated Matrices

Scale	Adult Sample*		Psychiatric Sample		High School Sample	
	Real Data	Random Data	Real Data	Random Data	Real Data	Random Data
Hypochondriasis	20	14	20	17	20	12
Depression	19	14	20	16	20	13
Denial	20	18	20	15	20	16
Interpersonal Problems	20	11	19	13	20	16
Alienation	19	16	20	16	20	15
Persecutory Ideas	19	15	20	15	18	15
Anxiety	20	15	20	12	18	15
Thinking Disorder	19	13	20	14	20	15
Impulse Expression	19	13	19	13	19	15
Social Introversion	20	14	20	16	20	15
Self Depreciation	16	14	20	17	20	10
Total	211	157	218	164	215	157
Percentage	96%	72%	99%	75%	98%	71%

\* Based on 219 items as one item for Self Depreciation showed no variance for this sample.

\*\* After Holden, Reddon, Jackson and Helmes (1982).

Table 7\*

Congruences of Rotated  
Matrices with Targets

Scale	Adult Sample		Psychiatric Sample		High School Sample	
	Real Data	Random Data	Real Data	Random Data	Real Data	Random Data
Hypochondriasis	.66	.26	.75	.26	.74	.22
Depression	.66	.14	.60	.23	.67	.13
Denial	.48	.28	.53	.22	.45	.21
Interpersonal Problems	.43	.14	.45	.13	.67	.16
Alienation	.44	.20	.51	.20	.66	.21
Persecutory Ideas	.47	.26	.63	.15	.50	.21
Anxiety	.55	.15	.53	.15	.43	.15
Thinking Disorder	.40	.12	.52	.19	.61	.18
Impulse Expression	.48	.14	.53	.14	.62	.20
Social Introversion	.59	.16	.72	.16	.79	.15
Self Depreciation	.34	.16	.55	.22	.53	.09
Mean	.50	.18	.57	.19	.61	.17

\* After Holden, Reddon, Jackson, and Helmes (1982).

Table 8\*

Rotated Factor Matrix of Implicit Correlations Among Factor Scores:  
Psychopathology Measured by Four Methods

	I	II	III	IV	V	VI	VII	VIII	IX	X	XI
<b>BPI</b>											
Hypochondriasis	.41	.52	-.22	-.04	-.11	.30	.15	.14	.15	-.01	-.11
Depression	.00	.77	.09	.07	.15	.20	.03	.15	.18	.11	.01
Denial	.05	-.09	.59	-.03	-.12	-.20	-.37	.06	-.25	-.17	.19
<b>Interpersonal Problems</b>											
Alienation	-.10	.07	-.34	.29	.35	.42	-.08	-.17	.33	.10	.05
Persecutory	-.05	.19	-.08	-.03	.57	.47	-.31	.13	.13	.09	-.04
<b>Persecutory Ideas</b>											
Anxiety	-.01	.41	-.16	-.20	.27	.59	.18	.15	.18	.04	-.14
Thinking Disorder	-.06	.42	-.17	-.18	-.15	.25	.69	.04	.09	.02	-.04
Impulse Expression	.03	.38	-.28	-.30	.09	.37	-.01	.25	.22	-.06	-.18
<b>Social Introversion</b>											
Self Depreciation	-.16	.21	-.16	.06	.12	.21	-.05	.10	.64	-.23	.15
<b>Judged BPI</b>											
Hypochondriasis	.58	.01	-.12	.07	.04	.22	.18	.37	-.22	-.05	.34
Depression	.27	.13	-.05	.27	.02	.30	.05	.34	.05	.37	.56
Denial	-.26	.15	.41	-.48	-.19	.11	-.32	-.06	-.11	.04	.04
<b>Interpersonal Problems</b>											
Alienation	.07	.22	-.03	.76	.13	.03	-.05	.26	-.02	-.04	-.13
Persecutory	-.02	-.01	-.08	.56	.49	.19	-.04	.39	.04	.11	.06
<b>Persecutory Ideas</b>											
Anxiety	.24	-.01	-.11	-.40	.05	.37	.24	.33	-.16	.11	.40
Thinking Disorder	.34	-.11	-.20	.04	-.12	.11	.55	.30	-.09	.03	.38
Impulse Expression	.16	-.04	-.15	.20	.25	.11	-.07	.53	-.19	-.01	.45
<b>Social Introversion</b>											
Self Depreciation	.09	-.13	-.29	.35	.18	-.28	.20	.51	.40	-.08	.05
<b>Self Rating</b>											
Hypochondriasis	.68	.38	-.15	.06	.05	-.05	.06	-.30	.03	.05	.00
Depression	.20	.75	.04	.02	.14	.01	.07	-.07	.04	.26	.19
Denial	-.05	.41	.22	-.20	.48	-.11	.13	-.14	-.03	.16	.27
<b>Interpersonal Problems</b>											
Alienation	.03	.25	-.16	.33	.25	.27	-.07	-.24	.46	-.12	.25
<b>Persecutory Ideas</b>											
Anxiety	-.06	.28	.15	-.12	.65	.01	-.04	-.22	.19	-.10	.16
Thinking Disorder	.26	.29	.13	.07	.46	.38	-.16	-.30	.01	.01	.18
Impulse Expression	-.07	.34	-.06	-.12	-.07	.02	.63	-.26	.08	-.07	.29
<b>Social Introversion</b>											
Self Depreciation	-.01	.47	.01	-.12	-.01	-.04	-.02	.04	.57	-.13	.39
<b>Roommate Rating</b>											
Hypochondriasis	-.16	.28	.04	.09	.19	.04	-.05	-.05	.61	-.24	.36
Depression	.01	.49	.04	-.07	.23	-.16	.03	-.14	-.07	.64	.14
Denial	-.07	.60	.25	-.11	.06	-.11	.36	-.02	.05	.00	.37
<b>Self Rating</b>											
Hypochondriasis	.77	-.10	.17	.09	.00	.12	.11	.17	-.05	.06	.01
Depression	.35	.09	.25	.35	-.13	.20	.18	.13	.05	.54	.21
Denial	-.05	-.14	.42	.33	.08	.33	.24	.04	.06	.31	.16
<b>Interpersonal Problems</b>											
Alienation	.17	.17	.14	.67	.02	.01	.07	.14	.12	.08	-.28
Persecutory	.12	-.28	.26	.34	.44	.27	.09	.20	.30	.11	.05
<b>Persecutory Ideas</b>											
Anxiety	.10	.01	.26	.46	.16	.43	.24	.13	-.21	.22	.01
Thinking Disorder	.28	-.31	.12	.14	.04	.13	.64	.11	.09	.06	.05
Impulse Expression	.20	-.26	.32	.20	.17	-.12	.30	.41	.37	.22	.09
<b>Social Introversion</b>											
Self Depreciation	.15	-.02	.09	.40	.17	-.15	.05	.41	.57	.17	.02
<b>Self Rating</b>											
Hypochondriasis	.06	.05	.18	.11	-.19	.20	.14	-.10	-.05	.74	.28
Depression	.35	-.12	.21	.02	-.07	.12	.10	.18	.27	.42	.41

\* After Jackson (1975a).

table, it is apparent that the BPI scales define factors that are also defined by relevant and only relevant criteria. That is, the BPI scales demonstrate convergent and discriminant validity with appropriate criteria.

Holden, Helmes, Jackson and Fekken (1982) have examined the validity of the BPI in terms of diagnostic efficiency. Using 352 psychiatric inpatients (205 males; 147 females), an attempt was made to predict each patient's diagnosis (ICDA - code system) on the basis of scores from the twelve BPI scales. Classification results are reported in Table 9. While a hit rate of 33.2% may appear somewhat low, this represents a significant increase over an unadjusted chance rate of 14.3%. Furthermore, it fails to consider both the unreliability of psychiatric diagnoses (Schmidt, Fonda, & Lester, 1955; Uebersax, 1981) and the lack of empirical validity for the entire nosological system (see Skinner, 1979).

#### Summary

In summarizing the various properties of the BPI, a number of tentative conclusions may be drawn. At the scale level, the BPI shows evidence of test-retest reliability, empirical validity and diagnostic efficiency. More importantly for the present thesis, BPI scales demonstrate content validity and internal consistency while at the individual item level there is strong evidence for convergent and discriminant validity. Thus, in general, it appears that BPI items are relevant for their own scales and

Table 9\*

BPI Classification Results  
Using Four Discriminant Functions

Group	Number in Group	Number Correctly Classified
Organic	11	3 (27.3%)
Schizophrenic	134	45 (33.6%)
Psychotic	31	1 (3.2%)
Neurotic	44	26 (59.1%)
Personality Disorder	73	35 (47.9%)
Drug & Alcohol Abuse	30	2 (6.7%)
Other	29	5 (17.2%)
Total	352	117 (33.2%)

\* After Holden, Helmes, Jackson and Fekken (1982).



irrelevant with respect to non-keyed scales.

## CHAPTER V

### STUDY I: THE DESIRABILITY OF THE BPI CONSTRUCTS

This study was undertaken to ascertain the relative desirability of the BPI constructs (as opposed to the BPI scales). While desirability may be minimized in terms of its correlations with BPI scales (e.g., Jackson, 1974), the underlying constructs ought to evoke relatively immutable judgments of their social desirability. This may or may not have important implications with regard to test-taking behavior. If test item content can inform a test respondent of which behavioral dimension is being assessed, then the desirability of that construct, independent of the desirability of the scale, may possibly affect the respondent's self-presentation.

#### Method

Subjects Subjects in this study consisted of 22 students (13 females; 9 males) enrolled in a second year undergraduate psychology class and 22 graduate psychology students (13 females; 9 males) from a variety of academic years and areas of specialization. Mean age of the total sample was 24.41 years (S.D. = 3.04 years).

Materials Materials consisted of a list of the 11 BPI traits along with accompanying descriptions of low and high scorers on each of the traits. A copy of the materials and instructions is included in Appendix B.

Procedure Subjects were requested to read over a list of the 11 BPI trait names along with the descriptions of high and low trait scorers. Following this, subjects were asked to rank order the trait names in terms of the desirability of the traits. With the undergraduate sample, all 22 subjects were tested in a single group while for the graduate sample, subjects completed the form individually at their own convenience.

### Results

Results of this study are displayed in Table 10. Rankings by undergraduates correlated .53 with rankings by graduates while rankings by males correlated .87 with those of females. As well as the more common rank order correlations, Spearman's rank order correlations and Kendall's coefficients of concordance were also computed (Marascuilo & McSweeney, 1977) for the subgroups and total sample. All these values proved to be highly significant (all  $p$ 's  $\leq .01$ ).

### Discussion

In general, judgments of the rank order of the desirability of the BPI traits appear to be quite reliable. This is particularly impressive when one considers that it was the construct name (i.e., one entire pole of the dimension) that was being evaluated and not any specific position along the pole. Relationships of constructs with desirability may not be linear (e.g., Hamsher, 1969) but may vary as a function of dimensional range (e.g., along a

Table 10

## BPI Construct Desirability Rankings

Construct	Undergraduates (N=22)	Graduates (N=22)	Males (N=18)	Females (N=26)	Total (N=44)
Hypochondriasis	10	6	9	8	8
Depression	8	7	7	7	7
Denial	1	5	4	1	2
Interpersonal Problems	4	8	6	5	6
Alienation	5	10	8	10	9
Persecutory Ideas	9	9	10	9	10
Anxiety	6	2	5	4	4
Thinking Disorder	11	11	11	11	11
Impulse Expression	2	3	2	3	3
Social Introversion	3	1	1	2	1
Self Depreciation	7	4	3	6	5
Split-Half Rank Order Correlation	.97	.63	.82	.80	.92
Average Rank Order Correlation	.11	.19	.09	.12	.12
Kendall's Coefficient of Concordance	.15	.22	.14	.15	.14
$\chi^2$ (10)	32.71	49.32	25.69	38.68	60.50

cynicism-interpersonal trust dimension, interpersonal trust may be seen as being desirable. However, trust in an extreme form may be seen as gullibility and, therefore, as being undesirable). Nevertheless, in this study, the reliability of the judgments suggests not only that these rankings represent stable properties of the traits but also that judges evaluate the desirability of the behavioral dimensions from some implicitly common point or range along the dimension.

## CHAPTER VI

### STUDY II: BPI ITEM SORTING STUDY

The purpose of this investigation was to determine the relative face validity and item subtlety scores for the BPI items. In this instance, preference was given to a procedure which would allow for the unconstrained generation of implicit hypotheses concerning underlying item dimensions. Emphasis was also placed on a method which would permit an evaluation of the reliability and accuracy of judgments.

#### Method

Subjects Subjects were 100 undergraduate students (59 females; 41 males) enrolled in a first-year psychology course. In return for their participation, subjects received credit toward a course requirement. Mean age of this sample was 19.52 years (S.D. = 2.12 years).

Materials In addition to the 220 BPI items, materials also included the Social Desirability and Infrequency scales from Form E of the PRF (Jackson, 1974) and the WAIS-Clarke (Paitich & Crawford, 1970), a vocabulary test. The WAIS-Clarke is a 40-item multiple-choice vocabulary test based on the items of the WAIS (Wechsler, 1955) vocabulary subtest. Paitich and Crawford (1970) report a correlation of .92 between this test and the WAIS subtest. Furthermore, the authors regard it as a short measure of verbal intelligence and it may be used to estimate Verbal I.Q.

(e.g., Evans, Csapo, Glikzman, & Covvey, 1974). Holden, Helmes, and Howe (1979) report correlations of .72, .78, .76, and .70 with the WAIS vocabulary scale score, Verbal Total score, Verbal I.Q. and Total I.Q., respectively. Using a 1.25 year mean interval (S.D. = 1.02 years), Holden, Helmes and Howe (1979) report a test-retest reliability of .70 for the WAIS-Clarke.

Procedure A free sort procedure similar to that of Holden and Jackson (1979) was employed. Subjects were presented with individual decks of cards (18.8 cm x 8.2 cm) on which individual BPI items were printed. The order of item presentation was random. Subjects were informed that these were items that might be found on a test of psychological dysfunctioning and were asked to sort into groups those items that belonged together because they referred to the same psychological problem or to its direct opposite. Instructions are shown in Appendix C. No restrictions were placed on the number of item groups or the number of items a subject could have in a group. Additionally, if it was felt that an item was not appropriate for any group, subjects were instructed to place it into a miscellaneous category. When finished sorting the items, subjects were requested to write a brief description stating the basis or psychological disorder underlying each of their groups.

Following this, subjects were presented with a list of the 11 BPI scales along with descriptions of low and high

scorers for each of the scales. Subjects were asked to read over this information and were requested to write down below their group descriptions the name of any scale which was similar to their group description. A maximum of two scale names could be chosen and the most appropriate one was to be underlined.

Scoring of face validity and item subtlety was based upon the individual subject's group descriptions and chosen scale names (using the underlined scale if two scale names were selected). All items placed in a miscellaneous category were scored as being not face valid (i.e., not contextually relevant for a test of psychological dysfunctioning). All other items were regarded as being face valid. Face validity scores for each item were then based upon the percentage of subjects who related an item to any implicit dimension. For the scoring of item subtlety, any item that was placed in a group which was not related to its keyed BPI scale was scored as being subtle (i.e., lacked an obvious substantive link to its appropriate construct). Items sorted into a group which was correctly related by the subject to its appropriate scale were regarded as being non-subtle. Subtlety scores for each item were determined from the percentage of subjects who failed to relate the item to its keyed scale.

After having finished the sorting and group identification portions of the study, subjects completed the WAIS-Clarke and Jackson's Desirability and Infrequency



scales.

### Results

The mean number of total groups used by subjects for sorting items was 10.86 (S.D. = 4.75, range of 3 to 24). Excluding the miscellaneous category (used by 69 subjects), the average number of item groups was 10.17 (S.D. = 4.68, range of 3, to 23).

Interjudge Reliabilities In judgments of test item content, it becomes imperative to demonstrate a degree of consensus across individuals, showing that ratings are not merely idiosyncratic interpretations but stable characteristics of the items. Interjudge reliabilities were calculated in two ways for each of the item subtlety and face validity sets of judgments. Based on an odd-even split of sorters, corrected split-half reliabilities for judges were calculated. In addition, KR-20's in terms of judges rather than the usual computations in terms of scales were also computed. These reliabilities estimated at the level of items on individual scales and also based on items across all scales are displayed in Table 11. For the most part, with the exception of item subtlety judgments of Self Depreciation, reliabilities are substantial enough to suggest that individuals share some common interpretation of test item content. Where there exists a lack of common conceptualization (i.e., low reliability), it may be due to factors such as idiosyncratic interpretation of the scale name, a lack of construct unity, or inaccessibility of the

Table 11

## Item Sorting Reliability of Judges (N=100)

Items	Face Validity		Item Subtlety	
	Split-Half	KR-20	Split-Half	KR-20
Hypochondriasis	.58	.55	.97	.95
Depression	.56	.45	.91	.86
Denial	.77	.78	.43	.20
Interpersonal Problems	.47	.25	.91	.85
Alienation	.87	.81	.91	.94
Persecutory Ideas	.74	.73	.92	.87
Anxiety	.51	.69	.90	.88
Thinking Disorder	.81	.81	.98	.98
Impulse Expression	.87	.83	.95	.95
Social Introversion	.84	.79	.80	.82
Self Depreciation	.45	.46	-.24*	-.07
All Items	.77	.78	.97	.97

\* Since this value was negative, it was not corrected with the Spearman-Brown formula.

construct associated with its lack of specificity, its lack of social desirability or its lack of common occurrence in everyday behavior.

Sorting Ability An analysis of variance was performed on the number of items correctly sorted by judges. Using a between-within design (SPF-2.11, Kirk, 1968), sex and scale were treated as fixed factors and subjects as a random factor. Mean number of correctly sorted items is shown in Table 12 and the ANOVA is displayed in Table 13. The only significant effect is for scale ( $F(10,980) = 54.13, p < .01$ ), supporting the suggestion that individuals may not have equal access to all trait categories and offering strong support for the current free sort method of obtaining judgments.<sup>1</sup>

Accuracy Correlates Correlates of the number of items correctly identified were examined with respect to age, sex, Desirability and Infrequency scale scores, and verbal intelligence (i.e., WAIS-Clarke score). These are displayed in Table 14. For the most part, only verbal intelligence was consistently related to the accuracy of item identification ( $r(98) = .41$ ).

Face Validity and Item Subtlety Scores Face validity scores for each item were based on the percentage of sorters who related that item's group to any hypothesized dimension. Subtlety scores for each item were computed in terms of the percentage of judges who failed to relate an item's group to

Table 12

Number of Correctly Identified Items  
(Maximum of 20 per scale)

Scale	Males (N=41)		Females (N=59)		Total (N=100)	
	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.
Hypochondriasis	13.39	6.95	15.89	5.52	14.87	6.24
Depression	7.78	7.12	7.86	6.45	7.83	6.70
Denial	1.05	2.93	.75	1.93	.87	2.38
Interpersonal Problems	4.15	5.20	3.12	4.34	3.54	4.71
Alienation	5.00	5.51	5.68	4.91	5.40	5.15
Persecutory Ideas	4.88	5.71	4.68	4.81	4.76	5.17
Anxiety	3.54	4.11	4.17	4.96	3.91	4.62
Thinking Disorder	9.49	6.90	10.93	5.77	10.34	6.27
Impulse Expression	8.00	6.11	7.00	6.25	7.41	6.18
Social Introversion	9.59	6.98	8.27	7.10	8.81	7.05
Self Depreciation	4.12	4.83	5.63	6.13	5.01	5.65

Table 13

## ANOVA for Number of Correctly Identified Items

Source	SS	DF	MS	F
Sex	19.89	1	19.89	.22
Subjects/Sex	8900.18	98	90.82	
Scale	13764.83	10	1376.18	54.13**
Scale x Sex	353.23	10	35.32	1.39
Scale x Subjects/Sex	24915.71	980	25.42	

\*\* p < .01 both with a standard F - test and with the Geisser-Greenhouse conservative  $\bar{F}$  - test (Kirk, 1968).

