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IMPACT OF THE REVISED MMPI ("MMPI-2") ON THE

MEGARGEE MMPI-BASED OFFENDER CLASSIFICATION SYSTEM

Final Report on NIJ-funded Research Grant No. 89-IJ-CX-0028

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Aug. 30, 1992

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Executive Summary

In 1977, the investigator and his colleagues introduced a new system for classifying criminal offenders based on the Minnesota Multiphasic Personality Inventory (MMPI) (Megargee, 1977; Megargee & Bohn, 1979). The system, which groups offenders into 10 empirically-derived types identified by neutral labels, has been extensively researched (Zager, 1988) and is currently used in a number of federal, state, and local correctional institutions for both men and women in this country and abroad.

Recently the MMPI, which is the basis for the Megargee offender classification system, underwent a major revision and restandardization. The revised MMPI, known as "MMPI-2," differs from the original MMPI ("MMPI-1") in a number of important respects. This investigation was undertaken to determine the impact of this revision on the MMPI-based system of offender classification. Specifically, two research questions were posed:

1) Can the original rules developed to classify offenders' MMPI-1 profiles be used with MMPI-2?

2) If not, can a new set of rules be devised for MMPI-2 that will yield classifications equivalent to those that would have been obtained had MMPI-1 been administered?

A preliminary study using estimated MMPI-2 profiles on 100 male offenders who had previously been tested and classified according to MMPI-1 indicated that only 51.6% would be classified into the same categories when the original classification rules were applied to their estimated MMPI-2 profiles.

In the main investigation, which is the subject of the present report, two data sets were used. The first, "Phase 1," data set consisted of the MMPI-1s of 1163 youthful male offenders who had been tested and classified in the course of the initial derivation and validation of the MMPI-based system during the early 1970s. Their MMPI-1 responses were rescored by National Computer Systems of Minneapolis, MN, using MMPI-2 scoring procedures and norms. By using the same tests scored according to the old and the new procedures, any discrepancies stemming from test-retest instability were avoided. The estimated MMPI-2s were then classified using the original rules developed for MMPI-1 and the resulting classifications compared. Of the 1075 subjects who could be classified on both measures, 644 (59.9%) received identical classifications.

The second "Phase 2," data set consisted of MMPI-2s obtained on 209 adult male state prisoners and 213 adult male federal prisoners. National Computer Systems scored the MMPI-2s of all the subjects and, using special algorithms, estimated what their MMPI-1 profiles would have been. Because some items used in scoring the MMPI-1 are not included in the MMPI-2, the Phase 2 estimates were probably less accurate than the Phase 1 estimates were. The estimated MMPI-1s and the actual MMPI-2s were classified using the original rules. In the state sample, 177 subjects could be classified on both instruments; 113 (63.8%) obtained the same classifications. In the federal sample, 190 men could be classified on both tests; 127 (66.8%) agreement was obtained. Overall, 367 of the 422 Phase 2 subjects could be classified on both the MMPI-1 and MMPI-2; 127 (65.2%) received the same classification on both inventories when the rules devised for MMPI-1 were applied. (The apparently higher rate of agreement obtained in Phase 2 than in Phase 1 is an artifact of a procedural difference between the two phases that is described in the body of this report.)

The second question was whether a new set of classificatory rules could be devised for MMPI-2 that would enable the classification of MMPI-2 profiles to better approximate the classification that probably would have been obtained had MMPI-1 been administered. Preliminary rules were derived by comparing the estimated MMPI-2s of the 1163 Phase 1 subjects with the original MMPI-1s for each of the 10 types. These rules were tested by scoring a sample consisting of 100 Phase 1 subjects, 10 from each of the 10 types, on each of the proposed rules. Based on these data, revisions were made and a full set of primary and secondary rules were formulated.

A test sample of 200 consecutive cases was drawn from the Phase 1 subject pool and classified on the basis of the initial set of new rules; 156 of the 200 (78.8%) subjects were classified identically. Two major revisions of the MMPI-2 rules were undertaken and tested, followed by minor modifications to "fine tune" the procedures until the point of diminishing returns was reached. When utilized on the 200-subjects in the test sample, the final set of rules resulted in identical classifications in 168 of the 200 cases (84%).