Table 14

Correlations with Number of  
Correctly Identified Items  
(N=100)

Scale	Variable							WAIS- Clarke
	Age	Sex	Desirability	Infrequency				
Hypochondriasis	-.06	.20*	.10	-.10				.39**
Depression	-.08	.01	-.00	.08				.23*
Denial	-.12	-.06	.04	.10				.13
Interpersonal Problems	-.09	-.11	.03	.08				.29**
Aliénation	.03	.07	.04	.18*				.29**
Persecutory Ideas	-.07	-.02	-.05	.03				.23*
Anxiety	-.02	.07	.06	.11				-.00
Thinking Disorder	-.11	.11	.21*	-.05				.32**
Impulse Expression	-.14	-.08	.05	-.19*				.22*
Social Introversion	-.05	-.09	-.05	-.07				.15
Self Depreciation	-.00	.13	.07	-.22*				.16
All Items	-.12	.05	.09	-.03				.41**

\* p < .05  
\*\* p < .01

its keyed scale. These scores are presented in Tables 15 through 25. Table 26 summarizes the mean item scores and shows the correlations between item face validity and subtlety scores both within and across scales.

### Discussion

Results from this sorting task suggest a number of important points. First, it appears that relatively consistent judgments of item content are possible. Second, it is suggested that not all these behavioral dimensions are equally accessible. This would suggest that any method which does not allow for the free generation of sorting categories (e.g., Christian, Burkhart, & Gynther, 1978; Duff, 1965; Goldberg & Slovic, 1967; McCall, 1958) introduces a bias into the measurement of item subtlety. Third, stable individual differences appear in the ability to uncover correctly the meaning of test item content. Not surprisingly, some of these differences relate substantially to verbal intelligence. Finally, face validity and item subtlety scores are presented. While item subtlety scores show a fair range (12 to 99), face validity scores show somewhat restricted variance (range from 76 to 100). This limited range in face validity may be due to the BPI's emphasis on a rational item writing procedure. The correlations between face validity and item subtlety are also to be noted. To some degree these are spurious in that items which are not face valid must be subtle and items which are not subtle must be face valid. Nevertheless,

Table 15

Face Validity and Item Subtlety Scores

Hypochondriasis Items

BPI Item Number	Face Validity*	Item Subtlety**
1	98	35
13	100	12
25	99	22
37	100	14
49	99	28
61	95	17
73	95	29
85	97	28
97	98	27
109	98	16
121	98	22
133	99	19
145	93	49
157	98	22
169	95	25
181	99	15
193	97	66
205	94	28
217	97	24
229	100	15

\* Based on the percentage of judges (N=100) relating the item to any hypothesized dimension.

\*\* Based on the percentage of judges (N=100) failing to relate the item to its keyed scale.



Table 16

## Face Validity and Item Subtlety Scores

## Depression Items

BPI Item Number	Face Validity	Item Subtlety
2	100	47
14	98	66
26	93	55
38	98	69
50	99	48
62	99	66
74	99	53
86	98	67
98	99	52
110	95	70
122	97	54
134	99	65
146	97	49
158	98	64
170	99	49
182	99	66
194	95	83
206	100	62
218	96	61
230	98	71

Table 17

## Face Validity and Item Subtlety Scores

BPI Item Number	Denial Items		Item Subtlety
	Face Validity	Item Subtlety	
3	99	95	95
15	95	95	95
27	80	96	96
39	92	97	97
51	96	98	98
63	94	94	94
75	90	94	94
87	88	95	95
99	84	97	97
111	94	96	96
123	95	96	96
135	96	99	99
147	98	99	99
159	91	92	92
171	89	93	93
183	94	94	94
195	91	94	94
207	100	97	97
219	96	95	95
231	99	97	97

Table 18

Face Validity and Item Subtlety Scores

\* Interpersonal Problems Items

BPI Item Number	Face Validity	Item Subtlety
4	97	83
16	99	95
28	95	80
40	99	92
52	94	84
64	96	76
76	93	75
88	95	95
100	94	69
112	95	88
124	97	81
136	99	79
148	92	71
160	96	91
172	97	81
184	96	87
196	98	71
208	96	86
220	97	76
232	92	86

*B*

Table 19

## Face Validity and Item Subtlety Scores

## Alienation Items

BPI- Item Number	Face Validity	Item Subtlety
5	87	81
17	96	83
29	92	53
41	95	58
53	98	65
65	95	77
77	96	54
89	88	83
101	94	78
113	85	86
125	96	52
137	89	90
149	97	89
161	96	71
173	95	88
185	98	56
197	89	68
209	95	90
221	76	80
233	92	58

Table 20  
 Face Validity and Item Subtlety Scores  
 Persecutory Ideas Items

BPI Item Number	Face Validity	Item Subtlety
6	96	70
18	92	74
30	99	71
42	96	63
54	97	59
66	94	63
78	99	73
90	99	76
102	97	72
114	98	88
126	91	84
138	100	89
150	94	79
162	98	77
174	94	88
186	84	82
198	95	92
210	97	82
222	95	70
234	98	72

Table 21

Face Validity and Item Subtlety Scores

BPI Item Number	Anxiety Items	
	Face Validity	Item Subtlety
7	99	86
19	98	78
31	99	75
43	99	69
55	89	81
67	95	82
79	89	74
91	96	95
103	99	91
115	98	99
127	90	83
139	94	65
151	98	72
163	97	74
175	92	80
187	97	86
199	97	91
211	98	83
223	91	77
235	96	68

Table 22  
Face Validity and Item Subtlety Scores  
Thinking Disorder Items

BPI Item Number	Face Validity	Item Subtlety
8	87	46
20	95	29
32	93	34
44	97	26
56	97	46
68	93	33
80	96	46
92	97	26
104	90	89
116	88	53
128	78	70
140	97	31
152	82	81
164	98	30
176	97	95
188	94	38
200	95	41
212	95	33
224	88	91
236	96	28

4

Table 23

Face Validity and Item Subtlety Scores

Impulse Expression Items

Face Validity                      Item Subtlety

BPI Item Number

9	99	47
21	95	57
33	99	51
45	79	89
57	97	51
69	99	62
81	99	52
93	93	76
105	99	43
117	93	76
129	95	71
141	91	97
153	95	82
165	95	70
177	99	50
189	97	59
201	98	49
213	100	62
225	94	65
237	98	50



Table 24

Face Validity and Item Subtlety Scores  
Social Introversion Items

BPI Item Number	Face Validity	Item Subtlety
10	100	50
22	98	47
34	100	52
46	98	55
58	100	49
70	98	49
82	98	61
94	98	45
106	95	65
118	99	58
130	100	48
142	96	62
154	97	78
166	98	57
178	100	56
190	99	57
202	99	61
214	87	68
226	99	51
238	98	50

Table 25

## Face Validity and Item Subtlety Scores

## Self Depreciation Items

BPI Item Number	Face Validity	Item Subtlety
11	100	74
23	95	84
35	96	73
47	99	72
59	98	74
71	98	72
83	98	77
95	97	79
107	99	74
119	97	73
131	99	71
143	98	78
155	96	77
167	96	70
179	93	77
191	99	75
203	98	77
215	97	72
227	96	76
239	91	74

Table 26

Item Properties

Correlation of Face  
Validity and Item Subtlety

Face Validity,  $\bar{X}$  Item Subtlety  $\bar{X}$

Scale	Face Validity, $\bar{X}$	Item Subtlety $\bar{X}$	Correlation of Face Validity and Item Subtlety
Hypochondriasis	97.45	25.65	-.48
Depression	97.80	60.85	-.30
Denial	93.05	95.65	.29
Interpersonal Problems	95.85	82.30	.27
Alienation	92.45	73.00	-.31
Persecutory Ideas	95.65	76.20	-.13
Anxiety	95.55	80.45	.17
Thinking Disorder	98.65	48.30	-.55
Impulse Expression	95.70	62.95	-.76
Social Introversion	97.85	55.95	-.53
Self Depreciation	97.00	74.95	-.24
All Items	95.55	66.93	-.30

these correlations do not appear to be overly substantial, although this too may be attributable to the restricted range of the face validity scores.

## CHAPTER VII

### STUDY III: BPI ITEM VALIDITY INVESTIGATION

The determination of individual item validity coefficients was the prime purpose of this particular study. Although individual items may have limited reliability, this should not preclude examinations of the properties of specific items. Items represent the basic building blocks of personality inventories and it cannot be expected that scales will possess suitable psychometric properties unless their basic components also possess comparable attributes (Helmes & Jackson, 1977).

#### Method

Subjects Subjects consisted of 45 sets of roommate pairs solicited from a university residence. This sample of 90 included 70 females and 20 males. Mean age of the sample was 19.18 years (S.D. = 0.84 years). Roommates had known each other for an average of 14.43 months (S.D. = 21.46 months) and claimed to interact with each other a mean of 44.57 hours per week (S.D. = 32.15 hours per week). In return for taking part in this study, subjects were paid for their participation.

Materials Materials consisted of the BPI, the Desirability scale of Form E of the PRF (Jackson, 1974), four criterion measures, and a degree of acquaintance rating form. The four criterion measures included a self rating form, a self adjective judgment form, a roommate rating

form, and a roommate adjective judgment form.

The self rating form consisted of 22 9-point rating scales (2 per BPI construct) on which individuals were asked to evaluate themselves. Endpoints of these scales were defined in terms judged to represent polar extremes for each BPI construct. These scales were not balanced in terms of direction of keying. For the roommate rating form, the same scales were used, however, judgments were made in terms of the roommate rather than the self.

The self adjective judgment form consisted of 66 5-point adjective rating scales (6 per BPI construct) on which individuals were asked to locate themselves. Adjectives for the form were selected on a rational basis and each construct was assessed by three adjectives for each pole. In the case of roommate adjective judgments, the same forms were used with instructions to evaluate the roommate in terms of the adjectives.

A degree of acquaintance rating form was also included in order to demonstrate that roommates knew each other fairly well and thus, had a basis on which to make relevant judgments. This acquaintance rating form as well as the four criterion measure forms are contained in Appendix D.

Procedure Subjects first completed the BPI and then the PRF Desirability scale. Criteria concerning the self were administered next followed by the roommate ratings and finally, the acquaintance ratings.

## Results

Reliabilities (KR-20's) of the BPI and the four criterion measures are displayed in Table 27. Criterion intercorrelations for each of the BPI constructs are shown in Table 28. In order to assess the correspondence between the self criteria and the roommate criteria, within each of these two methods the rating and adjective forms were standardized and summed resulting in a self criterion score and a roommate criterion score. The correlations between these two criteria are located in Table 29.

The convergence of the self and roommate criterion measures with their corresponding BPI scales was evaluated employing Jackson's (1975b, 1977) multimethod factor analysis. Within each method, trait scores were factored and orthogonally rotated so that a single trait measure loaded highly on a given dimension. Implicitly, the component score intercorrelation matrix was calculated and this matrix was refactored. Table 30 displays the results using an orthogonal Procrustes rotation with 11 hypothesized factors. Note that, in general, variables loaded most highly on the hypothesized factors. The Denial scale loading for the BPI was the one exception.

The relative independence of the criterion measures was analyzed by reversing the multimethod factor analysis procedure so as to factor monotrait-heteromethod blocks separately and then refactor the implicit component score.

Table 27

KR 20's for the BPI and Criterion Measures (N=90)

Scale	BPI	Self Rating	Self Adjective	Roommate Rating	Roommate Adjective
Hypochondriasis	.72	.82	.68	.73	.70
Depression	.81	.74	.75	.82	.77
Denial	.47	.35	.36	.31	.60
Interpersonal Problems	.78	.39	.61	.34	.71
Alienation	.73	.70	.75	.83	.62
Persecutory Ideas	.71	.79	.33	.66	.40
Anxiety Thinking	.78	.67	.74	.78	.69
Disorder	.68	.70	.65	.79	.77
Impulse Expression	.83	.75	.58	.75	.70
Social Introversion	.67	.89	.70	.89	.80
Self Depreciation	.71	.82	.64	.84	.69



Table 28

## Criterion Intercorrelations (N=90)

Scale	Self Rating/ Self Adjective	Self Rating/ Roommate Rating	Self Rating/ Roommate Adjective	Self Adjective/ Roommate Rating	Self Adjective/ Roommate Adjective	Roommate Rating/ Roommate Adjective
Hypochondriasis	.61	.43	.27	.36	.44	.68
Depression	.74	.46	.52	.43	.42	.79
Denial	.45	.15	.17	.06	.25	.56
Interpersonal Problems	.62	.33	.38	.33	.51	.62
Alienation	.37	.40	.40	.16	.44	.37
Persecutory Ideas	.61	.28	.25	.29	.28	.55
Anxiety	.72	.27	.20	.40	.39	.66
Thinking Disorders	.58	.45	.42	.37	.45	.77
Impulse Expression	.49	.55	.51	.25	.44	.56
Social Introversion	.81	.51	.42	.61	.58	.81
Self-Depreciation	.68	.43	.21	.37	.22	.67

Table 29

Correlations between Self Criterion  
and Roommate Criterion (N=90)

Scale	r
Hypochondriasis	.46
Depression	.52
Denial	.21
Interpersonal Problems	.48
Alienation	.51
Persecutory Ideas	.35
Anxiety	.37
Thinking Disorder	.51
Impulse Expression	.57
Social Introversion	.59
Self Depreciation	.37

Table 30

Rotated Factor Matrix of Multitrait-Multimethod  
Factor Score Intercorrelations: Trait Factors\*

Variable	Factor										
	1	2	3	4	5	6	7	8	9	10	11
<b>Basic Personality Inventory</b>											
Hypochondriasis	.78	-.11	.08	-.14	.09	-.12	.13	-.05	.12	.02	-.03
Depression	.20	.78	-.06	-.03	.03	.04	-.03	-.03	.00	-.06	.17
Denial	-.03	-.03	-.12	-.12	.13	-.16	.12	-.23	-.12	.03	-.26
Interpersonal Problems	.06	.00	-.12	.81	.29	-.02	.03	-.03	.00	-.02	-.16
Alienation	-.01	-.08	.31	-.06	.62	.48	-.12	.06	.08	-.06	.06
Persecutory Ideas	-.05	.03	-.13	.02	-.24	.61	.33	-.12	.12	.20	.08
Anxiety	.05	.05	.32	.11	-.11	-.09	.72	.15	-.09	-.18	.13
Thinking Disorder	.13	-.03	-.17	.07	-.17	.16	-.06	.57	-.09	.03	-.19
Impulse Expression	-.09	-.01	.02	.12	.05	.15	.01	.24	.82	-.01	.07
Social Introversion	.01	.42	.36	.06	-.02	-.08	-.02	-.06	-.06	-.78	-.02
Self Depreciation	.03	-.10	-.22	.05	.19	-.06	.06	.19	-.11	.23	.67
<b>Self Criterion</b>											
Hypochondriasis	.83	-.06	.01	.11	-.01	-.12	.06	-.04	-.08	.04	.04
Depression	.07	.87	.03	-.05	.05	.11	.03	.00	.03	-.00	.02
Denial	-.07	-.03	.65	.11	.05	.07	.02	-.13	.06	.60	.22
Interpersonal Problems	.03	.03	.06	.79	-.01	.04	-.09	.16	.01	-.07	-.02
Alienation	-.05	.05	-.08	.11	.75	-.26	-.09	-.17	.12	.02	-.05
Persecutory Ideas	.05	-.12	-.14	.14	.31	.76	.01	.01	-.02	.03	.00
Anxiety	.06	.01	-.02	.06	-.16	.03	.84	-.02	.20	-.03	-.03
Thinking Disorder	-.01	.03	-.00	-.03	.11	-.12	.12	.64	.14	.02	.25
Impulse Expression	.09	-.11	.03	.01	.08	.02	-.18	.10	.79	-.00	-.02
Social Introversion	-.01	.05	.13	-.01	.02	.05	.01	.03	-.02	.89	.06
Self Depreciation	-.01	-.01	-.09	-.02	.01	.02	.06	-.12	-.06	-.09	.82
<b>Roommate Criterion</b>											
Hypochondriasis	.71	.24	-.10	.12	-.10	-.01	-.04	.14	-.08	-.10	-.02
Depression	-.20	.57	-.02	.06	-.01	-.10	.24	-.09	.03	.24	-.02
Denial	.08	.00	.58	-.14	-.13	.15	-.04	-.11	.10	.27	-.21
Interpersonal Problems	.01	-.05	-.09	.50	-.15	.32	-.09	-.03	.16	.10	.05
Alienation	.05	.11	-.18	.08	.65	.01	-.22	.08	.11	.04	-.02
Persecutory Ideas	-.25	.14	.33	.19	.17	.39	-.15	.10	-.23	-.15	-.10
Anxiety	.04	.18	-.20	-.33	.01	.26	.43	.12	-.19	.07	-.05
Thinking Disorder	-.08	-.12	.16	.06	.04	-.05	.19	.75	.17	-.04	.08
Impulse Expression	-.04	.18	-.00	.04	.17	.00	.09	-.12	.63	-.15	-.13
Social Introversion	-.05	.04	-.18	-.04	.00	.12	-.13	.09	-.08	.65	.03
Self Depreciation	-.03	.28	.06	-.15	-.20	.01	-.06	.06	.09	-.07	.46

\* Predicted saliences are underlined.

intercorrelations. This was computed only for the self and roommate criteria. Such an analysis would be expected to yield two method factors, one for each criteria. Table 31 presents the orthogonal factor loading matrix rotated to a targeted criterion. Evidence in this table supports a method variance interpretation. Clear, independent factors emerge distinguishing the self criterion from the roommate criterion.

Validities for the BPI scales were calculated by correlating BPI scale scores with scores on the self and roommate criteria. In addition a global criterion measure, based on summing standardized self and roommate criterion scores, was also employed. These scale validity coefficients are reported in Table 32. It should be noted that these validities are not corrected for attenuation and, consequently, are reduced both by the imperfect reliabilities of the BPI scales and by the modest criterion reliabilities. Furthermore, these validities do not take into account other criterion imperfections (e.g., lack of content validity). Scale correlations with desirability are displayed in Table 33.

At a finer level, a number of BPI item statistics were computed. Table 34 shows item-total correlations of each BPI item with its own scale. Item validity coefficients, computed by correlating item responses with the global criterion scores for an item's corresponding scale, are reported in Table 35. Across all items, the mean validity

Table 31

Rotated Factor Matrix of Multimethod-Multitrait  
Factor Score Intercorrelations: Method Factors\*

Variable	Factor	
	1	2
Hypochondriasis		
Self	<u>.55</u>	-.12
Roommate	<u>.01</u>	<u>.68</u>
Depression		
Self	<u>.74</u>	.16
Roommate	<u>-.16</u>	<u>.81</u>
Denial		
Self	<u>.55</u>	-.01
Roommate	<u>-.09</u>	<u>.73</u>
Interpersonal Problems		
Self	<u>.63</u>	-.06
Roommate	<u>.08</u>	<u>.71</u>
Alienation		
Self	<u>.50</u>	-.16
Roommate	<u>.15</u>	<u>.65</u>
Persecutory Ideas		
Self	<u>.63</u>	.04
Roommate	<u>-.09</u>	<u>.69</u>
Anxiety		
Self	<u>.72</u>	.01
Roommate	<u>-.08</u>	<u>.75</u>
Thinking Disorders		
Self	<u>.67</u>	.01
Roommate	<u>.13</u>	<u>.63</u>
Impulse Expression		
Self	<u>.21</u>	-.10
Roommate	<u>.31</u>	<u>.29</u>
Social Introversion		
Self	<u>.38</u>	.17
Roommate	<u>-.31</u>	<u>.45</u>
Self Depreciation		
Self	<u>.66</u>	-.06
Roommate	<u>-.07</u>	<u>.81</u>

\*Predicted saliences are underlined

Table 32

## BPI Scale Validity Coefficients (N=90)

Scale	Criterion	
	Self Roommate	Global*
Hypochondriasis	.59	.57
Depression	.75	.65
Denial	-.19	-.21
Interpersonal Problems	.77	.67
Alienation	.56	.60
Persecutory Ideas	.47	.41
Anxiety	.74	.63
Thinking Disorder	.21	.28
Impulse Expression	.74	.72
Social Introversiion	.80	.70
Self Depreciation	.54	.47

\* Global criterion scores are based on the sum of the standardized Self and Roommate criterion scores.

Table 33  
BPI Scale Correlations with Desirability (N=90)

Scale	r	Ranking
Hypochondriasis	-.34	4
Depression	-.54	10
Denial	.34	1
Interpersonal Problems	-.34	5
Alienation	-.53	9
Persecutory Ideas	-.43	7
Anxiety	-.39	6
Thinking Disorder	-.27	2
Impulse Expression	-.55	11
Social Introverson	-.28	3
Self Depreciation	-.52	8

Table 34

BPI Item-Keyed Scale Correlations\*

Item Order**	Scale				Persecutory Alienation Ideas
	Hypochondriasis	Depression	Denial Problems	Interpersonal Problems	
1	.35	.04	.10	.46	.24
2	.19	.45	.19	.34	.40
3	.57	.44	.00	.51	.37
4	.52	.54	.24	.53	.64
5	.65	.27	.36	.34	.54
6	.24	.67	.41	.49	.37
7	.46	.45	.38	.55	.65
8	.36	.65	.42	.21	.61
9	.31	.45	.28	.65	.50
10	.41	.67	.09	.52	.28
11	.32	.53	.23	.37	.60
12	.58	.55	.18	.52	.38
13	.30	.35	.50	.32	.36
14	.36	.12	.06	.30	.25
15	.27	.50	.37	.33	.43
16	.17	.71	.45	.51	.43
17	.41	.05	.36	.43	.54
18	.52	.69	.27	.47	.39
19	.50	.56	.42	.48	.31
20	.38	.12	.39	.46	.25
Mean	.39	.44	.29	.44	.41

\* Negatively keyed items have been reflected.  
 \*\* Item order refers to the order of appearance of the item for the appropriate scale.  
 \*\*\* This item showed no variance for this sample.



interest were variables related to test respondents' cognitions of test scale desirability (e.g., scale desirability, construct desirability) and content (e.g., construct accessibility, construct unity, item-construct substantiveness). These variables were examined by correlating them across BPI scales with the z-score form of the correlations of item subtlety and face validity with criterion validity. Since some of these variables were rankings, both parametric and non-parametric statistics were calculated (see Table 37).

Scale Desirability The mediating effects of scale desirability were examined both linearly and nonlinearly. In the nonlinear case, it was conceivable that extreme desirability or undesirability could be of importance. Thus, scale correlations with desirability (Table 33) were squared and correlated with the face validity-item validity and item subtlety-item validity correlations. No effect was found, however. With the linear correlations, there was a slight tendency for the more face valid items to show greater criterion validity as scales became more undesirable. Item subtlety showed no such effect.

Construct Desirability Construct desirability based on the rankings of the total group (Table 10) failed to demonstrate any type of moderating effects.

Construct Accessibility For this measure, construct accessibility was evaluated in terms of the number of

Table 34 (cont'd.)

BPI Item-Keyed Scale Correlations\*

Item Order	Scale			
	Anxiety Disorder	Thinking Impulse Disorder	Social Introversion	Self Depreciation
1	.13	.42	.55	.10
2	.58	.27	.38	.32
3	.59	.46	.70	.50
4	.61	.61	.14	.57
5	.45	.55	.51	.53
6	.47	.35	.66	.26
7	.60	.44	.66	.32
8	.45	.59	.33	.05
9	.27	.40	.62	.10
10	.27	.29	.40	.47
11	.16	.31	.57	.28
12	.42	.32	.39	.21
13	.66	.33	.45	.28
14	.65	.37	.33	.63
15	.32	.08	.64	.43
16	.42	.44	.47	.38
17	.33	.48	.58	.64
18	.59	.34	.37	.45
19	.07	.23	.37	.22
20	.41	.49	.59	.70
Mean	.42	.39	.49	.37

\*Negatively keyed items have been reflected.

Table 35

## BPI Item Validity Coefficients\*

BPI Item Number	Scale and Keying	Validity Coefficient	BPI Item Number	Scale and Keying	Validity Coefficient
1	HYP-	.29	25	HYP-	.41
2	DEP+	-.02	26	DEP+	.26
3	DEN-	.06	27	DEN-	.03
4	INP+	.23	28	INP+	.29
5	ALI+	.16	29	ALI+	.33
6	PER-	.13	30	PER-	.28
7	ANX+	.10	31	ANX+	.55
8	THD-	.15	32	THD-	-.08
9	IMP+	.44	33	IMP+	.60
10	SIN-	.12	34	SIN-	.20
11	SDE+	.09	35	SDE+	-.02
13	HYP+	.04	37	HYP+	.25
14	DEP-	.26	38	DEP-	.29
15	DEN+	-.10	39	DEN+	-.26
16	INP-	.28	40	INP-	.49
17	ALI-	.48	41	ALI-	.45
18	PER+	**	42	PER+	.22
19	ANX-	.44	43	ANX-	.54
20	THD+	.09	44	THD+	-.04
21	IMP-	.28	45	IMP-	.07
22	SIN+	.23	46	SIN+	.47
23	SDE-	.14	47	SDE-	-.01

\* Negatively keyed items have been reflected.  
Each criterion is based on the sum of four standardized criteria (i.e., Self Rating, Self Adjective, Roommate Rating, and Roommate Adjective scores).

\*\* This item showed no variance for this sample.

HYP = Hypochondriasis  
DEP = Depression  
DEN = Denial  
INP = Interpersonal Problems  
ALI = Alienation  
PER = Persecutory Ideas

ANX = Anxiety  
THD = Thinking Disorder  
IMP = Impulse Expression  
SIN = Social Introversion  
SDE = Self Depreciation

Table 35 (cont'd.)

## BPI Item Validity Coefficients\*

BPI Item Number	Scale and Keying	Validity Coefficient	BPI Item Number	Scale and Keying	Validity Coefficient
49	HYP-	.34	73	HYP-	.01
50	DEP+	.06	74	DEP+	.42
51	DEN-	-.15	75	DEN-	-.12
52	INP+	.03	76	INP+	.38
53	ALI+	.47	77	ALI+	.36
54	PER-	.19	78	PER-	.33
55	ANX+	.13	79	ANX+	.30
56	THD-	.16	80	THD-	.22
57	IMP+	.37	81	IMP+	.41
58	SIN-	.39	82	SIN-	.15
59	SDE+	.41	83	SDE+	.03
61	HYP+	.10	85	HYP+	.09
62	DEP-	.51	86	DEP-	.44
63	DEN+	.10	87	DEN+	-.01
64	INP-	.40	88	INP-	.03
65	ALI-	.16	89	ALI-	.23
66	PER+	.19	90	PER+	.20
67	ANX-	.36	91	ANX-	.25
68	THD+	-.12	92	THD+	.21
69	IMP-	.50	93	IMP-	.25
70	SIN+	.12	94	SIN+	-.00
71	SDE-	.11	95	SDE-	.09

\*Negatively keyed items have been reflected.

Table 35 (cont'd.)

## BPI Item Validity Coefficients\*

BPI Item Number	Scale and Keying	Validity Coefficient	BPI Item Number	Scale and Keying	Validity Coefficient
97	HYP-	.19	121	HYP-	.24
98	DEP+	.17	122	DEP+	.33
99	DEN-	-.02	123	DEN-	.17
100	INP+	.51	124	INP+	.18
101	ALI+	.04	125	ALI+	.30
102	PER-	.26	126	PER-	.03
103	ANX+	.10	127	ANX+	.13
104	THD-	.22	128	THD-	.00
105	IMP+	.43	129	IMP+	.44
106	SIN-	.07	130	SIN-	.20
107	SDE+	.30	131	SDE+	.17
109	HYP+	.17	133	HYP+	.13
110	DEP-	.44	134	DEP-	.32
111	DEN+	-.00	135	DEN+	-.10
112	INP-	.45	136	INP-	.37
113	ALI-	.10	137	ALI-	.24
114	PER+	.16	138	PER+	-.00
115	ANX-	.18	139	ANX-	.27
116	THD+	.01	140	THD+	.08
117	IMP-	.26	141	IMP-	.27
118	SIN+	.51	142	SIN+	.16
119	SDE-	.38	143	SDE-	.22

\*Negatively keyed items have been reflected.

Table 35 (cont'd.)

## BPI Item Validity Coefficients\*

BPI Item Number	Scale and Keying	Validity Coefficient	BPI Item Number	Scale and Keying	Validity Coefficient
145	HYP-	.26	169	HYP-	.20
146	DEP+	.12	170	DEP+	.46
147	DEN-	-.24	171	DEN-	.19
148	INP+	.17	172	INP+	.22
149	ALI+	.24	173	ALI+	.13
150	PER-	.32	174	PER-	.06
151	ANX+	.43	175	ANX+	.07
152	THD-	.29	176	THD-	.21
153	IMP+	.34	177	IMP+	.44
154	SIN-	.11	178	SIN-	.33
155	SDE+	-.01	179	SDE+	.23
157	HYP+	.18	181	HYP+	.23
158	DEP-	-.05	182	DEP-	.50
159	DEN+	.07	183	DEN+	.32
160	INP-	.05	184	INP-	.30
161	ALI-	.18	185	ALI-	.32
162	PER+	.16	186	PER+	.15
163	ANX-	.38	187	ANX-	.26
164	THD+	.25	188	THD+	.22
165	IMP-	.38	189	IMP-	.38
166	SIN+	.54	190	SIN+	.26
167	SDE-	.41	191	SDE-	.17

\*Negatively keyed items have been reflected.

Table 35 (cont'd.)

## BPI Item Validity Coefficients\*

BPI Item Number	Scale and Keying	Validity Coefficient	BPI Item Number	Scale and Keying	Validity Coefficient
193	HYP-	.46	217	HYP-	.22
194	DEP+	.12	218	DEP+	.26
195	DEN-	.08	219	DEN-	-.20
196	INP+	.28	220	INP+	.44
197	ALI+	.41	221	ALI+	-.02
198	PER-	.12	222	PER-	.06
199	ANX+	.23	223	ANX+	-.01
200	THD-	.04	224	THD-	.08
201	IMP+	.17	225	IMP+	.38
202	SIN-	.50	226	SIN-	.06
203	SDE+	.22	227	SDE+	.31
205	HYP+	.29	229	HYP+	.38
206	DEP-	.55	230	DEP-	-.05
207	DEN+	-.04	231	DEN+	-.01
208	INP-	.48	232	INP-	.32
209	ALI-	.30	233	ALI-	.11
210	PER+	.20	234	PER+	.13
211	ANX-	.32	235	ANX-	.27
212	THD+	.23	236	THD+	.09
213	IMP-	.38	237	IMP-	.31
214	SIN+	.22	238	SIN+	.54
215	SDE-	.03	239	SDE-	.29

\*Negatively keyed items have been reflected.

coefficient was .21 (S.D. = .17). Of the 219 items showing variance, 193 demonstrated positive criterion validities ( $p < .01$ , sign test, Marascuilo & McSweeney, 1977).

### Discussion

A number of comments are appropriate regarding these results. First, even when measures were only based on two items, all instruments appear to possess at least moderate degrees of internal consistency. Second, for the criterion measures, self and roommate report demonstrate appropriate convergent and discriminant validity. Third, with the exception of Denial, all BPI scales demonstrate at least moderate validity. This apparent inconsistency with Denial may be due to lack of validity in the scale and/or criterion or due to the fact that Denial may represent both a content dimension and a response style. It may be that high deniers deny denying while low deniers admit denying. Conceivably, therefore, response style and content responding may be operating in opposition to one another. Fourth, in general, at the item level, scales demonstrate both strong item-total correlations as well as acceptable item-criterion correlations. Excluding the Denial scale items, only 13 of the remaining 199 items correlated negatively with their criterion ( $p < .01$ , sign test, Marascuilo & McSweeney, 1977). None of these approached statistical significance (largest was  $-.12$ ). In addition, it must be emphasized that these item properties represent sample statistics and as such are subject to sampling errors related to both subjects



and criteria. Thus, while the mean item validity coefficient was quite acceptable, a range of coefficients was present.

## CHAPTER VIII

### INTEGRATION OF STUDIES I TO LII: THE RELATIONSHIPS OF ITEM SUBTLETY AND FACE VALIDITY TO CRITERION VALIDITY

While the first three investigations have examined specific properties of the BPI, the purpose of this chapter is to attempt to relate these properties to one another. Furthermore, an attempt to examine some moderating effects will also be undertaken.

#### Sorting Properties and Criterion Validity

The main questions arising from the first three investigations are whether or not face valid items are more externally valid and whether or not subtle items have greater external validity. These were evaluated by correlating item subtlety and face validity with individual item validities based on the global criterion (i.e., the sum of the standardized self and roommate criteria for each construct). These correlations are displayed in Table 36. In general, there is a tendency for the more face valid and less subtle items to have greater empirical validity. Overall, however, these findings seem to be weaker and marked by more variability than those of Holden and Jackson (1979).

#### Mediating Influences

Due to the variable nature of the relationships of item subtlety and face validity, it was felt that a number of moderating variables might be important. Of particular

Table 36

Correlations of Face Validity and  
Item Subtlety with Criterion Validity\*\*\*

Scale	Face Validity	Item Subtlety
Hypochondriasis	.16	.44*
Depression	.10	.11
Denial	-.22	-.37
Interpersonal Problems	.17	-.26
Alienation	.54**	-.38*
Persecutory Ideas	.20	-.42*
Anxiety	.48*	-.43*
Thinking Disorder	.10	.26
Impulse Expression	.73**	-.50**
Social Introversion	.15	-.03
Self Depreciation	-.19	-.15
All Items	.28**	-.18**

\*  $p < .05$

\*\*  $p < .01$

\*\*\* Correlations are based on an N of 20 items (220 for All Items).

interest were variables related to test respondents' cognitions of test scale desirability (e.g.,— scale desirability, construct desirability) and content (e.g., construct accessibility, construct unity, item-construct substantiveness). These variables were examined by correlating them across BPI scales with the z-score form of the correlations of item subtlety and face validity with criterion validity. Since some of these variables were rankings, both parametric and non-parametric statistics were calculated (see Table 37).

Scale Desirability The mediating effects of scale desirability were examined both linearly and nonlinearly. In the nonlinear case, it was conceivable that extreme desirability or undesirability could be of importance. Thus, scale correlations with desirability (Table 33) were squared and correlated with the face validity-item validity and item subtlety-item validity correlations. No effect was found, however. With the linear correlations, there was a slight tendency for the more face valid items to show greater criterion validity as scales became more undesirable. Item subtlety showed no such effect.

Construct Desirability Construct desirability based on the rankings of the total group (Table 10) failed to demonstrate any type of moderating effects.

Construct Accessibility For this measure, construct accessibility was evaluated in terms of the number of

Table 37

Correlations of Moderating Variables with  
Face Validity-Item Validity and Item Subtlety-Item Validity Correlations  
(N = 11 scales)

Moderator	Face Validity-Item Validity		
	Pearson Correlation	Spearman Correlation	Kendall Correlation
Scale Desirability			
Linear	-.53*	-.53*	-.51*
Nonlinear	.41	.47	.44
Construct Desirability	.00	.12	.07
Construct Accessibility	.11	-.01	.07
Construct Unity	.64*	.63*	.50*
Item-Construct Substantiveness	.75**	.68*	.56**
	Item Subtlety-Item Validity		
Moderator	Pearson Correlation	Spearman Correlation	Kendall Correlation
Scale Desirability			
Linear	.02	.43	.27
Nonlinear	-.37	-.50	-.35
Construct Desirability	.34	.28	.20
Construct Accessibility	.81**	.64*	.49*
Construct Unity	-.03	-.36	-.26
Item-Construct Substantiveness	-.17	-.40	-.28

\* p < .05  
\*\* p < .01

identified items, for each scale (Table 12). The only effect for this moderator was that with more accessible constructs, there was a rather substantial tendency for more subtle items to have greater empirical validity.

Construct Unity Construct unity, based on BPI scale KR-20s (Table 27) proved to have a significant effect on the relationship of face validity to criterion validity. For more unitary constructs, face valid items demonstrated greater empirical validity.

Item-Construct Substantiveness Item-construct substantiveness based on the mean item/keyed-scale correlation (Table 34) is clearly interconnected with the scale KR-20 ( $r = .91$ ). Not surprisingly, therefore, this moderator shows the same pattern of effects as does construct unity.

#### Integration of Holden and Jackson's (1979) Findings

In order to lend greater power to the analysis of moderating variables, it is possible to include a greater number of scales in the analysis. Holden and Jackson (1979), using procedures similar to the present study, evaluated item subtlety and face validity with respect to the Abasement, Achievement, Affiliation, Autonomy, and Dominance scales of Form E of the PRF (Jackson, 1974). While Holden and Jackson did not obtain construct desirability rankings for the PRF scales, other scale properties were obtained. These properties demonstrate

characteristics of 16-item scales and may be adjusted (see Table 38) to reflect aspects of 20-item scales that are then comparable to BPI scales.

Moderating effects, except for construct desirability, were reassessed this time using 16 scales rather than just 11. Results (Table 39) show only construct accessibility as a significant moderator. Again, with more accessible constructs there is a tendency for more subtle items to show greater criterion validity.