This final set of rules and procedures was then tested by applying them to the 422 Phase 2 cases; 380 could be classified on both their estimated MMPI-1s according to the original MMPI-1 rules, and on their actual MMPI-2s, according to the new rules. Identical classifications were obtained for 304 (80%) of the classified subjects. It was also noted that the number of unclassifiable profiles was substantially less for the new rules than for the original ones; only 15 of the 422 MMPI-2 profiles were unclassifiable using the new rules compared with 31 of the 422

estimated MMPI-1 profiles when the original rules were applied.

It is recommended that the final version of the new rules, which are included in this report, be used instead of the original rules when the MMPI-2s of male offenders are to be classified. Further research is currently under way among female prisoners to determine whether these new rules should be used on their MMPI-2s, or if a modified set of rules for female offenders is needed. Future research should also focus on establishing whether the empirically-determined correlates of the 10 types observed in numerous investigations using MMPI-1 will equally characterize types classified according to the new rules applied to MMPI-2.

Acknowledgements

IMPACT OF THE REVISED MMPI ("MMPI-2") ON THE

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Introduction

The purpose of the research described in this report was to assess the impact of recent revisions to the Minnesota Multiphasic Personality Inventory (MMPI) on the MMPI-based system for classifying criminal offenders introduced by the present investigator and his colleagues in the 1970s (Megargee, 1977; Megargee & Bohn, 1979). The system, which groups offenders into 10 empirically-derived types identified by neutral labels, has been extensively researched (Zager, 1988) and is used as an aid to classification in federal, state, and local correctional institutions for both men and women in this country and abroad.

The revised MMPI, known as "MMPI-2," differs from the original MMPI ("MMPI-1") in a number of important respects, and, despite controversy over whether or not it represents an improvement, it is replacing MMPI-1. Therefore, this investigation was undertaken to determine the impact of this revision on the MMPI-based system of offender classification. Specifically, two research questions were posed:

1) Can the original rules developed to classify offenders' MMPI-1 profiles be used with MMPI-2?

2) If not, can a new set of rules be devised for MMPI-2 that will yield classifications equivalent to those that would have been obtained had MMPI-1 been administered?

Part One of this report provides the background for this research by introducing the reader to the original MMPI, to the system of offender classification based on the MMPI and, finally, to the revised MMPI. Part Two describes the studies undertaken to determine the equivalence of the classifications obtained by applying the original rules to MMPI-1s and MMPI-2s. Part Three reports how new classification procedures to be used with the MMPI-2 profiles of criminal offenders were derived and tested. The concluding section describes further studies that are needed.

Fourteen tables are included. To make it easier for the reader to compare the results obtained using different classification procedures, the 14 tables have all been placed together at the end of this report, following the References and preceding the Appendices. There are two appendices. The first consists of the original classificatory rules which should continue to be used in classifying the MMPI-1 profiles of criminal offenders. The second appendix presents a new set of rules and procedures to be used when classifying offenders' MMPI-2 profiles. Since the system was derived for the classification and assessment of

convicted adult offenders, neither the MMPI-1 or the MMPI-2 rules should be used to classify or interpret the MMPIs of noncriminal clients.

Part One: Background for the Investigation

Part One of this report provides the background and context for the present investigation. The first section describes the Minnesota Multiphasic Personality Inventory (MMPI) which serves as the basis for Megargee's system of offender classification. The second section reviews the origin, development, and validation of the MMPI-based system of offender classification. Particular attention is devoted to explaining how individual MMPI profiles are classified according to the system. The third section describes the recent revision of the MMPI, "MMPI-2." The differences between MMPI-1 and MMPI-2 are summarized to show why the present investigation was needed to evaluate the impact of this revision on the MMPI-based offender classification.

The <u>Minnesota</u> <u>Multiphasic</u> <u>Personality</u> <u>Inventory</u> <u>(MMPI-1)</u>

The MMPI, which forms the basis for Megargee et al.'s system of offender classification (Megargee, 1977; Megargee & Bohn with Meyer & Sink, 1979), is a paper-and-pencil personality inventory containing 566 true/false type items covering a wide range of psychiatric symptoms. It was originally designed to have four validity scales and 10 clinical scales. These scales are listed and described in Table 1, which appears after the References.