### Discussion

The integrated findings of the first three investigations support the efficacy of a rational approach to test construction. Replicating the findings of Holden and Jackson (1979), these data suggest that the face validity or contextual relevance of test items is significantly related to their criterion validity. This relationship does not support the contention (Adams & Butler, 1967) that particular test item content is irrelevant. Adams (1967), in defense of the deviation hypothesis, admitted that, although the most valid test instruments may be those with content validity, nothing was implied about face validity. It appears, therefore, that this argument has been refuted. In a set of items possessing content validity, the more face valid items generally demonstrate greater criterion validity. This relationship also appears to be independent of a number of possible moderating variables.

Table 38

## Adjusted Holden and Jackson (1979) Data

Scale	Face Validity Item Validity Correlation	Item Subtlety Item Validity Correlation	Number of Identified Items
Abasement	.43	-.16	4.14
Achievement	-.19	.02	9.33
Affiliation	.25	-.29	9.65
Autonomy	.52	-.55	4.32
Dominance	.02	.29	7.89

Scale	Scale Desirability	KR-20	Mean Item-Total Correlation
Abasement	.01	.70	.37
Achievement	.19	.79	.45
Affiliation	.55	.83	.50
Autonomy	-.09	.76	.45
Dominance	.26	.88	.58



Table 39

Correlations of Moderating Variables with  
Face Validity-Item Validity and Item Subtlety-Item Validity Correlations  
(N = 16 scales)

Face Validity-Item Validity			
Moderator	Pearson Correlation	Spearman Correlation	Kendall Correlation
Scale Desirability			
Linear	-.35	-.36	-.32*
Nonlinear	.23	.26	.26
Construct Accessibility	-.08	-.17	-.07
Construct Unity	.36	.25	.19
Item-Construct Substantiveness	.24	.28	.22
Item Subtlety-Item Validity			
Moderator	Pearson Correlation	Spearman Correlation	Kendall Correlation
Scale Desirability			
Linear	.08	.22	.15
Nonlinear	-.26	-.27	-.19
Construct Accessibility	.72**	.63**	.47**
Construct Unity	.10	-.05	-.03
Item-Construct Substantiveness	.10	-.13	-.08

\* p < .05

\*\* p < .01

With regard to item subtlety, the relationship, in general, favors non-subtle items. Content most closely related to the construct being assessed appears to be most valid. However, some indication does exist that when readily accessible constructs are being assessed subtle items may serve to offer superior validity.

In summary, when dealing with normal structured self-report, face valid and non-subtle items generally offer the most valid means of assessing a wide variety of dimensions. Such results offer support for a rational approach to test construction and fail to support the theories of test construction underlying either empirical or projective techniques. The next phase of this investigation will be to examine whether similar conclusions can be drawn for conditions in which subjects are asked to distort their self-presentation.

## CHAPTER IX

### STUDY IV: INFORMATION AND FAKING EFFECTS

While it may be the case that obvious items, in general, tend to possess greater empirical validity under normal testing conditions, it by no means follows that the same is true in other instances. It is well known that most structured inventories can be "faked" (e.g., Hoffmann, 1968; Holden & Jackson, 1981; Kilduff, 1979; Kroger & Turnbull, 1975). It is also lore that disguise is an essential aspect of assessment (Hamsher, 1969). For example, Curran and Cattell (1976) argue that merely by being obvious, items are fakable. The present study examined the relative usefulness of subtle versus obvious and face valid versus non-face valid scales. With individuals who have been instructed to distort self-presentation and who have been provided with information as to the precise nature of the test.

#### Method

Subjects The sample was composed of 180 university students (90 females; 90 males) who in return for their participation received credit toward an introductory psychology course requirement. Mean age of the sample was 19.76 years (S.D. = 3.12 years).

Materials Materials for this investigation consisted of the 11 construct scales of the BPI and the same self-report criteria as used in Study III. Using the item subtlety judgments and face validity judgments from Study

II, each BPI scale was subjected to a median split and dichotomized into a subtle and obvious scale and into a face valid and non-face valid scale. Mean item subtlety and face validity scores for these subscales are reported in Table 40. In addition to individual scales and criteria of the BPI constructs, a general psychopathological index and criterion were constructed by summing scales and criteria, respectively, across constructs.

Procedure All subjects completed the criterion measures prior to any experimental manipulation. Only the self-report criteria were used and instructions were identical to those used in Study III.

With the presentation of the BPI, subjects within each sex were assigned randomly to one of six groups. The six groups consisted of three faking conditions crossed with two information conditions. Faking conditions included fake good, straight take, and fake bad groups. Standard faking instructions (e.g., Braun & Asta, 1969; Hoffmann, 1968; Holden & Jackson, 1981) adapted from Kilduff (1979) were employed (see Appendix E). Although item subtlety and face validity had been defined in terms of content, it was decided that a faking manipulation in terms of desirability would initially be most appropriate. Such a manipulation is more common in the literature (e.g., Braun & Asta, 1969; Hoffmann, 1968; Jackson, 1974), on a rational basis has greater ecological validity, and, furthermore, content at a personal construct level (independent of measurement scale

Table 40

Mean Item Subtlety and Face Validity Scores  
for BPI Subsamples

	Item Subtlety		Face Validity	
	Obvious Subscale	Subtle Subscale	Face Valid Subscale	Non-Face Valid Subscale
Hypochondriasis	17.40	33.90	99.00	92.90
Depression	53.00	68.70	99.10	96.50
Denial	94.10	97.20	96.80	89.30
Interpersonal Problems	75.90	88.70	97.50	94.20
Alienation	61.20	84.80	96.20	88.70
Persecutory Ideas	68.70	83.70	98.20	93.10
Anxiety	73.20	87.70	98.20	92.90
Thinking Disorder	30.80	65.80	96.50	88.80
Impulse Expression	50.90	75.00	98.70	92.70
Social Introversion	49.60	62.30	99.40	96.30
Self Depreciation	72.50	77.40	98.60	95.40
General Psychopathology	58.85	75.02	98.02	92.80

properties) strongly implies a level of desirability.

Orthogonal to this faking manipulation was a variation in information conditions (no information versus information). Subjects in the no information group received no additional data on the nature of the test, while subjects in the information category were supplied with an information sheet (see Appendix E) that stated which personality traits or characteristics were to be assessed. In addition to scale names, descriptions of high and low scorers were supplied for each scale.

### Results

As a check solely on the effectiveness of the experimental manipulations, scale scores were examined initially. Tables 41 to 43 report the means, standard deviations, and KR-20's, respectively, for the face valid and non-face valid scales. Means, standard deviations and KR-20's, respectively, for the obvious and subtle scales are presented in Tables 44 to 46. Examination of scale standard deviations and KR-20's, in particular, suggest the possibility of both ceiling and floor effects for the fake bad and fake good conditions, respectively. This is particularly exemplified by the calculation of negative KR-20's under a number of the experimental conditions.

Consideration of the problems associated with ceiling and floor effects suggested that univariate analyses of variance for each trait scale would be appropriate. For

Table 41

## Scale Means as a Function of Face Validity

Scale	Condition*					
	Fake Good		Straight Take		Fake Bad	
	No Info	Info	No Info	Info	No Info	Info
Hypochondriasis						
Face Valid	1.17	.27	1.70	1.23	7.77	9.10
Non-Face Valid	1.03	.27	1.90	1.47	7.60	8.73
Depression						
Face Valid	.93	.43	1.90	1.27	8.57	8.97
Non-Face Valid	.73	.50	1.90	1.43	8.47	9.40
Denial						
Face Valid	5.87	6.03	2.83	3.10	3.20	2.60
Non-Face Valid	4.70	5.47	3.00	3.30	3.07	2.77
Interpersonal Problems						
Face Valid	2.47	1.77	3.67	4.03	7.63	7.87
Non-Face Valid	3.13	2.50	4.07	4.63	7.13	6.77
Alienation						
Face Valid	1.67	.90	2.20	1.77	7.40	7.93
Non-Face Valid	1.67	1.33	2.77	2.10	6.83	7.67
Persecutory Ideas						
Face Valid	2.03	.90	2.53	1.83	8.20	8.77
Non-Face Valid	1.60	1.23	2.03	1.73	8.03	7.90
Anxiety						
Face Valid	1.63	1.13	2.97	3.07	7.70	8.50
Non-Face Valid	2.03	.97	3.40	3.07	7.93	8.97
Thinking Disorder						
Face Valid	.90	.33	1.33	1.07	8.37	8.17
Non-Face Valid	2.20	1.43	1.80	1.83	7.53	7.93
Impulse Expression						
Face Valid	2.27	1.23	2.50	3.10	7.97	7.50
Non-Face Valid	3.27	1.73	4.10	3.67	7.23	7.47
Social Introversion						
Face Valid	1.40	.53	2.67	1.80	8.33	9.10
Non-Face Valid	1.80	1.40	2.87	2.07	7.57	8.10
Self Depreciation						
Face Valid	.53	.17	.57	.37	8.30	8.90
Non-Face Valid	.77	.63	1.33	1.17	7.83	8.40
General Psychopathology						
Face Valid	20.87	13.70	24.87	22.63	83.43	87.40
Non-Face Valid	22.93	17.47	29.17	26.47	79.23	84.10

\* Each mean is based on an N of 30.

Table 42

## Scale Standard Deviations as a Function of Face Validity

Scale	Condition*					
	Fake Good		Straight Take		Fake Bad	
	No Info	Info	No Info	Info	No Info	Info
Hypochondriasis						
Face Valid	2.03	.44	1.70	1.31	2.53	1.81
Non-Face Valid	1.64	.57	1.78	1.28	2.58	2.11
Depression						
Face Valid	1.84	.92	2.09	1.29	2.55	2.11
Non-Face Valid	1.12	-1.06	1.45	1.31	2.32	1.23
Denial						
Face Valid	2.59	2.44	1.85	1.47	2.18	1.05
Non-Face Valid	2.00	1.63	1.46	1.68	2.02	1.26
Interpersonal Problems						
Face Valid	1.88	1.48	1.85	1.78	1.99	2.39
Non-Face Valid	2.35	1.65	2.25	2.65	2.32	2.28
Alienation						
Face Valid	1.68	1.04	1.82	1.87	2.49	2.29
Non-Face Valid	1.56	1.66	1.67	1.72	2.38	2.51
Persecutory Ideas						
Face Valid	2.07	.87	2.26	1.68	2.30	1.45
Non-Face Valid	1.54	.88	1.30	1.39	1.85	2.24
Anxiety						
Face Valid	1.91	1.28	1.94	2.16	1.83	1.50
Non-Face Valid	2.20	1.54	2.01	1.91	2.31	1.28
Thinking Disorder						
Face Valid	1.49	.70	1.27	1.12	2.07	2.82
Non-Face Valid	1.80	1.17	1.40	1.42	2.58	2.45
Impulse Expression						
Face Valid	2.65	1.59	2.03	2.40	1.96	2.78
Non-Face Valid	2.11	1.91	1.87	2.23	2.04	1.96
Social Introversion						
Face Valid	1.47	.85	2.61	1.62	2.07	2.23
Non-Face Valid	.95	.84	2.43	1.59	2.20	1.94
Self Depreciation						
Face Valid	1.86	.58	1.20	.84	2.80	2.15
Non-Face Valid	1.73	.71	1.47	1.32	2.49	2.23
General Psychopathology						
Face Valid	13.60	4.37	10.20	7.63	15.14	16.12
Non-Face Valid	11.82	5.80	9.04	7.46	16.40	15.69

\* Each standard deviation is based on an N of 30.



Table 43

## Scale KR-20's as a Function of Face Validity

Scale	Condition*					
	Fake Good		Straight Take		Fake Bad	
	No Info	Info	No Info	Info	No Info	Info
Hypochondriasis						
Face Valid	.84	-.23	.61	.51	.82	.84
Non-Face Valid	.74	.26	.61	.35	.82	.84
Depression						
Face Valid	.84	.60	.79	.45	.91	.89
Non-Face Valid	.56	.66	.47	.50	.85	.70
Denial						
Face Valid	.80	.79	.60	.44	.71	-.32
Non-Face Valid	.50	.34	.16	.34	.58	-.08
Interpersonal Problems						
Face Valid	.62	.47	.49	.44	.63	.80
Non-Face Valid	.73	.46	.62	.75	.71	.74
Alienation						
Face Valid	.58	.30	.60	.67	.80	.79
Non-Face Valid	.52	.67	.43	.56	.70	.82
Persecutory Ideas						
Face Valid	.73	.18	.77	.57	.83	.59
Non-Face Valid	.52	-.23	.36	.45	.64	.77
Anxiety						
Face Valid	.74	.55	.63	.71	.57	.53
Non-Face Valid	.76	.74	.62	.57	.78	.51
Thinking Disorder						
Face Valid	.72	.40	.40	.37	.77	.91
Non-Face Valid	.63	.32	.49	.52	.82	.82
Impulse Expression						
Face Valid	.85	.68	.69	.76	.66	.85
Non-Face Valid	.69	.74	.49	.68	.62	.62
Social Introversion						
Face Valid	.51	.44	.84	.57	.77	.93
Non-Face Valid	-.12	-.21	.77	.51	.71	.70
Self Depreciation						
Face Valid	.95	.59	.73	.56	.92	.88
Non-Face Valid	.86	.05	.58	.51	.82	.83
General Psychopathology						
Face Valid	.94	.60	.86	.77	.91	.96
Non-Face Valid	.91	.69	.80	.72	.94	.95

\* Each KR-20 is based on an N of 30.

Table 44

## Scale Means as a Function of Item Subtlety

Scale	Condition*					
	Fake No	Good Info	Straight No	Take Info	Fake No	Bad Info
Hypochondriasis						
Obvious	1.07	.27	1.43	1.03	7.73	9.07
Subtle	1.13	.27	2.17	1.67	7.63	8.77
Depression						
Obvious	.57	.27	1.30	.83	8.60	9.00
Subtle	1.10	.67	2.50	1.87	8.43	9.37
Denial						
Obvious	4.57	5.10	2.63	2.53	3.43	3.03
Subtle	6.00	6.40	3.20	3.87	2.83	2.33
Interpersonal Problems						
Obvious	3.10	2.13	3.97	4.10	7.17	7.40
Subtle	2.50	2.13	3.77	4.57	7.60	7.23
Alienation						
Obvious	1.60	.93	2.23	1.43	6.70	7.50
Subtle	1.73	1.30	2.73	2.43	7.53	8.10
Persecutory Ideas						
Obvious	1.80	.67	1.47	1.00	8.77	8.57
Subtle	1.83	1.47	3.10	2.57	7.47	8.10
Anxiety						
Obvious	1.63	.90	3.77	3.23	7.83	8.97
Subtle	2.03	1.20	2.60	2.90	7.80	8.50
Thinking Disorder						
Obvious	.87	.30	.97	.70	8.60	8.27
Subtle	2.23	1.47	2.17	2.20	7.30	7.83
Impulse Expression						
Obvious	2.63	1.47	3.30	3.43	7.77	7.13
Subtle	2.90	1.50	3.30	3.33	7.43	7.83
Social Introversion						
Obvious	1.13	.70	2.97	1.87	8.20	8.90
Subtle	2.07	1.23	2.57	2.00	7.70	8.30
Self Depreciation						
Obvious	.47	.20	.83	.73	8.20	8.80
Subtle	.83	.60	1.07	.80	7.93	8.50
General Psychopathology						
Obvious	19.43	12.93	24.87	20.90	83.00	86.63
Subtle	24.37	18.23	29.17	28.20	79.67	84.87

\* Each mean is based on an N of 30.

Table 45

## Scale Standard Deviations as a Function of Item Subtlety

Scale	Condition*					
	Fake Good		Straight Take		Fake Bad	
	No Info	Info	No Info	Info	No Info	Info
Hypochondriasis						
Obvious	1.95	.44	1.45	1.17	2.73	1.91
Subtle	1.73	.63	2.03	1.45	2.43	1.98
Depression						
Obvious	1.41	.63	1.81	1.04	2.32	1.95
Subtle	1.76	1.16	2.01	1.75	2.49	1.33
Denial						
Obvious	2.25	1.64	1.58	1.57	2.04	1.30
Subtle	2.39	2.39	1.82	1.52	2.25	1.47
Interpersonal Problems						
Obvious	2.04	1.89	2.20	2.18	2.53	2.67
Subtle	2.34	1.31	1.89	2.62	1.86	1.98
Alienation						
Obvious	1.94	1.26	1.87	1.82	3.12	2.99
Subtle	1.71	1.42	1.93	1.91	1.91	2.10
Persecutory Ideas						
Obvious	1.83	.83	1.77	1.18	1.69	2.01
Subtle	1.81	.92	1.80	1.61	2.22	1.51
Anxiety						
Obvious	2.06	1.60	2.16	2.17	2.37	1.30
Subtle	1.82	1.30	1.60	1.80	1.87	1.29
Thinking Disorder						
Obvious	1.65	.59	1.30	1.13	2.36	3.09
Subtle	1.75	1.23	1.51	1.74	2.40	2.25
Impulse Expression						
Obvious	2.58	1.82	2.35	2.42	2.12	2.93
Subtle	2.10	1.75	1.83	2.23	1.93	2.12
Social Introversion						
Obvious	1.18	1.01	2.54	1.67	2.09	2.26
Subtle	1.39	.96	2.64	1.75	2.24	1.92
Self Depreciation						
Obvious	1.82	.60	1.24	1.09	2.88	2.20
Subtle	1.77	.66	1.37	1.01	2.37	2.13
General Psychopathology						
Obvious	13.20	5.29	9.26	7.01	16.38	17.80
Subtle	12.41	5.05	9.70	8.32	15.27	13.95

\* Each standard deviation is based on an N of 30.

Table 46

## Scale KR-20's as a Function of Item Subtlety

Scale	Condition*					
	Fake Good No Info	Info	Straight No Info	Take Info	Fake Bad No Info	Info
Hypochondriasis						
Obvious	.84	-.23	.52	.49	.86	.86
Subtle	.75	.41	.68	.43	.78	.81
Depression						
Obvious	.82	.41	.79	.42	.87	.85
Subtle	.77	.63	.70	.65	.88	.75
Denial						
Obvious	.64	.36	.34	.34	.64	.11
Subtle	.74	.77	.55	.36	.69	.29
Interpersonal Problems						
Obvious	.63	.65	.66	.67	.77	.84
Subtle	.78	.24	.43	.74	.56	.64
Alienation						
Obvious	.72	.54	.64	.73	.87	.88
Subtle	.60	.53	.60	.59	.59	.78
Persecutory Ideas						
Obvious	.65	.15	.70	.42	.70	.78
Subtle	.65	-.17	.57	.40	.71	.47
Anxiety						
Obvious	.78	.79	.66	.68	.79	.53
Subtle	.62	.54	.45	.55	.62	.31
Thinking Disorder						
Obvious	.80	.22	.58	.56	.88	.95
Subtle	.60	.36	.46	.64	.75	.75
Impulse Expression						
Obvious	.81	.73	.77	.74	.70	.87
Subtle	.72	.72	.51	.70	.58	.72
Social Introversion						
Obvious	.34	.47	.81	.59	.76	.90
Subtle	.42	.28	.83	.63	.73	.74
Self Depreciation						
Obvious	.96	.52	.62	.56	.92	.87
Subtle	.85	-.02	.60	.35	.80	.82
General Psychopathology						
Obvious	.93	.72	.83	.74	.95	.96
Subtle	.91	.61	.82	.77	.93	.94

\* Each KR-20 is based on an N of 30.

each scale, faking condition, information condition, and face validity or subtlety were treated as fixed effects while subjects, nested within faking and information conditions, were regarded as a random factor. Tables 47 and 48 present the F-ratios of these analyses of variance for face validity and item subtlety, respectively.

Across all dimensions, substantial effects were noted for faking, while there were no main effects for information. However, the presence of some faking by information interactions does support the notion of an effective manipulation of information. While these particular effects are interesting, they serve merely to demonstrate the presence of important test-taking influences. More interesting are the interactions of face validity and item subtlety with faking and information. As exemplified by the findings with the General Psychopathology Index (see Figures 1 and 2), in general, non-face valid items and subtle items seem less susceptible to faking. While admittedly, at a simple level, such findings seem to argue against some of the preliminary conclusions of Chapter VIII, these results merit further consideration. While items from the content scales of the BPI were written to emphasize content and substantive validity, any set of item responses for any set of items will contain irrelevant variance. It is quite possible that although the non-face valid and subtle items show content and substantive validity, they also show greater amounts of irrelevant

Table 47

F - Ratios for Analyses of Variance of Scale Means with Face Validity as a Factor

Source of Variance	Degrees of Freedom	Hypochondriasis	Depression	Denial	Interpersonal Problems
Faking (F)	2	354.78**	467.70**	46.58**	99.56**
Information (I)	1	.00	.12	.16	.10
F x I	2	6.18**	2.51	1.28	1.29
Ss/FI	174				
Face Validity (FV)	1	.22	.44	2.77	.96
F x FV	2	2.92	.55	5.96**	11.96**
I x FV	1	.00	3.07	1.36	.17
F x I x FV	2	.36	.35	.38	.83
FV x Ss/FI	174				

\*p < .05  
 \*\*p < .01

Table 47

F - Ratios for Analyses of Variance of Scale Means with Face Validity as a Factor

Source of Variance	Degrees of Freedom	Alienation	Persecutory Ideas	Anxiety	Thinking Disorder
Faking (F)	2	191.71**	364.98**	268.38**	298.19**
Information (I)	1	.26	2.30	.00	.79
F x I	2	2.24	1.63	3.88*	.79
Ss/FI	174				
Face Validity (FV)	1	.64	5.01*	3.27	20.23**
F x FV	2	6.16**	1.09	.29	28.66**
I x FV	1	.64	.36	1.03	1.50
F x I x FV	2	.95	2.91	.96	1.50
FV x Ss/FI	174				

\*p < .05  
\*\*p < .01

Table 47

F - Ratios for Analyses of Variance of Scale Means with Face Validity as a Factor

Source of Variance	Degrees of Freedom	Impulse Expression	Social Introversion	Self Depreciation	General Psychopathology
Faking (F)	2	125.72**	291.13**	409.05**	552.33**
Information (I)	1	2.25	1.14	.04	.69
F x I	2	2.12	3.32*	1.12	3.23*
Ss/FI	174				
Face Validity (FV)	1	11.28**	.00	6.94**	6.88**
F x FV	2	9.51**	17.03**	20.41**	35.16**
I x FV	1	.93	.21	.22	.75
F x I x FV	2	3.17*	.85	.24	.59
FV x Ss/FI	174				

\*p < .05  
 \*\*p < .01



Table 48

F - Ratios for Analyses of Variance of Scale Means with Item Subtlety as a Factor

Source of Variance	Degrees of Freedom	Hypochondriasis	Depression	Denial	Interpersonal Problems
Faking (F)	2	354.78**	467.70**	46.58**	99.56**
Information (I)	1	.00	.12	.16	.10
F x I	2	6.18**	2.51	1.28	1.29
Ss/FI	174				
Subtlety (S)	1	3.88	29.74**	14.94**	.01
F x S	2	9.13**	8.35**	18.28**	.87
I x S	1	.49	.14	.38	.51
F x I x S	2	.05	1.23	1.05	1.76
S x Ss/FI	174				

\*p < .05  
 \*\*p < .01

Table 48

F - Ratios for Analyses of Variance of Scale Means  
with Item Subtlety as a Factor

Source of Variance	Degrees of Freedom	Alienation	Persecutory Ideas	Anxiety	Thinking Disorder
Faking (F)	2	191.71**	364.98**	268.38**	298.19**
Information (I)	1	.26	2.30	.00	.79
F x I	2	2.24	1.63	3.88*	.79
Ss/FI	174				
Subtlety (S)	1	14.38**	13.15**	3.76	23.73**
F x S	2	1.14	47.39**	8.10**	36.70**
I x S	1	.30	6.02*	.20	1.81
F x I x S	2	.50	1.93	2.88	1.66
S x Ss/FI	174				

\*p < .05  
\*\*p < .01

Table 48

F - Ratios for Analyses of Variance of Scale Means  
with Item Subtlety as a Factor

Source of Variance	Degrees of Freedom	Impulse Expression	Social Introversion	Self Depreciation	General Psychopathology
Faking (F)	2	125.72**	291.13**	409.05**	552.33**
Information (I)	1	2.25	1.14	.04	.69
F x I	2	2.12	3.32*	1.12	3.23*
Ss/FI	174				
Subtlety (S)	1	.34	.02	1.33	40.73**
F x S	2	.20	8.56**	7.30**	37.52**
I x S	1	.52	.00	.15	3.54
F x I x S	2	1.54	1.13	.17	.76
S x Ss/FI	174				

\*p < .05  
\*\*p < .01

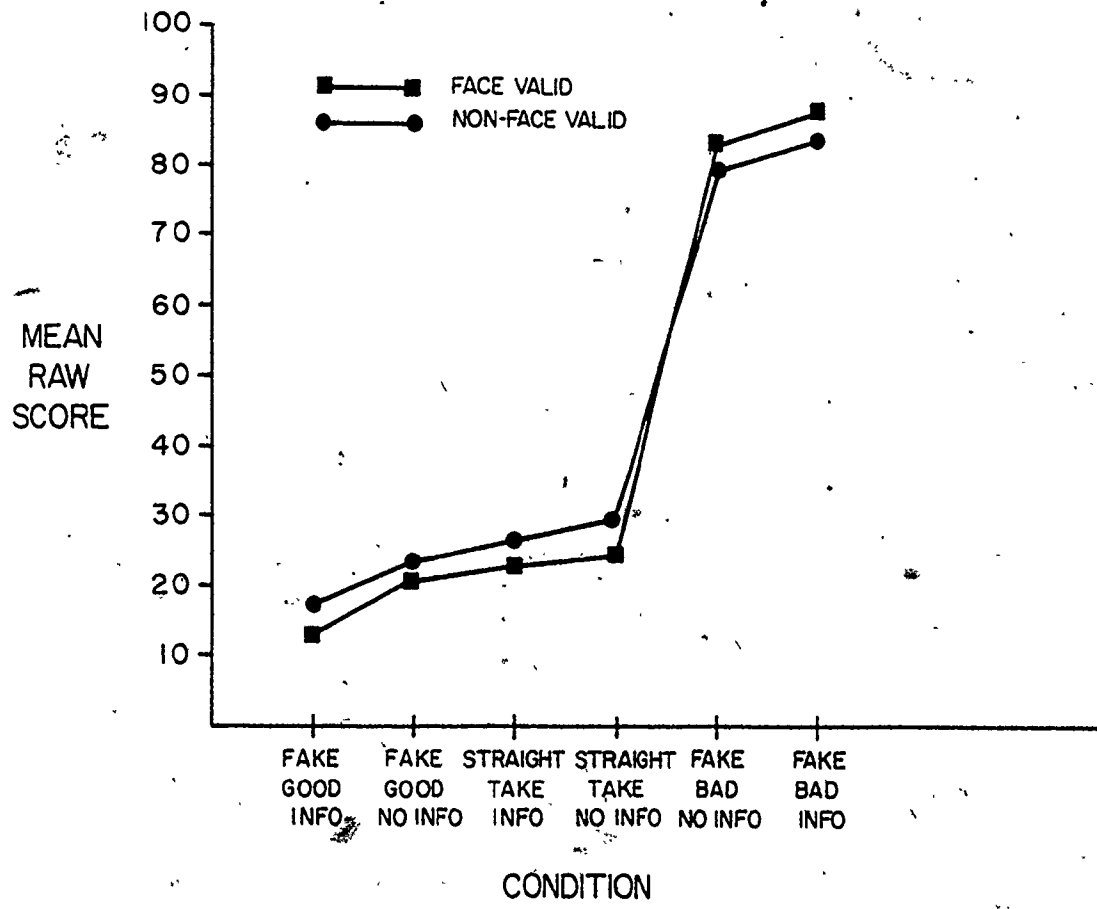


Figure 1: General Psychopathology Scores as a Function of Faking and Information Condition: Face Valid vs. Non-Face Valid Measure

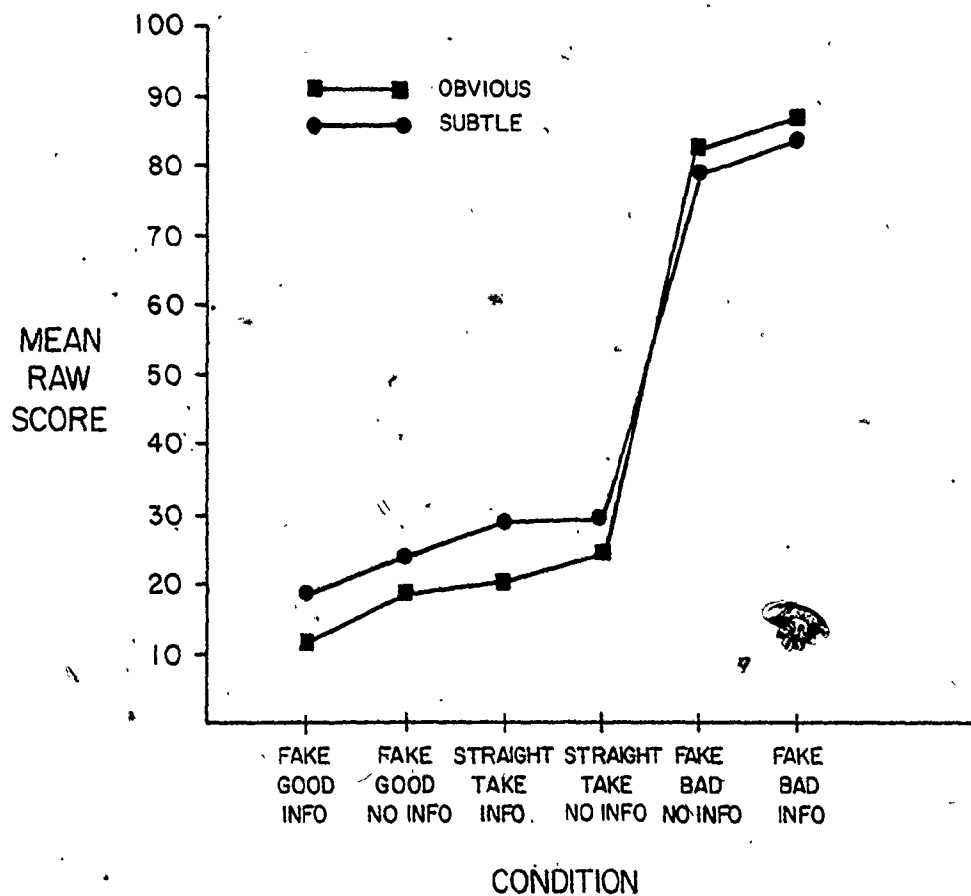


Figure 2: General Psychopathology Scores as a Function of Faking and Information Condition: Obvious vs. Subtle Measure

variance. This would make them less susceptible to experimental faking and information manipulations. Thus, the fact that non-face valid items and subtle items are less easily faked may not speak for their superiority but might argue for their relative irrelevance. That is not to say that they are irrelevant items but that they show a smaller proportion of relevance in their variance. In consideration of this, validity coefficients rather than scale scores should be the appropriate unit of analysis (Holden & Jackson, 1981).

Validity scores based on correlations of scale scores with criteria, for the different experimental conditions are reported in Tables 49 and 50 for face validity and item subtlety, respectively. Criteria were based on the sum of the standardized rating scale and adjective self reports. In order to assess the effects of the experimental manipulations on the validity of the scale scores, the validity coefficients were converted to z-score form and subjected to analyses of variance. For each of face validity and item subtlety, the analysis was based on a 3 x 2 x 2 x 11 (Faking x Information x Face Validity or Item Subtlety x Trait) design where there was no replication factor. All factors were treated as fixed effects. Because no replication factor was available, the four-way interaction term (Faking x Information x Face Validity or Item Subtlety x Trait) was treated as an estimator of the error term. Such an estimator would be expected to yield

Table 49

## Validity Coefficients as a Function of Face Validity\*.

Scale	Condition					
	Fake Good		Straight Take		Fake Bad	
	No Info	Info	No Info	Info	No Info	Info
Hypochondriasis						
Face Valid	.63	-.00	.72	.43	.05	-.02
Non-Face Valid	.48	.00	.68	.23	-.00	-.36
Depression						
Face Valid	.23	.39	.83	.65	.28	-.03
Non-Face Valid	.25	.31	.71	.59	.14	-.10
Denial						
Face Valid	.20	-.03	-.07	-.03	.03	-.20
Non-Face Valid	.26	.17	.15	.12	.22	-.12
Interpersonal Problems						
Face Valid	.29	.10	.40	.79	-.18	.04
Non-Face Valid	.37	.36	.53	.74	-.24	.07
Alienation						
Face Valid	.01	.15	.31	.11	-.10	-.04
Non-Face Valid	.10	.15	-.01	.30	-.11	-.03
Persecutory Ideas						
Face Valid	.45	.03	.26	.17	.11	-.18
Non-Face Valid	.49	-.01	.36	.20	-.04	-.10
Anxiety						
Face Valid	.02	.18	.70	.84	.07	-.25
Non-Face Valid	.08	.38	.61	.52	.13	-.04
Thinking Disorder						
Face Valid	.04	.17	.20	.53	-.10	.04
Non-Face Valid	.04	.17	.09	.33	.03	-.05
Impulse Expression						
Face Valid	.18	.40	.47	.62	-.36	-.08
Non-Face Valid	.07	.29	.23	.50	-.40	.03
Social Introversion						
Face Valid	.36	.02	.90	.57	.05	.10
Non-Face Valid	.31	.43	.78	.55	.05	.19
Self Depreciation						
Face Valid	.13	.18	.56	.39	-.12	.02
Non-Face Valid	.21	.14	.51	.74	-.09	-.12
General Psychopathology						
Face Valid	.28	.24	.78	.64	.11	-.31
Non-Face Valid	.30	.34	.57	.49	.03	-.35
Mean						
Face Valid	.24	.15	.51	.48	-.01	-.08
Non-Face Valid	.25	.23	.43	.44	-.02	-.08

\* Each validity coefficient is based on an N of 30. One-tailed significance levels of .05 and .01 correspond to correlations of .31 and .42, respectively.

Table 50

## Validity Coefficients as a Function of Item Subtlety\*

Scale	Condition					
	Fake No Info	Good- Info	Straight No Info	Take Info	Fake No Info	Bad Info
Hypochondriasis						
Obvious	.66	-.17	.64	.48	.00	-.09
Subtle	.45	.12	.74	.20	.04	-.32
Depression						
Obvious	.28	.39	.74	.49	.19	-.02
Subtle	.18	.38	.71	.64	.24	-.10
Denial						
Obvious	.23	.14	.15	.00	.22	-.02
Subtle	.22	-.01	-.08	.10	.02	-.23
Interpersonal Problems						
Obvious	.24	.17	.35	.58	-.24	.06
Subtle	.39	.32	.61	.81	-.18	.04
Alienation						
Obvious	.19	.03	.37	.18	-.16	.04
Subtle	-.12	.26	-.07	.21	.00	-.13
Persecutory Ideas						
Obvious	.44	.15	.42	.12	.04	-.22
Subtle	.48	-.11	.18	.27	.05	-.02
Anxiety						
Obvious	.16	.32	.66	.74	.18	-.10
Subtle	-.10	.24	.72	.68	.01	-.24
Thinking Disorder						
Obvious	.07	.20	.06	.41	-.11	.05
Subtle	.12	.17	.20	.34	.05	-.07
Impulse Expression						
Obvious	.14	.39	.46	.70	-.44	-.13
Subtle	.12	.29	.16	.40	-.31	.09
Social Introversion						
Obvious	.18	-.00	.91	.63	-.08	.12
Subtle	.44	.40	.74	.43	.17	.16
Self Depreciation						
Obvious	.16	.20	.56	.56	-.10	-.01
Subtle	.18	.13	.54	.67	-.12	-.10
General Psychopathology						
Obvious	.31	.29	.64	.49	.04	-.30
Subtle	.26	.32	.75	.62	.09	-.38
Mean						
Obvious	.26	.18	.50	.45	-.04	-.05
Subtle	.22	.21	.43	.45	.01	-.11

\* Each validity coefficient is based on an N of 30. One-tailed significance levels of .05 and .01 correspond to correlations of .31 and .42, respectively.



conservative tests of significance. The analyses for face validity and item subtlety are reported in Tables 51 and 52, respectively. The results reveal no effects for either face validity or item subtlety; neither as main effects nor as interactions.

Since the general psychopathology index was derived by summing scale scores as was its criterion, it was subjected to independent analyses of variance. The validity coefficient analyses examining face validity and item subtlety as factors are reported in Tables 53 and 54, respectively. For these analyses, the three-way interaction term (Faking x Information x Face Validity or Item Subtlety) was used as an estimator of the error term. Results of these analyses indicated no effects for item subtlety. With respect to face validity, a main effect indicated that, in general, face valid scales showed greater criterion validity ( $r = .34$ ) than non-face valid scales ( $r = .25$ ). More interesting is the finding of an interaction between faking and face validity. This finding is displayed in Figure 3. Examination of the simple main effects (see Table 55) shows that the face valid index has greater empirical validity under the straight take condition. No significant differences were present for either the fake good or fake bad conditions.