After the MMPI was published (Hathaway & McKinley, 1940), hundreds of additional scales were created by other investigators using the MMPI item pool (Dahlstrom, Welsh & Dahlstrom, 1972; Greene, 1980). Although the authors' original intent had been to construct an instrument to assist in psychiatric diagnosis, it is now used for a much broader array of tasks and has become the most widely used and researched structured personality assessment device in the United States and, probably, the Western World (Butcher & Pancheri, 1976; Greene, 1980, 1991; Graham, 1987, 1990).

<u>Construction</u> <u>of</u> <u>the</u> <u>Original</u> <u>MMPI</u>. The MMPI was devised at the University of Minnesota School of Medicine in the 1930s and early 1940s. Starke Hathaway, a psychologist, and J. Charnley McKinley, a psychiatrist, assembled a list of over 1000 possible items from a variety of sources. These items, all of which could be answered "true" or "false," were individually typed on 3x5 inch file cards which were presented to clinical and normal samples who sorted them into three categories, "True," "False," and "Cannot Say." (To make sure no cards were stolen, the box was weighed after every administration.)

The clinical groups used in the derivation of the scales

were generally comprised of neuropsychiatric patients evaluated at the University of Minnesota Hospitals. The normal group reflected the limited financial resources available to the authors during the Depression. Although they had originally hoped to use over 2500 carefully screened and selected normal subjects, they were forced to settle for 724 adult men and women who were visiting friends or relatives at the University of Minnesota Hospitals. These people were approached in the halls and waiting rooms and asked to sort the items. Basic demographic information was also obtained, and any who reported that they were under a physician's care were excluded.

In addition to the basic normative group used in deriving the scales, four other groups were also used to help check for "nuisance" variables such as age, gender and SES. These four groups consisted of 265 precollege high school students, 265 skilled WPA workers, 254 general medical patients, and 221 neuropsychiatric patients representing a broad array of diagnoses (Green, 1980; Hathaway & McKinley, 1940).

The external criterion method was used to select items for the clinical scales. First, a clinical group manifesting the criterion behavior in question was selected. Thus a sample of hypochondriacs was used in deriving the "Hypochondriasis (Hs)" scale, patients with symptomatic depression were used for the "Depression (D)" scale and so forth. The frequency of each criterion group's true and false responses to each of the items in the pool was tabulated and compared with the frequencies obtained in the normal sample. Those items that differed significantly at the .05 level were retained to form a preliminary scale (Hathaway & McKinley, 1942; McKinley & Hathaway, 1940). Thus preliminary item selection was based only on the empirical data. Since the actual item content did not influence selection, some items on the MMPI clinical scales may be quite subtle and have no obvious relation to the behavior being assessed.

Initial item selection was only the first step in constructing scales. Each preliminary scale had to be cross-validated to identify and eliminate those items that appeared significant purely by chance. In a pool of 1,000 items, 50 items could be expected to attain the .05 level on the basis of chance. Again owing to the limited resources available, cross-validation efforts focused on additional clinical rather than nonclinical samples. However, the scales were applied to the four nonclinical groups described above to determine if there were differences as a function of age or social class. A critical comparison was that of the criterion group with the undifferentiated psychiatric group to help identify items that were associated with generalized psychopathology as opposed to the specific disorder in question.

From the time he was a boy, the late Starke Hathaway had a

workshop in his home. He loved to take things apart and fix them, and this attitude carried over to the MMPI. A great deal of tinkering went on in the course of constructing the scales. For example, in the course of constructing the first scale, "Hypochondriasis," it was found that many neuropsychiatric patients who were not especially hypochondriacal nevertheless obtained elevated scores. This problem was solved by adding some items answered more often by the generalized sample of neuropsychiatric patients without somatic symptoms and weighting them negatively, thereby sharpening the distinction between the hypochondriacs and other patients (McKinley & Hathaway, 1940).