### Discussion

The results of this faking study demonstrate a number of important points. First, with the BPI, results indicate

Table 51

Scale Validity Coefficient ANOVA:  
Face Validity as a Factor

Source of Variance	Degrees of Freedom	Mean Square	F-Ratio
Trait (T)	10	.2112	12.35**
Faking (F)	2	3.7835	221.26**
Information (I)	1	.0480	2.81
Face Validity (FV)	1	.0087	.51
T x F	20	.1121	6.56**
T x I	10	.1595	9.33**
T x FV	10	.0238	1.39
F x I	2	.0047	.27
F x FV	2	.0471	2.75
I x FV	1	.0136	.80
T x F x I	20	.0490	2.87*
T x F x FV	20	.0183	1.07
T x I x FV	10	.0120	.70
F x I x FV	2	.0039	.23
T x F x I x FV	20	.0171	

\*p < .05  
\*\*p < .01

Table 52

Scale Validity Coefficient ANOVA:  
Item Subtlety as a Factor

Source of Variance	Degrees of Freedom	Mean Square	F-Ratio
Trait (T)	10	.1869	8.50**
Faking (F)	2	3.5290	160.41**
Information (I)	1	.0592	2.69
Subtlety (S)	1	.0162	.74
T x F	20	.1113	5.06**
T x I	10	.1471	6.69**
T x S	10	.0237	1.08
F x I	2	.0026	.12
F x S	2	.0157	.71
I x S	1	.0054	.25
T x F x I	20	.0460	2.09
T x F x S	20	.0325	1.48
T x I x S	10	.0091	.41
F x I x S	2	.0322	1.46
T x F x I x S	20	.0220	

\*p < .05  
\*\*p < .01

Table 53

General Psychopathology Index  
 Validity Coefficient ANOVA:  
 Face Validity as a Factor

Source of Variance	Degrees of Freedom	Mean Square	F-Ratio
Faking (F)	2	.7890	657.70**
Information (I)	1	.1226	102.17**
Face Validity (FV)	1	.0307	25.58*
F x I	2	.0424	35.33*
F x FV	2	.0367	30.58*
I x FV	1	.0077	6.42
F x I x FV	2	.0012	

\*p < .05  
 \*\*p < .01

Table 54

General Psychopathology Index  
Validity Coefficient ANOVA:  
Item Subtlety as a Factor

Source of Variance	Degrees of Freedom	Mean Square	F-Ratio
Faking (F)	2	.7854	224.40**
Information (I)	1	.1355	38.71*
Subtlety (S)	1	.0084	2.40
F x I	2	.0454	12.97
F x S	2	.0153	3.51
I x S	1	.0005	.14
F x I x S	2	.0035	

\*p < .05  
\*\*p < .01

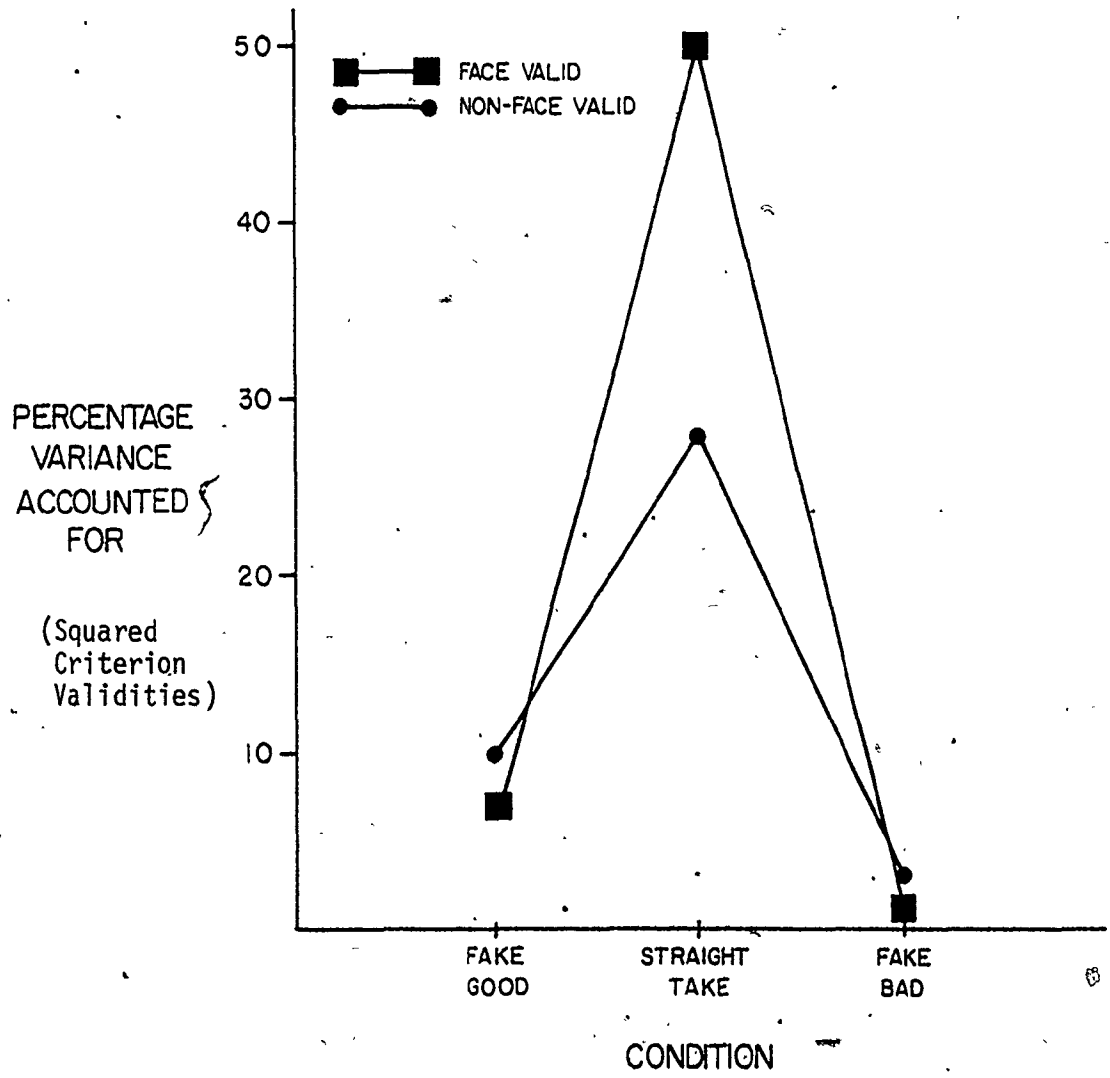


Figure 3: Percentage of Criterion Variance Accounted for as a Function of Faking and Information Condition: Face Valid vs. Non-Face Valid Measure of General Psychopathology

Table 55

Simple Main Effects Test  
for Face Validity x Faking Interaction

Source of Variance	Degrees of Freedom	Mean Square	F-Ratio
Face Validity at Fake Good Condition	1	.0011	.88
Face Validity at Straight Take Condition	1	.0240	20.02*
Face Validity at Fake Bad Condition	1	.0011	.88
Error	2	.0012	

\*  $p < .05$

that it is quite possible to experimentally manipulate test scores. Such distortions are possible both through manipulating faking instructions and through altering information conditions. Furthermore, these distortions may be so extreme as to introduce both ceiling and floor effects. Consequently, interpretative caution is necessary in considering further analyses.

Second, there exists a flaw in the reasoning that states that less easily faked items or scales will be more valid under faking conditions. The complement of this which states that the most valid items are those which are not readily distorted and are non-obvious does not follow at all. Irrelevant variance not only may prevent intended faking but might cause the item to be less relevant.

Third, the appropriate evaluation of the relative efficacy of face valid versus non-face valid and subtle versus obvious items is in terms of validity coefficients, not scale scores. The covariation of scales with relevant criterion is the key to evaluating utility. This particular study has employed a number of self-report criteria. Although it might be argued that this nature of the criteria invalidates them, evidence from Study III (see Tables 28, 29, and 30) supports the notion that these criteria show appropriate convergent and discriminant validity and that they correspond with more objective criteria such as roommate ratings.



Fourth, results of the analysis of the scale validities for the 11 BPI constructs under the various experimental conditions suggest no effects for either face validity or item subtlety. In terms of utility, these results would support a face valid and obvious approach to test item writing and selection. With an emphasis on content validity, the production of more remote and obscure manifestations of trait exemplars is both more costly and time-consuming. Nevertheless, at the individual scale level, one must be aware that these findings may be affected by manipulation ceiling and floor effects.

Fifth, at the level of a general psychopathology index and, consequently, not subject to the same floor and ceiling effects, results argue for a face valid approach. In general, and particularly under straight take conditions, face valid items prove to be empirically superior to the non-face valid items.

## CHAPTER X

### GENERAL DISCUSSION AND CONCLUSIONS

The present series of studies has sought to approach the measurement of face validity and item subtlety in a manner consistent with the typical assessment situation in which respondents are not advised as to the particular personality dimensions being measured. Whereas previous studies have typically provided subjects with substantive definitions of traits and/or criteria, this study allows for the unconstrained generation of behavioral categories. Using such a procedure it has been possible to demonstrate that personality categories are differentially accessible to judges. Despite the use of an unbiased, free response technique, however, reliable judgments of test item content were found.

The findings support the efficacy of a rational approach to test construction. The face validity or contextual relevance of test items is significantly related to their criterion validity. This relationship does not support the contention (Adams & Butler, 1967) that particular test item content is irrelevant. Adams (1967), in defense of the deviation hypothesis, admitted that although the most valid test instruments may be those with content validity, nothing was implied about face validity. It appears, therefore, that this argument has not been borne out. In a set of items possessing content validity, the more face valid items demonstrate greater criterion

validity, at least for those criteria employed in the present study.

With regard to item subtlety, the relationship is not as straightforward. As Jackson (1971) has suggested, the interpretation of subtlety is appropriately made in terms of a particular personality dimension, a point distinct from common interpretations of subtlety that emphasize desirability. The present results support the idea that subtlety should take into account not only item characteristics but characteristics of the traits being measured; items varied in subtlety not only within scales but also between scales. Possible influences affecting trait heterogeneity in item subtlety might include trait desirability, trait accessibility, the unity of the trait, and the frequency of occurrence of trait exemplars in the real world.

These results are inconsistent with a strictly empirical approach to test construction. Blind, empirical item development and selection without regard for item contextual relevance, although possibly effective, are clearly less efficient than a more theoretical approach. In addition, blind development and selection ignores any theoretical, substantive considerations (cf. Ashton & Goldberg, 1973; Jackson, 1975c).

This study also emphasizes that face validity and item subtlety are distinct concepts that are not mutually

exclusive. Face validity refers to the contextual relevance of test items, whereas subtlety refers to the lack of an obvious substantive link between test item content and its underlying dimension. The results provide little support for the belief (Duff, 1965) that face validity and item subtlety are bipolar concepts -- the correlation between measures of these concepts in this study was  $-.30$ . Although this value will obviously vary as a function of the particular traits, items, persons, and situations sampled, it does suggest only a moderately strong relationship. As has been previously noted, the use of face valid items gives the test respondent a sense of having undergone a fair, relevant evaluation. But a degree of disguise of content may be essential to reduce the possibility of faking.

It might be argued that the construct-oriented scale construction strategy used in developing the BPI might have set the stage for the subsequent finding that face valid items are the most criterion valid because the inclusion of subtle items was never considered. But, if anything, the use of BPI items would lead to a restriction of range for face validity (see Tables 15 to 25). This restriction of range would lead to an attenuation of the correlation of face validity and criterion validity, suggesting that this study conservatively evaluates this relationship. Furthermore, a perusal of Tables 15 to 25 reveals a substantial degree of subtlety, as well as an extensive range, in the pool of items employed.

Although some authors have implied that subtle items may be more appropriate in the measurement of undesirable traits, this study found no consistent evidence that desirability mediates the relationship of either face validity or item subtlety with criterion validity. (In fact, contrary to expectations, data suggest that with more undesirable dimensions items with greater face validity do show some evidence of greater empirical validity.) The mediating variable that did prove to influence criterion validity was construct accessibility. With the more accessible constructs, the more subtle items demonstrated greater empirical validity. This finding is certainly worthy of further investigation.

Desirability and construct accessibility were also examined experimentally by manipulating faking instructions and information conditions. Results indicated that both factors may affect the validity of self-report. In terms of specific traits neither of these factors interacted with either face validity or item subtlety. This finding clearly contradicts the theoretical notion that where distortion in terms of desirability is present, disguise is an asset. At the level of general psychopathology, a face validity by faking interaction revealed not only that during normal straight take conditions, face valid items were empirically superior, but perhaps more importantly, under conditions of faking, non-face valid items did not emerge as having greater criterion validity. Again, such findings are

contrary to the expectations of those who advocate the rôle of disguise in assessment. Although it might be argued that the criteria used in the faking study are inadequate in that they are also self-descriptive, it must be pointed out that these criteria have been shown to possess substantial convergent and discriminant validity with more objective peer evaluation (see Tables 28 through 30).

Therefore, in general, it appears that with the structured assessment of psychopathology, little utility is to be gained through the deliberate use of disguise in test items. The onus of proof must shift to those who would advocate the use of deceptive approaches to structured personality measurement (Hamsher, 1969). Although this research has yet to be extended to clinical samples or into the domain of unstructured assessment, research (Albert, Fox, & Kahn, 1980) tentatively suggests that somewhat similar disappointing results for disguise may be found with projective testing. It might be even suggested that self-report tests be used only when test respondents are motivated to answer honestly (Thornton & Gierasch, 1980). Thus, it might be concluded that with structured assessment the most valid results may be obtained through the use of direct questions with cooperative subjects. Furthermore when motivation to distort self-report in terms of desirability occurs, the subtle content of self-report questionnaires appears not to be any less susceptible to faking.

## Conclusions

1. Face validity (i.e., contextual relevance) and item subtlety (i.e., lack of an obvious substantive link) refer to relatively independent concepts.
2. Behavioral dimensions are differentially accessible to individual judges.
3. In general, the most empirically valid items were obvious and face valid items, however, some evidence suggested that construct accessibility might mediate the relationship of item obviousness with criterion validity.
4. No evidence was found to suggest that subtle or non-face valid approaches to structured personality assessment are superior in instances in which distortion of self-presentation occurs.
5. Although yet to be extended to clinical populations or to other areas, such as projective testing, data suggest that the onus of proof must shift to those who would advocate disguised approaches to personality measurement.

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FOOTNOTES

1 This study does not seek to draw a distinction between construct availability and construct accessibility (e.g., Higgins & King, 1980). References to construct accessibility refer to the relative salience of individual behavioral dimensions.



## References

Adams, H. E. Comment. Journal of Counseling Psychology, 1967, 14, 472-473.

Adams, H. E., & Butler, J. R. The deviation hypothesis: A review of the evidence. In I. A. Berg (Ed.), Response set in personality assessment. Chicago: Aldine, 1967.

Albert, S., Fox, H. M., & Kahn, M. W. Faking psychosis on the Rorschach: Can expert judges detect malingering? Journal of Personality Assessment, 1980, 44, 115-119.

American Psychological Association. Standards for educational & psychological tests. Washington: APA, 1974.

Ashton, S. G., & Goldberg, L. R. In response to Jackson's challenge: The comparative validity of personality scales constructed by the external (empirical) strategy and scales developed intuitively by experts, novices, and laymen. Journal of Research in Personality, 1973, 7, 1-20.

Beck, A. T. Depression: Clinical, experimental, and theoretical aspects. New York: Harper & Row, 1967.

Berg, I. A. Deviant responses and deviant people: The formulation of the Deviation Hypothesis. Journal of Counseling Psychology, 1954, 4, 154-161.

Berg, I. A. The Deviation Hypothesis. A broad statement of its assumptions and postulates. In I. A. Berg (Ed.), Response set in personality assessment. Chicago: Aldine, 1967.

Braun, J. R., & Asta, P. Changes in Personality Research Form scores (PRF, Form A) produced by faking instructions. Journal of Clinical Psychology, 1969, 25, 429-430.

Burkhart, B. R., Christian, W. L., & Gynther, M. D. Item subtlety and faking on the MMPI: A paradoxical relationship. Journal of Personality Assessment, 1978, 42, 76-80.

Burkhart, B. R., Gynther, M. D., & Christian, W. L. Psychological mindedness, intelligence, and item subtlety endorsement patterns on the MMPI. Journal of Clinical Psychology, 1978, 34, 76-79.

Burkhart, B. R., Gynther, M. D., & Fromuth, E. The relative predictive validity of subtle vs. obvious items on the MMPI Depression scale. Journal of Clinical Psychology, 1980, 36, 748-751.

- Christian, W. L., Burkhart, B. R., & Gynther, M. D.  
Subtle-obvious ratings of MMPI items: New interest in  
an old concept. Journal of Consulting and Clinical  
Psychology, 1978, 46, 1178-1186.
- Cronbach, L. J. Essentials of psychological testing. (3rd  
ed.), New York: Harper & Row, 1970.
- Cronbach, L. J., & Meehl, P. E. Construct validity in  
psychological tests. Psychological Bulletin, 1955, 52,  
281-302.
- Curran, J. P., & Cattell, R. B. Manual for the Eight  
State Questionnaire. Champaign, Ill.: IPAT, 1976.
- Dewey, M. Employers take hard look at the validity and  
value of psychological screening. Globe and Mail,  
February 7, 1981, p. B1.
- Dick, W. & Hagerty, N. Topics in measurement. Toronto:  
McGraw-Hill, 1971.
- Dubois, P. H. A history of psychological testing. Boston:  
Allyn & Bacon, 1970.
- Duff, F. L. Item subtlety in personality inventory scales.  
Journal of Consulting Psychology, 1965, 29, 565-570.

Edwards, A. L. The measurement of personality traits by scales and inventories. New York: Holt, Rinehart & Winston, 1970.

Ellis, A. The validity of personality questionnaires. Psychological Bulletin, 1946, 43, 385-440.

Evans, D. R., Csapo, K., Gliksman, L., & Covvey, H. D. Design and implementation of an Automated Psychological Evaluation System (APES). Research Bulletin No. 307, Department of Psychology, The University of Western Ontario, London, Canada, 1974.

Frank, L. F. Projective methods. Springfield, Ill.: C. C. Thomas, 1948.

Goldberg, L. R. A historical survey of personality scales and inventories. In P. McReynolds (Ed.), Advances in psychological assessment. (Vol. 2), Palo Alto, Cal.: Science and Behavior Books, 1971.

Goldberg, L. R. & Slovic, P. Importance of test item content: An analysis of a corollary of the Deviation Hypothesis. Journal of Counseling Psychology, 1967, 14, 462-472.

Goodenough, F. L. Semantic choice and personality structure. Science, 1946, 104, 451-456.

Gough, H. G. An interpreter's syllabus for the California Psychological Inventory. In P. McReynolds (Ed.), Advances in psychological assessment (Vol. 1). Palo Alto, Calif.: Science & Behavior Books, 1968.

Guion, R. M. Content validity -- The source of my discontent. Applied Psychological Measurement, 1977, 1, 1-10.

Gynther, M. D., Burkhardt, B. R., & Hovanitz, C. Do face-valid items have more predictive validity than subtle items? The case of the MMPI Pd scale. Journal of Consulting and Clinical Psychology, 1979, 47, 295-300.

Hamsher, J. H. Disguise of purpose in psychological testing. Proceedings of the 77th Annual Convention of the American Psychological Association, 1969, 4, 141-142. (Summary)

Harman, H. H. Modern factor analysis (3rd ed.). Chicago: University of Chicago Press, 1976.

Helmes, E., & Jackson, D. N. The item factor structure of the Personality Research Form. Applied Psychological Measurement, 1977, 1, 185-194.

Heymans, G., & Wiersma, E. Beitrage zur Speziellen Psychologie auf Grund einer Massenuntersuchung. Zeitschrift fur Psychologie, 1906, 43, 81-127, 258-301.

Higgins, E. T., & King, G. Accessibility of social constructs: Information processing consequences of individual and contextual variability. In N. Cantor and J. F. Kihlstrom (Eds.), Cognition, social interaction, and personality. Hillsdale, New Jersey: Lawrence Erlbaum Associates, 1980.

Higgins, E. T., Rholes, W. S., & Jones, C. R. Category accessibility and impression formation. Journal of Experimental Social Psychology, 1977, 13, 141-154.