Another concern was whether to include equal numbers of items relating to different symptoms. On Hs should there be more items relating to headaches than gastrointestinal symptoms? On the Schizophrenia (Sc) scale should there be equal numbers of items relating to hallucinations and delusions?

Another question was whether the "best" items should be weighted more heavily, perhaps scored two points instead of just one. This was tried, the results noted, and it was eventually decided for the sake of simplicity to adopt a unit weighting system with each scored item counting one point.

The most extreme example of tinkering produced the "K" or suppressor scale. When the Sc scale did not adequately discriminate between certain groups of schizophrenics and normals, the K scale was derived to assist in the differentiation (Meehl & Hathaway, 1946). When K was added to Sc it was found the overall performance of Sc was improved. Ever since most clinicians have used Sc + 1K instead of Sc alone.

Since K had worked so well when added to Sc, the MMPI's creators next experimented with adding K to the other scales. They found that adding K to Pt (Psychasthenia) also improved its performance so Pt became Pt + 1K. A full dose of K was too much for the Hs (Hypochondriasis) scale, but a half a unit worked fine so Hs became Hs + .5K. Similarly through trial and error, Pd (Psychopathic Deviate) became Pd + .4K and Ma (Hypomania) became Ma + .2K. As a result, five of the 10 clinical scales had K scale corrections added in. Since the addition of a bit of K did not improve the scales for Depression (D), Hysteria (Hy), Masculinity/Femininity (Mf), or Paranoia (Pa), they remained as they were.

This rough and ready approach to scale construction has been described as "Minnesota Dust Bowl empiricism," and the MMPI's authors have been likened to Midwestern farmers who fix things with baling wire and whose criterion of success is practical utility rather than elegance. Whether it was because of or in spite of this utilitarian emphasis, the MMPI has outlasted many more sophisticated instruments.

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In its final version, the individual card form of the MMPI, which is rarely used today, had 550 items. The booklet or group form had 566 items because 16 of the 550 items were duplicated so that they would appear on both sides of the answer sheet to simplify early machine scoring. Interestingly, over 150 of the items were not scored on any of the original scales. They were retained as buffer items that might be useful in future research. Many of these items were used in scoring the hundreds of additional MMPI scales that have been developed over the years. MMPI-2 retains this feature, but the accessory item pool has changed considerably.

Administration and Interpretation of the MMPI. In its original version, the MMPI was scored on four validity scales and nine clinical scales, all of which reflected psychiatric disorders. The clinical scales were originally designated by abbreviations, but they soon came to be known by number based on their position on the profile sheet. Thus the first scale, "Hs," came to be known as "Scale 1," the second scale, "D" (for "Depression") became "Scale 2" and so on. A tenth scale which assessed "Social introversion" (Si) was soon added and given the number "0." (See Table 1.) The designation of scales by numbers soon led to the development of "code types" based on the observed characteristics of people whose highest scale was "1," "2," and so on. These "one point codes" were soon supplemented by "two point codes" based on the highest pair of scales. Thus "12/21" clients, whose highest scores were on Scales 1 and 2, would be differentiated from "13/31" patients whose highest elevations were on Scales 1 and 3. These code types play a role in the rules used to classify offenders' profiles in the MMPI-based system, and the fact that MMPI-2s may yield different code types than were obtained for the same subjects on MMPI-1 is probably the most controversial aspect of the recent revision of the MMPI.

Although hundreds of other scales have since been constructed, the MMPI-based offender classification system uses only the original 10 clinical scales. This is fortunate, because many of the newer scales can no longer be scored on MMPI-2.

After administering the MMPI, raw scores are computed by hand, using templates, or by automated scoring equipment. In order to make the scale scores comparable, the raw scores are converted to T-scores, standard ("Z") scores with a mean of 50 and a standard deviation of 10. These norms, based on the initial sample of 724 normals, are printed on the profile sheet. The norms, and hence the profile sheet, were changed considerably in the revision.

In interpreting the MMPI, a trained clinical psychologist or an automated computerized interpretive program notes the characteristics of the profile: the elevation, the slope, and the pat-

terns of high and low scores. Of particular importance are the
"two-point" codes, the pairs of highest scale scores, and the
scales that exceed a T-score of 70, the level that is generally
considered to demarcate clinically significant scores. It is
these aspects that form the basis for the classificatory rules in
the MMPI-based offender classification system.

The MMPI-based system of offender classification

Derivation and validation. In 1977, the applicant and his
colleagues introduced a new system for classifying criminal
offenders based on the original version of the MMPI (Megargee,
1977; Megargee & Bohn with Meyer & Sink, 1979). This system,
which groups offenders into 10 empirically-derived types identi-
fied by neutral alphabetic labels ("Able," "Baker," "Charlie"
etc.), has been extensively researched (Zager, 1988). Hundreds of
thousands of prisoners have been classified according to the
system, and it is currently being used in a number of federal,
state, and local correctional institutions for both men and women
in this country and abroad.

Rationale for an MMPI-based system Whether it is based on
offenses, criminal history, or personality test data, a classifi-
cation system must meet certain criteria to be useful in applied
criminal justice settings. Any useful system must:

> 1. Be comprehensive, so that most clients can be
> classified;
>
> 2. Have clear operational definitions of the
> various types;
>
> 3. Have inter-rater reliability;
>
> 4. Be valid, that is display evidence that the
> proposed types actually exist and have the hy-
> pothesized attributes;
>
> 5. Be dynamic, (i.e.) have the potential to
> reflect changes over time;
>
> 6. Have differential management and treatment
> implications for the various types; and
>
> 7. Be cost-effective so that large numbers of
> offenders can be classified quickly and inexpen-
> sively with minimum reliance on highly trained
> personnel (Megargee, 1977).

When this program of research was begun in 1970, no typology
of adult offenders met all of these criteria, and many met none
of them. Most relied on variables such as the nature of the of-

fense, the offender's criminal history, and demographic and social information such as age, employment, and family resources. There was little if any evidence for the reliability or the validity of the classifications used in these systems, and, of course, those based on past history could not reflect any changes that took place during the course of incarceration. Such essential factors as operational definitions and inter-rater reliability were often lacking. The few systems that did meet these latter criteria tended to lack completeness, and were often prohibitively expensive to implement, relying on extensive interviewing by specially trained personnel.

It seemed possible that a system that incorporated data on personality characteristics might be able to contribute useful information to correctional decision making. Although personality assessment should never replace consideration of the offense, criminal history, and past behavior, relatively enduring traits, attitudes, and values account for much of the consistency observable in human behavior, especially in prisons where situational factors and demands are relatively consistent across people. For these reasons, a new offender taxonomy based on the MMPI was attempted.

There were several good reasons why the MMPI might prove useful in formulating a classification system for criminal offenders. A number of studies had attested to its ability to discriminate among criminal offenders (Gearing, 1979). In contrast with systems based on the instant offense or the criminal history, the MMPI could reflect changes during incarceration. Unlike interviews, the MMPI provided a uniform, readily quantifiable, data base that could easily be obtained on large groups of people in fairly short periods of time by relatively untrained personnel. Indeed, where the MMPI was already in use, offenders who had already been tested might be classified without the need for further testing.

On the other hand, even though the MMPI could provide data that would be conducive to precise operational definitions, it was questionable whether such a narrow sample of behavior could form the basis for a comprehensive classification system. In particular, it seemed that the MMPI's emphasis on psychopathology might make it inappropriate for use among criminal offenders, most of whom are not suffering from any diagnosable psychiatric disturbance or mental abnormality.

For these reasons, the research program was set up as a series of questions to be answered sequentially. A "yes" answer would indicate that the next question could be addressed; a "no" would suggest that the program should be halted and the attempt to derive or validate an MMPI-based classification system abandoned.

The questions to be answered were as follows:

1. Do the MMPI profiles of criminal offenders fall into distinct groups or clusters?

2. Are such groups reliable? That is, does one obtain the same basic groupings in different samples?

3. Is it possible for a clinician to sort individual MMPI profiles into groups reliably?

4. Is it possible to define such groups operationally so that other clinicians, or even a computer, can sort individual MMPI profiles validly?