Hoffmann, H. Performance on the Personality Research Form under desirable and undesirable instructions: Personality disorders. Psychological Reports, 1968, 23, 507-510.

Hoffmann, H., Jackson, D. N., & Skinner, H. A. Dimensions of psychopathology among alcoholic patients. Journal of Studies on Alcohol, 1975, 36, 825-837.

Holden, R. R.; Burton, H. J., & Conley, J. Psychological correlates of adjustment to continuous ambulatory peritoneal dialysis: Normative and clinical data. Unpublished manuscript, 1981.

Holden, R. R., Helmes, E., Fekken, G. C., & Jackson, D. N. Person reliability and psychopathology. Manuscript in preparation, 1982.

Holden, R. R., Helmes, E., & Howe, M. G. Evaluation of psychological screening tests at London Psychiatric Hospital. Education and Research Bulletin, 1979, 2, (Vol. II), 1-25, London Psychiatric Hospital, London, Ontario, Canada.

Holden, R. R., Helmes, E., Jackson, D. N., & Fekken, G. C. Diagnostic efficiency of the Basic Personality Inventory. In preparation, 1982.

Holden, R. R., & Jackson, D. N. Item subtlety and face validity in personality assessment. Journal of Consulting and Clinical Psychology, 1979, 47, 459-468.

Holden, R. R. & Jackson, D. N. Subtlety, faking, and information effects in personality assessment. Journal of Clinical Psychology, 1981, 37, 379-386.

Holden, R. R., Reddon, J. R., Jackson, D. N., & Helmes, E. Construct oriented measurement of psychopathology: Item factor structure of the Basic Personality Inventory. In preparation, 1982.

Hovanitz, C. A., & Gynther, M. D. The prediction of impulsive behavior: Comparative validities of obvious vs. subtle MMPI Hypomania (MA) items. Journal of Clinical Psychology, 1980, 36, 422-427.

Jackson, D. N. The dynamics of structured personality tests: 1971. Psychological Review, 1971, 78, 229-248.

Jackson, D. N. Structured personality assessment. In B. B. Wolman (Ed.), Handbook of general psychology. New Jersey: Prentice-Hall, 1973.

Jackson, D. N. Personality Research Form Manual. (Rev. ed.), Port Huron, Mich.: Research Psychologists Press, 1974.

Jackson, D. N. Orthogonal components of psychopathology: A fresh approach to measuring the constructs underlying MMPI clinical scales. Paper presented at the Society of Multivariate Experimental Psychology, Oregon, November, 1975. (a)

Jackson, D. N. Multimethod factor analysis: A reformulation. Multivariate Behavioral Research, 1975, 10, 259-275. (b)

Jackson, D. N. The relative validity of scales prepared by naive item writers and those based on empirical methods of personality scale construction. Educational and Psychological Measurement, 1975, 35, 361-370. (c)



Jackson, D. N. The Basic Personality Inventory. London, Canada: Author, 1976.

Jackson, D. N. Distinguishing trait and method variance in multitrait-multimethod matrices: A reply to Golding. Multivariate Behavioral Research, 1977, 12, 99-110.

Jackson, D. N., & Messick, S. The Differential Personality Inventory. London, Canada: Authors, 1971.

Jackson, D. N., & Paunonen, S. V. Personality structure and assessment. Annual Review of Psychology, 1980, 31, 503-551.

Kilduff, R. A. Reliability and faking susceptibility of the Basic Personality Inventory. Unpublished master's thesis, Department of Psychology, The University of Rhode Island, 1979.

Kirk, R. E. Experimental design: Procedures for the behavioral sciences. Belmont, Cal.: Brooks/Cole, 1968.

Kroger, R. O., & Turnbull, W. Invalidation of validity scales: The case of the MMPI. Journal of Consulting and Clinical Psychology, 1975, 43, 48-55.

- Lawshe, C. H. A quantitative approach to content validity. Personnel Psychology, 1975, 28, 563-575.
- Lennox, R. T. Assumptions underlying the use of content validity. Educational and Psychological Measurement, 1956, 16, 294-304.
- Löevinger, J. Objective tests as instruments of psychological theory. Psychological Reports, 1957, 3, 635-694.
- MacPhillamy, D. J., & Lewinsohn, P. M. Depression as a function of desired and obtained pleasure. Journal of Abnormal Psychology, 1974, 83, 651-657.
- Marascuilo, L. A., & McSweeney, M. Nonparametric and distribution-free methods for the social sciences. Belmont, Calif.: Brooks/Cole, 1977.
- McCall, R. J. Face Validity in the D scale of the MMPI. Journal of Clinical Psychology, 1958, 14, 77-80.
- McNair, D. M., Lorr, M., & Droppleman, L. F. Manual for the Profile of Mood States. San Diego: Educational and Industrial Testing Service, 1971.
- Meehl, P. E. The dynamics of "structured" personality tests. Journal of Clinical Psychology, 1945, 1, 296-303.

Mehlman, B., & Rand, M. E. Face validity of the MMPI.  
Journal of General Psychology, 1960, 63, 171-178.

Mischel, W. Introduction to personality. Toronto: Holt,  
Rinehart and Winston, 1971.

Mosier, C. I. A critical examination of the concepts of  
face validity. Educational and Psychological  
Measurement, 1947, 7, 191-205.

Norman, W. T. Relative importance of test item content.  
Journal of Consulting Psychology, 1963, 27, 166-174.

Paitich, D., & Crawford, G. A multiple-choice version of  
the Wais vocabulary. Unpublished manuscript, Clarke  
Institute of Psychiatry, Toronto, Canada, 1970.

Rabin, A. I. Projective methods: An historical  
introduction. In A. I. Rabin (Ed.), Projective  
techniques in personality assessment. New York:  
Springer, 1968.

Reddon, J. R. Rural-urban personality and adjustment among  
Alberta high school youth. Unpublished master's  
thesis, Department of Rural Economy, The University of  
Alberta, 1980.

Rorschach, H. Psychodiagnostik. Bern, Switzerland: Huber, 1921.

Rosen, A. Differentiation of diagnostic groups by individual MMPI scales. Journal of Consulting Psychology, 1958, 22, 453-457.

Rosenberg, S., & Sedlak, A. Structural representations of perceived personality trait relationships. In A. K. Romney, R. N. Shepard, & S. B. Nerlove (Eds.), Multidimensional scaling. Vol. 2, New York: Seminar Press, 1972.

Schmidt, H. O., Fonda, C. P., & Lester, J. R. Rorschach behavior as an index of color anaesthesia. Journal of Psychology, 1955, 40, 95-102.

Sechrest, L., & Jackson, D. N. The generality of deviant response tendencies. Journal of Consulting Psychology, 1962, 26, 395-401.

Seeman, W. "Subtlety" in structured personality tests. Journal of Consulting Psychology, 1952, 16, 278-283.

Seeman, W. Concept of "Subtlety" in structured psychiatric and personality tests: An experimental approach. Journal of Abnormal and Social Psychology, 1953, 48, 239-247.

Skinner, H. A. A model of psychopathology based on the MMPI. In C. S. Newmark (Ed.), MMPI: Current clinical and research trends. New York: Praeger, 1979.

Sobel, D. Testing the psyche can strain belief. New York Times, September 28, 1980, Section 4, p. 22.

Stricker, L. J. "Test-wiseness" on personality scales. Journal of Applied Psychology, 1969, 53, 1-18.

Stricker, L. J., Jacobs, P. I., & Kogan, N. Trait interrelations in implicit personality theories and questionnaire data. Journal of Personality and Social Psychology, 1974, 30, 198-207.

Thornton, III, G. C., & Gierasch, III, P. F. Fakability of - an empirically derived selection instrument. Journal of Personality Assessment, 1980, 44, 48-51.

Turner, S. P. The concept of face validity. Quality and Quantity, 1979, 13, 85-90.

Uebersax, J. S. The structural analysis of diagnostic disagreements. Paper presented at the American Psychological Association Annual Convention, Los Angeles, August, 1981.

Wechsler, D. WAIS manual. New York: The Psychological Corporation, 1955.

Wiener, D. N. Subtle and obvious keys for the Minnesota Multiphasic Personality Inventory. Journal of Consulting Psychology, 1948, 12, 164-170.

Wiggins, J. S. Personality and prediction: Principles of personality assessment. Reading, Mass.: Addison-Wesley, 1973.

Woodworth, R. S. Personal Data Sheet. Stoetling: Chicago, 1917.

Zuckerman, M. Preliminary manual with scoring keys and norms for Form V of the Sensation Seeking Scale. Unpublished manuscript, University of Delaware, 1977.

Appendix A

Letters of Ethical Approval

## THE UNIVERSITY OF WESTERN ONTARIO

Department of Psychology

MEMORANDUM

June 12, 1980.

TO: Ron Holden  
FROM: W. J. McClelland *WJM*  
SUBJECT: RESEARCH INVOLVING HUMAN SUBJECTS.

---

Your research protocol titled: Desirability of  
Psychopathological Construct

---

has been examined on June 12, 1980  
and I recommend Proceed as outlined but mention orally the  
confidential - no name nature of the task.

---



## THE UNIVERSITY OF WESTERN ONTARIO

Department of Psychology

MEMORANDUM

July 21, 1980

TO: Ron Holden  
FROM: W. J. McClelland *WJM*  
SUBJECT: RESEARCH INVOLVING HUMAN SUBJECTS

---

Your research protocol titled: "Personality test  
item identification"

---

has been examined on July 14, 1980

and I recommend Proceed as outlined

---

---

THE UNIVERSITY OF WESTERN ONTARIO

Department of Psychology

MEMORANDUM

January 22, 1981.

TO: Ron Holden  
FROM: W. J. McClelland *WJM*  
SUBJECT: RESEARCH INVOLVING HUMAN SUBJECTS

---

Your research protocol titled: Validation of the  
Basic Personality Inventory

---

has been examined on January 21, 1981  
and I recommend Proceed as outlined with every effort to  
preserve confidentiality of responses.

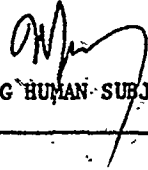
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## THE UNIVERSITY OF WESTERN ONTARIO

Department of Psychology

MEMORANDUM

November 18, 1980.

TO: Ron Holden  
FROM: W. J. McClelland   
SUBJECT: RESEARCH INVOLVING HUMAN SUBJECTS

---

Your research protocol titled: Instructional effects  
on personality assessment

---

has been examined on November 17, 1980  
and I recommend Proceed as outlined with particular care on  
annonymity of respondents.

---

Appendix B

Materials for Judging the Desirability  
of the BPI Constructs

## Desirability Judgments

Sex \_\_\_\_\_

Age \_\_\_\_\_

Dear Colleague;

As part of my interest in the assessment of psychopathology, I am interested in people's conceptions of the relative desirability of various psychopathological constructs. In this regard, I hope that you will spare 5 to 15 minutes of your time to complete a small task.

On the following two pages you will find a list of 11 trait names, each accompanied by descriptions of high and low trait scorers. Please read over these trait names and descriptions carefully. When you have completed this, I would like you to turn to the next page and rank order the trait names in terms of the desirability of the traits. This may be done by writing in the trait names in the spaces provided.

Thank you for your cooperation.

Ron Holden

SSC 6406

BASIC PERSONALITY INVENTORYSCALE DESCRIPTIONS

<u>SCALE</u>	<u>LOW SCORER</u>	<u>HIGH SCORER</u>
Hypochondriasis	Is without excessive bodily concern or preoccupation with physical complaints. Absenteeism due to ill health likely to be below average.	Frequently thinks he is sick. Complains regularly of peculiar pains or bodily dysfunctions. Discusses such topics, frequently revealing a preoccupation with his complaints.
Depression	Reports a usual feeling of confidence, cheerfulness, and persistence, even when experiencing disappointment. Has an optimistic attitude about his future.	Inclines to be down-hearted and show extreme despondency; considers himself to be inadequate; may be listless, remote and preoccupied; looks at his future pessimistically.
Denial	Accepts his feelings as part of himself; not afraid to discuss unpleasant topics. Can answer questions about himself frankly; avoids impression management. Shows normal affect.	Lacks insight into his feelings and the causes of his behavior. Avoids unpleasant, exciting or violent topics. Relatively unresponsive emotionally.
Interpersonal Problems	Experiences less than average irritation from noise, changes in routine, disappointment and mistakes of others; respects authority and prefers clearly defined rules and regulations; cooperates fully with leadership and readily accepts criticism from others.	Is often extremely annoyed by little inconveniences, frustrations or disappointments; will frequently be uncooperative, disobedient, and resistant when faced with rules and regulations; reacts against discipline and criticism.

<u>SCALE</u>	<u>LOW SCORER</u>	<u>HIGH SCORER</u>
Alienation	Ordinarily displays ethical and socially responsible attitudes and behavior; reports a sense of obligation toward society and its laws.	Expresses attitudes markedly different from common social codes; is prone to depart from the truth and behave in an unethical and untrustworthy manner; feels little or no guilt.
Persecutory Ideas	Trusts others and doesn't feel threatened. Accepts responsibility for the events in his life and doesn't attribute maliciousness to others.	Believes that certain people are against him and are trying to make his life difficult and unpleasant. Inclined to brood.
Anxiety	Remains calm and unruffled even when confronted by unexpected occurrences. Takes things as they come without fear or apprehension. Maintains self control even in a crisis situation.	Easily scared. Little things, even an idea, can throw him into a frenzy of anxiety. Afraid of novelty and of the possibility of physical or interpersonal danger.
Thinking Disorder	Has no difficulty distinguishing his daydreams from reality. Is able to concentrate normally and to maintain sensible conversations.	Is markedly confused, distractable and disorganized. Cannot remember even simple things from day to day. Reports that he feels he is living in dream-like world, that people appear different to him and that he feels different from them.
Impulse Expression	Appears to be even-tempered and level-headed; carefully considers the future before acting; generally has the patience to cope with a lengthy and tedious task.	Lacks ability to think beyond the present and to consider the consequences of his action; is prone to undertake risky and reckless actions; inclined to behave irresponsibly; finds routine tasks boring.

<u>SCALE</u>	<u>LOW SCORER</u>	<u>HIGH SCORER</u>
Social Introversion	Enjoys company. Likes to talk and knows many people. Spends much of his time with others.	Avoids people generally. Has few friends and doesn't say much to those he has. Seems to be uncomfortable when around others. Prefers social activities.
Self Depreciation	Manifests a high degree of self-assurance in dealings with others. Not afraid to meet strangers; speaks with confidence about a variety of topics; believes in his own ability to accomplish things.	Degrades himself as being worthless, unpleasant, and undeserving. Generally expresses a low opinion of himself and refuses credit for any accomplishment.



Please write the trait names in the spaces you judge to  
be appropriate.

- Most Desirable
1. \_\_\_\_\_
  2. \_\_\_\_\_
  3. \_\_\_\_\_
  4. \_\_\_\_\_
  5. \_\_\_\_\_
  6. \_\_\_\_\_
  7. \_\_\_\_\_
  8. \_\_\_\_\_
  9. \_\_\_\_\_
  10. \_\_\_\_\_
- Least Desirable 11. \_\_\_\_\_

Thank you for your help.

Appendix C

Instructions for the  
BPI Item Sorting Task

INSTRUCTIONS

You are being presented with a series of items that might be found on a psychological test designed to assess psychological or psychiatric disorders.

Your job is to sort these items into groups.

Each item will be on a card. Go through the items and sort into groups those items that belong together because they refer to the same psychological problem or to its direct opposite. For example, "I am clever", "I am stupid", and "I am of average intelligence" would all belong together in one group. "I am crazy" and "I am sane" would belong together in another group. You may have as many or as few groups as you wish, and you may have as many or as few items in a group as you wish. If an item does not seem to fit into any of the groups, you may put it into a "miscellaneous" group.

Now once you have finished this, please write a brief description of each group of items (except the "miscellaneous" group) stating the basis or psychological disorder along which you grouped the items. Please place each description with its corresponding group of items.

Please work quickly, but carefully.

When you have finished this, raise your hand and the experimenter will present you with further instructions.

INSTRUCTIONS\*

Now without re-sorting any of the items or changing your group descriptions, look through the accompanying sheets and see if any of your group descriptions (except the "miscellaneous" group) might refer to a particular scale. For each group description, if you feel that it refers to a particular scale, write down the name of that scale below your group description, or if your group description does not appear to refer to any of the scales, write "none" below your group description. Please choose a maximum of two scale names for each group description and underline the most appropriate one.

\* This material was presented to subjects only after completion of the task on the previous page.

BASIC PERSONALITY INVENTORYSCALE DESCRIPTIONS

<u>SCALE</u>	<u>LOW SCORER</u>	<u>HIGH SCORER</u>
Hypochondriasis	Is without excessive bodily concern or preoccupation with physical complaints. Absenteeism due to ill health likely to be below average.	Frequently thinks he is sick. Complains regularly of peculiar pains or bodily dysfunctions. Discusses such topics, frequently revealing a preoccupation with his complaints.
Depression	Reports a usual feeling of confidence, cheerfulness, and persistence, even when experiencing disappointment. Has an optimistic attitude about his future.	Inclines to be down-hearted and show extreme despondency; considers himself to be inadequate; may be listless, remote and preoccupied; looks at his future pessimistically.
Denial	Accepts his feelings as part of himself; not afraid to discuss unpleasant topics. Can answer questions about himself frankly; avoids impression management. Shows normal affect.	Lacks insight into his feelings and the causes of his behavior. Avoids unpleasant, exciting or violent topics. Relatively unresponsive emotionally.
Interpersonal Problems	Experiences less than average irritation from noise, changes in routine, disappointment and mistakes of others; respects authority and prefers clearly defined rules and regulations; cooperates fully with leadership and readily accepts criticism from others.	Is often extremely annoyed by little inconveniences, frustrations or disappointments; will frequently be uncooperative, disobedient, and resistant when faced with rules and regulations; reacts against discipline and criticism.

<u>SCALE</u>	<u>LOW SCORER</u>	<u>HIGH SCORER</u>
Alienation	Ordinarily displays ethical and socially responsible attitudes and behavior; reports a sense of obligation toward society and its laws.	Expresses attitudes markedly different from common social codes; is prone to depart from the truth and behave in an unethical and untrustworthy manner; feels little or no guilt.
Persecutory Ideas	Trusts others and doesn't feel threatened. Accepts responsibility for the events in his life and doesn't attribute maliciousness to others.	Believes that certain people are against him and are trying to make his life difficult and unpleasant. Inclined to brood.
Anxiety	Remains calm and unruffled even when confronted by unexpected occurrences. Takes things as they come without fear or apprehension. Maintains self control even in a crisis situation.	Easily scared. Little things, even an idea, can throw him into a frenzy of anxiety. Afraid of novelty and of the possibility of physical or interpersonal danger.
Thinking Disorder	Has no difficulty distinguishing his daydreams from reality. Is able to concentrate normally and to maintain sensible conversations.	Is markedly confused, distractable and disorganized. Cannot remember even simple things from day to day. Reports that he feels he is living in dream-like world, that people appear different to him and that he feels different from them.
Impulse Expression	Appears to be even-tempered and level-headed; carefully considers the future before acting; generally has the patience to cope with a lengthy and tedious task.	Lacks ability to think beyond the present and to consider the consequences of his action; is prone to undertake risky and reckless actions; inclined to behave irresponsibly; finds routine tasks boring.