5. Assuming that an MMPI-based system can be derived and reliable classification is possible, do such groups differ significantly on non-MMPI variables; for example, in their life styles, social history, behavior, and attitudes?

6. If the groups do differ in their behavior, are there clear implications for treatment?

7. Is such treatment effective? Does each group respond better to the prescribed treatment than to other treatment modes?

8. Can a system derived on data collected in one setting be generalized to offenders in other settings who differ in age, sex, and offense patterns?

Derivation of the MMPI-based system. To derive the system, James Meyer, Jr. and Edwin Megargee (1972; 1977) subjected the MMPI profiles of three samples of male youthful offenders incarcerated at the Federal Correctional Institution, Tallahassee, FL (FCI) to "hierarchical profile analysis," a statistical procedure designed to cluster similar profiles into homogeneous groups on the basis of several different MMPI profile characteristics. The same basic profile types were found in each sample. The means, standard deviations and ranges of the subjects in the groups that emerged from these analyses are presented in Table 3. Subsequently, Nichols (1979) and Mrad, Kabacoff and Duckro (1983) have independently applied the same procedures to the MMPIs of state prisoners and halfway house clients, respectively, and essentially replicated Meyer and Megargee's findings.

Classification of MMPI profiles. In the next phase of the research, Megargee and Meyer independently attempted to assign individual offenders' profiles to these groups. Their independ-

ent classifications of a new sample were in agreement in 87% of the cases. Subsequently Megargee and Brent Dorhout (1976; 1977) revised and refined the classificatory rules so that they constituted operational definitions for each of the 10 MMPI-based groups.

The revised procedure, which reviews the same aspects of an MMPI profile that most clinicians consider, was divided into primary and secondary rules. Primary rules determine eligibility for classification into a group; to be included, a given profile had to meet all these requirements. Secondary rules help clarify goodness of fit when a profile satisfies the primary rules for two or more types. These rules are presented in Appendix 1.

In classifying a profile, the primary rules for each type, are first applied. If any one of the primary rules for any type is violated, that profile can not be assigned to that type. A profile that violates one or more primary rules for each of the 10 types is unclassifiable.

Some profiles meet all the primary rules for two or more types, so the secondary rules for these possible types are applied to determine the goodness of fit. "Points" are scored according to the number of secondary rules that are met, and, using a "point chart" associated with each type, these points are then converted into levels: "high," "medium," "low," or "minimum." A profile is classified into that type for which it a) meets all the primary rules, and b) achieves the highest level according to the secondary rules. Thus, if a profile meets all the primary rules for groups "Charlie" and "How," and it fits Charlie at the high level and How at the medium, it would be assigned to group Charlie.

In about 16% of the cases, profiles fit two or more groups at the same level. These "ties" must be resolved by a clinician familiar with the MMPI and the system using published guidelines (Megargee & Bohn with Meyer & Sink, 1979). Ties result from the fact that in devising the rules and the computer program, Megargee felt that the program should classify only the most straightforward cases, with the more difficult decisions being made by a clinician who could consider aspects of the profile not readily encompassed by rules. Ties reflect the fact that categories in the system are seen as being "fuzzy" rather than discrete; if a profile fits groups "Able" and "Foxtrot" equally well, then it is likely that the offender concerned blends elements of both types in his personality.

Guidelines and conventions were written to assist in classification. In addition, the clinician should consider the distribution of scores on the various scales obtained in the original derivation samples as presented in Table 3. Four studies have examined the inter-rater reliability of clinicians' classifica-

tions using these rules and guidelines. They reported inter-rater agreement ranging from 76% to 90% with a median of 80% (Dahlstrom, Panton, Bain, & Dahlstrom, 1986; Megargee, Bohn & Carbonell, 1988; Miller, 1978; Van Voorhis, 1986).

Next Dorhout wrote computer programs embodying the rules. The best of these programs was able to classify approximately two-thirds of the profiles encountered with better than 90% accuracy; the remaining third of the profiles had to be classified clinically. Two studies have examined inter-rater agreement on the classification of these indeterminate cases that are not classified by the computer. The reported rates of agreement range from 68% (Carey et al., 1986) to 84% (Mrad, 1979).