SCALELOW SCORERHIGH SCORERSocial Introversion

Enjoys company. Likes to talk and knows many people. Spends much of his time with others.

Avoids people generally. Has few friends and doesn't say much to those he has. Seems to be uncomfortable when around others. Prefers social activities.

Self Depreciation

Manifests a high degree of self-assurance in dealings with others. Not afraid to meet strangers; speaks with confidence about a variety of topics; believes in his own ability to accomplish things.

Degrades himself as being worthless, unpleasant, and undeserving. Generally expresses a low opinion of himself and refuses credit for any accomplishment.

Appendix D

Materials for the  
BPI Item Validity Study



## Room-mate Rating

Below are listed a series of scales with a pair of descriptive phrases at each end. Your task is to rate your room-mate on each scale.

Look at this example:

playful 1 2 3 4 5 6 7 8 9 serious  
noisy 1 2 3 4 5 6 7 8 9 quiet

This person circled a "9" indicating that he/she considers his/her room-mate to be extremely serious; and "4" indicating that the room-mate is somewhat noisy. You may have used different categories for your room-mate.

In a similar manner, circle on this form the number corresponding to your rating of your room-mate. Try to use all nine scale points. Do not leave any scales blank.

enjoys good health	1	2	3	4	5	6	7	8	9	frequently complains of illness
sad, depressed	1	2	3	4	5	6	7	8	9	happy and satisfied
frank in discussions about self	1	2	3	4	5	6	7	8	9	lacking self-understanding or insight
rebellious	1	2	3	4	5	6	7	8	9	conforms to authority
trustworthy and responsible	1	2	3	4	5	6	7	8	9	devious, unethical
suspicious of others	1	2	3	4	5	6	7	8	9	trusts others
calm	1	2	3	4	5	6	7	8	9	anxious
confused, distractable	1	2	3	4	5	6	7	8	9	good concentration
reckless, impulsive	1	2	3	4	5	6	7	8	9	level-headed, careful
avoids people	1	2	3	4	5	6	7	8	9	enjoys company
self-assured, confident	1	2	3	4	5	6	7	8	9	feels worthless
preoccupied with bodily problems	1	2	3	4	5	6	7	8	9	is seldom sick
despondent, listless	1	2	3	4	5	6	7	8	9	cheerful
denies emotional reactions	1	2	3	4	5	6	7	8	9	self-accepting

seldom irritated or angry	1	2	3	4	5	6	7	8	9	easily annoyed
prone to depart from truth	1	2	3	4	5	6	7	8	9	conscientious, honest
believes in other's sincerity	1	2	3	4	5	6	7	8	9	wary, expects the worst from people
easily becomes afraid, nervous	1	2	3	4	5	6	7	8	9	self-composed
extremely inatten- tive and forgetful, daydreams frequently	1	2	3	4	5	6	7	8	9	realistic
patient, planful	1	2	3	4	5	6	7	8	9	bored by routine
uncomfortable with others	1	2	3	4	5	6	7	8	9	sociable, outgoing
self-abusing, self-blaming	1	2	3	4	5	6	7	8	9	has high degree of self-esteem

## Room-mate Adjective Judgments

You are to use a 5-point rating scale to indicate how well each of the following adjectives describes your room-mate. The 5-point rating scale ranges from 5 - extremely characteristic to 1 - not at all characteristic. You are to rate how characteristic or uncharacteristic each adjective is for your room-mate, as indicated below.

- 5 - Extremely characteristic
- 4 - Very characteristic
- 3 - Moderately characteristic
- 2 - Slightly characteristic
- 1 - Not at all characteristic

Please place each rating in the space beside each adjective. When making your ratings try to use all points of the scale.

- |                  |                  |                  |
|------------------|------------------|------------------|
| 1. tired         | 23. headachy     | 45. sickly       |
| 2. hopeful       | 24. smiling      | 46. glad         |
| 3. frank         | 25. defensive    | 47. stubborn     |
| 4. argumentative | 26. disobedient  | 48. respectful   |
| 5. unusual       | 27. average      | 49. unconfirming |
| 6. innocent      | 28. unsuspecting | 50. doubting     |
| 7. tense         | 29. worried      | 51. panicky      |
| 8. disorganized  | 30. mixed-up     | 52. attentive    |
| 9. cautious      | 31. responsible  | 53. fast-acting  |
| 10. withdrawn    | 32. private      | 54. talkative    |
| 11. undeserving  | 33. unafraid     | 55. secure       |
| 12. strong       | 34. well         | 56. fit          |
| 13. discouraged  | 35. gloomy       | 57. blue         |
| 14. open         | 36. denying      | 58. sincere      |

- |                  |                     |                 |
|------------------|---------------------|-----------------|
| 15. agreeable    | 37. uncooperative   | 59. patient     |
| 16. conventional | 38. different       | 60. traditional |
| 17. unconvinced  | 39. trusting        | 61. threatened  |
| 18. relaxed      | 40. cool            | 62. easy-going  |
| 19. sensible     | 41. scatter-brained | 63. logical     |
| 20. adventurous  | 42. risky           | 64. slow        |
| 21. friendly     | 43. alone           | 65. neighborly  |
| 22. hesitant     | 44. doubtful        | 66. sure        |

## Self Rating

Below are listed a series of scales with a pair of descriptive phrases at each end. Your task is to rate yourself on each scale.

Look at this example:

playful 1 2 3 4 5 6 7 8 **9** serious

noisy 1 2 3 **4** 5 6 7 8 9 quiet

This person circled "9" indicating that he/she considers himself/herself extremely serious; and "4" indicating that this person is somewhat noisy. You may have used different categories for yourself.

In a similar manner, circle on this form the number corresponding to your rating of yourself. Try to use all nine scale points. Do not leave any scales blank.

enjoys good health	1	2	3	4	5	6	7	8	9	frequently complains of illness
sad, depressed	1	2	3	4	5	6	7	8	9	happy and satisfied
frank in discussions about self	1	2	3	4	5	6	7	8	9	lacking self-understanding or insight
rebellious	1	2	3	4	5	6	7	8	9	conforms to authority
trustworthy and responsible	1	2	3	4	5	6	7	8	9	devious, unethical
suspicious of others	1	2	3	4	5	6	7	8	9	trusts others
calm	1	2	3	4	5	6	7	8	9	anxious
confused, distractable	1	2	3	4	5	6	7	8	9	good concentration
reckless, impulsive	1	2	3	4	5	6	7	8	9	level-headed, careful
avoids people	1	2	3	4	5	6	7	8	9	enjoys company

self-assured, confident	1	2	3	4	5	6	7	8	9	feels worthless
preoccupied with bodily problems	1	2	3	4	5	6	7	8	9	is seldom sick
despondent, listless	1	2	3	4	5	6	7	8	9	cheerful
denies emotional reactions	1	2	3	4	5	6	7	8	9	self-accepting
seldom irritated or angry	1	2	3	4	5	6	7	8	9	easily annoyed
prone to depart from truth	1	2	3	4	5	6	7	8	9	conscientious, honest
believes in other's sincerity	1	2	3	4	5	6	7	8	9	wary, expects the worst from people
easily becomes afraid, nervous	1	2	3	4	5	6	7	8	9	self-composed
extremely inatten- tive and forgetful, daydreams frequently	1	2	3	4	5	6	7	8	9	realistic
patient, planful	1	2	3	4	5	6	7	8	9	bored by routine
uncomfortable with others	1	2	3	4	5	6	7	8	9	sociable, outgoing
self-abusing, self-blaming	1	2	3	4	5	6	7	8	9	has high degree of self-esteem

## Adjective Judgments

You are to use a 5-point rating scale to indicate how well each of the following adjectives describes you. The 5-point rating scale ranges from 5 - extremely characteristic to 1 - not at all characteristic. You are to rate how characteristic or uncharacteristic each adjective is for you, as indicated below.

- 5 - Extremely characteristic
- 4 - Very characteristic
- 3 - Moderately characteristic
- 2 - Slightly characteristic
- 1 - Not at all characteristic

Please place each rating in the space beside each adjective. When making your ratings try to use all points of the scale.

- |                  |                  |                 |
|------------------|------------------|-----------------|
| 1. tired         | 23. headachy     | 45. sickly      |
| 2. hopeful       | 24. smiling      | 46. glad        |
| 3. frank         | 25. defensive    | 47. stubborn    |
| 4. argumentative | 26. disobedient  | 48. respectful  |
| 5. unusual       | 27. average      | 49. unconfoming |
| 6. innocent      | 28. unsuspecting | 50. doubting    |
| 7. tense         | 29. worried      | 51. panicky     |
| 8. disorganized  | 30. mixed-up     | 52. attentive   |
| 9. cautious      | 31. responsible  | 53. fast-acting |
| 10. withdrawn    | 32. private      | 54. talkative   |
| 11. undeserving  | 33. unafraid     | 55. secure      |
| 12. strong       | 34. well         | 56. fit         |
| 13. discouraged  | 35. gloomy       | 57. blue        |
| 14. open         | 36. denying      | 58. sincere     |

- |                  |                     |                 |
|------------------|---------------------|-----------------|
| 15. agreeable    | 37. uncooperative   | 59. patient     |
| 16. conventional | 38. different       | 60. traditional |
| 17. unconvincing | 39. trusting        | 61. threatened  |
| 18. relaxed      | 40. cool            | 62. easy-going  |
| 19. sensible     | 41. scatter-brained | 63. logical     |
| 20. adventurous  | 42. risky           | 64. slow        |
| 21. friendly     | 43. alone           | 65. neighborly  |
| 22. hesitant     | 44. doubtful        | 66. sure        |



## Degree of Acquaintance

1. How well do you know the person you have just rated?

Please circle your answer on the scale below.

Not at all 1 2 3 4 5 6 7 8 9 Extremely well

2. The person I have just rated is as close to me as a family member.

Not at all True 1 2 3 4 5 6 7 8 9 Very True

3. How many months have you known the person that you have just rated? \_\_\_\_\_ months.

4. On average, how many hours per week do you interact with the person you've just rated? \_\_\_\_\_ hours/week

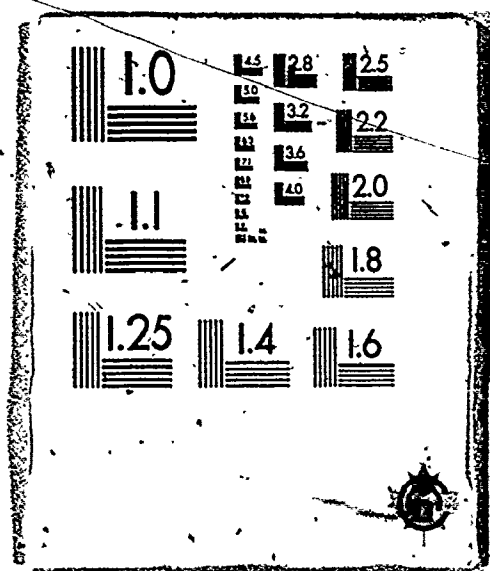
Appendix E

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Instructions for Fake Good, Straight Take, and  
Fake Bad Groups, Materials for the Information Condition,  
and Criterion Measures

# 3 3

OF / DE



Directions for the Basic Personality Inventory (BPI)

Please remove the answer sheet from the center of the attached test booklet. Please answer all questions on the answer sheet and do not make any marks on the test booklet.

Please read the following instructions twice.

We are conducting research on a new personality inventory and would appreciate your cooperation.

Assume that you are in a situation where it would benefit you greatly to appear very well-adjusted on this questionnaire. As you read the items on the following pages of this test booklet, respond so that you present yourself as someone without psychological problems or personality faults. In other words, try to fake this test so that the results will show that you are better than you really are. Although you may feel that you would never represent yourself dishonestly, please try to do so for this study. However, beware that the inventory has certain features (which you want to avoid) designed to detect "faking". Do your best to fake out the inventory.

When answering the inventory, please place check marks in the corresponding places on the answer sheet. Please **ANSWER EVERY STATEMENT.**

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Please remove the answer sheet from the center of the attached test booklet. Please answer all questions on the answer sheet and do not make any marks on the test booklet.

Please read the following instructions twice.

On the following pages of this test booklet you will find a series of statements which a person might use to describe himself. Read each statement and decide whether or not it describes you. Then check your answer on the separate answer sheet. If you agree with a statement or decide that it describes you, answer TRUE. If you disagree with a statement or feel that it is not descriptive of you, answer FALSE. In marking your answers on the answer sheet, be sure that the number of the statement you have just read is the same as the number on the answer sheet.

ANSWER EVERY STATEMENT either true or false, even if you are not completely sure of your answer.

Directions for the Basic Personality Inventory (BPI)

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We are conducting research on a new personality inventory and would appreciate your cooperation.

Assume that you are in a situation where it would benefit you greatly to actually appear mentally disturbed on this questionnaire. As you read the items on the following pages of this test booklet, respond so that you present yourself as someone with serious psychological problems. In other words, try to fake this test so that the results will show that you are worse than you really are. Although you may feel that you would never represent yourself dishonestly, please try to do so for this study. However, beware that the inventory has certain features (which you want to avoid) designed to detect "faking". Do your best to fake out the inventory.

When answering the inventory, please place check marks in the corresponding places on the answer sheet. Please **ANSWER EVERY STATEMENT.**

INFORMATION

Before beginning to answer the series of statements in the attached test booklet, please read the following information twice.

The statements in the attached test booklet are designed to measure 12 different personality traits or characteristics; Hypochondriasis, Depression, Denial, Interpersonal Problems, Alienation, Persecutory Ideas, Anxiety, Thinking Disorder, Impulsivity, Social Introversion, Self-Depreciation, and Deviation. Please read the following scale names and descriptions.

BASIC PERSONALITY INVENTORYSCALE DESCRIPTIONS

<u>SCALE</u>	<u>LOW SCORER</u>	<u>HIGH SCORER</u>
Hypochondriasis	Is without excessive bodily concern or preoccupation with physical complaints. Absenteeism due to ill health likely to be below average.	Frequently thinks he is sick. Complains regularly of peculiar pains or bodily dysfunctions. Discusses such topics, frequently revealing a preoccupation with his complaints.
Depression	Reports a usual feeling of confidence, cheerfulness; and persistence, even when experiencing disappointment. Has an optimistic attitude about his future.	Inclines to be down-hearted and show extreme despondency; considers himself to be inadequate; may be listless, remote and preoccupied; looks at his future pessimistically.
Denial	Accepts his feelings as part of himself; not afraid to discuss unpleasant topics. Can answer questions about himself frankly; avoids impression management. Shows normal affect.	Lacks insight into his feelings and the causes of his behavior. Avoids unpleasant, exciting or violent topics. Relatively unresponsive emotionally.
Interpersonal Problems	Experiences less than average irritation from noise, changes in routine, disappointment and mistakes of others; respects authority and prefers clearly defined rules and regulations; cooperates fully with leadership and readily accepts criticism from others.	Is often extremely annoyed by little inconveniences, frustrations or disappointments; will frequently be uncooperative, disobedient, and resistant when faced with rules and regulations; reacts against discipline and criticism.



<u>SCALE</u>	<u>LOW SCORER</u>	<u>HIGH SCORER</u>
Alienation	Ordinarily displays ethical and socially responsible attitudes and behavior; reports a sense of obligation toward society and its laws.	Expresses attitudes markedly different from common social codes; is prone to depart from the truth and behave in an unethical and untrustworthy manner; feels little or no guilt.
Persecutory Ideas	Trusts others and doesn't feel threatened. Accepts responsibility for the events in his life and doesn't attribute maliciousness to others.	Believes that certain people are against him and are trying to make his life difficult and unpleasant. Inclined to brood.
Anxiety	Remains calm and unruffled even when confronted by unexpected occurrences; Takes things as they come without fear or apprehension. Maintains self control even in a crisis situation.	Easily scared. Little things, even an idea, can throw him into a frenzy of anxiety. Afraid of novelty and of the possibility of physical or interpersonal danger.
Thinking Disorder	Has no difficulty distinguishing his daydreams from reality. Is able to concentrate normally and to maintain sensible conversations.	Is markedly confused, distractable and disorganized. Cannot remember even simple things from day to day. Reports that he feels he is living in dream-like world, that people appear different to him and that he feels different from them.
Impulse Expression	Appears to be even-tempered and level-headed; carefully considers the future before acting; generally has the patience to cope with a lengthy and tedious task.	Lacks ability to think beyond the present and to consider the consequences of his action; is prone to undertake risky and reckless actions; inclined to behave irresponsibly; finds routine tasks boring.

SCALELOW SCORERHIGH SCORERSocial Introversion

Enjoys company. Likes to talk and knows many people. Spends much of his time with others.

Avoids people generally. Has few friends and doesn't say much to those he has. Seems to be uncomfortable when around others. Prefers social activities.

Self Depreciation

Manifests a high degree of self-assurance in dealings with others. Not afraid to meet strangers; speaks with confidence about a variety of topics; believes in his own ability to accomplish things.

Degrades himself as being worthless, unpleasant, and undeserving. Generally expresses a low opinion of himself and refuses credit for any accomplishment.

## Self Rating

Below are listed a series of scales with a pair of descriptive phrases at each end. Your task is to rate yourself on each scale.

Look at this example:

playful 1 2 3 4 5 6 7 8 9 serious

noisy 1 2 3 4 5 6 7 8 9 quiet

This person circled "9" indicating that he/she considers himself/herself extremely serious; and "4" indicating that this person is somewhat noisy. You may have used different categories for yourself.

In a similar manner, circle on this form the number corresponding to your rating of yourself. Try to use all nine scale points. Do not leave any scales blank.

enjoys good health	1 2 3 4 5 6 7 8 9	frequently complains of illness
sad, depressed	1 2 3 4 5 6 7 8 9	happy and satisfied
frank in discussions about self	1 2 3 4 5 6 7 8 9	lacking self-understanding or insight
rebellious	1 2 3 4 5 6 7 8 9	conforms to authority
trustworthy and responsible	1 2 3 4 5 6 7 8 9	devious, unethical
suspicious of others	1 2 3 4 5 6 7 8 9	trusts others
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seldom irritated or angry	1	2	3	4	5	6	7	8	9	easily annoyed
prone to depart from truth	1	2	3	4	5	6	7	8	9	conscientious, honest
believes in other's sincerity	1	2	3	4	5	6	7	8	9	wary, expects the worst from people
easily becomes afraid, nervous	1	2	3	4	5	6	7	8	9	self-composed
extremely inatten- tive and forgetful, daydreams frequently	1	2	3	4	5	6	7	8	9	realistic
patient, planful	1	2	3	4	5	6	7	8	9	bored by routine
uncomfortable with others	1	2	3	4	5	6	7	8	9	sociable, outgoing
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| 9. cautious      | 31. responsible  | 53. fast-acting  |
| 10. withdrawn    | 32. private      | 54. talkative    |
| 11. undeserving  | 33. unafraid     | 55. secure       |
| 12. strong       | 34. well         | 56. fit          |
| 13. discouraged  | 35. gloomy       | 57. blue         |
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- |                  |                     |                 |
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| 21. friendly     | 43. alone           | 65. neighborly  |
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**END**

1	4	0	1	8	3
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**FIN**