Institutions and agencies lacking trained clinical personnel have found the large proportion of cases that required clinical classification to be a drawback. Moreover, many researchers have confined their investigations to the two-thirds of the cases that can be uniquely classified by computer, thus introducing biases into their sampling (Zager, 1988). For these reasons, it was hoped that, if MMPI-2 required new rules, these new rules would be able to classify a larger proportion of cases without clinical intervention.

Characterizing the types. The key question was whether the 10 groups differed on anything other than their MMPI profiles. In order to ensure that the characteristics of each type were determined solely by the empirical data, Megargee labeled each type with a neutral name based on the phonetic alphabet: Able, Baker, Charlie, Delta, Easy, Foxtrot, George, How, Item, and Jupiter. In order for users to determine what is meant by these designations, they must study the data that have been collected describing them, rather than relying on the connotations of a short-hand label such as "psychopathic."

To answer this question, the MMPI profiles of 1213 young men consecutively admitted to FCI, Tallahassee, as part of a larger longitudinal research project were classified. Using Duncan multiple range tests for continuous variables, and Chi Square analyses for categorical data, the 10 groups were compared on a broad array of variables reflecting early developmental history, social, demographic and attitudinal factors, childhood and adult adjustment and achievement, subsequent adjustment to the institution and eventual recidivism some years later. Overall, 140 of the 164 comparisons proved to be statistically significant (Megargee, 1984b; Zager, 1988).

In addition, Adjective Checklist analyses showed that the members of the 10 groups differed greatly in the adjectives they did and did not endorse as being self-descriptive; likewise, psychologists who used the Gough & Heilbrun's (1965) Adjective Checklist (ACL) to characterize inmates immediately after having

interviewed them described the 10 groups differently (Megargee, 1984a).

The differences on all these measures were used to formulate modal descriptions of each MMPI-based type. These descriptions suggested strategies for the optimal management and treatment of each group, focusing on the best setting, the most suitable change agent and the most appropriate treatment techniques (Megargee & Bohn, 1977). These descriptions have proved to be useful guides to the management and treatment of classified offenders (Bohn, 1978; 1979). These empirically-determined characteristics of the 10 types are summarized in Table 2. For more extensive descriptions see Megargee (1984b) and Megargee et al. (1979).

Another important question concerned the effectiveness of interventions based on these recommendations. In the major study of the typology as a management tool to date, it was used as the principal criterion for assigning inmates to living units at the Tallahassee FCI. The basic goal of this assignment was to sepa-rate the most predatory offenders from those whose MMPI classifi-cations suggested they were most likely to be victimized. Al-though the rate of serious assaults in that particular institu-tion had been steadily increasing, a trend noted throughout the Federal system for institutions of that type, the rate of serious assaults dropped 46% after this change was adopted (Bohn, 1978). Moreover, this gain was maintained in subsequent years (Bohn, 1979). Indeed, the staff soon noted they were able to reduce the number of personnel assigned to the most benign unit, so these gains were made despite decreased levels of supervision.

The next question was whether a typology derived and vali-dated on youthful male offenders in a United States Federal prison could be generalized successfully to other inmate popula-tions. Over the years since its initial publication, a number of investigators have successfully applied the MMPI-based classifi-cation system to a variety of samples including prisoners con-fined in federal prisons (Craig, 1980; Edinger, 1979; Edinger & Auerbach, 1978; Edinger et al., 1982; Miller, 1978; Simmons et al., 1981; Walters et al., 1988), military prisons (Walters, 1986; Walters et al., 1986; Walters et al., 1988), state pris-ons (Booth & Howell, 1980; Edinger, 1979; Gearing, 1981; Miller, 1978; Nichols, 1980; Schaffer et al., 1981; Walters et al., 1988; Wright, 1988), halfway houses (Motiuk et al., 1986; Mrad, 1979; Mrad, Kabacoff & Duckro, 1983), community restitution centers (Howell and Geiselman, 1978) and local jails (Cassady, 1978). Specialized populations include presidential threateners (Megar-gee, 1986), prisoners confined in forensic mental health units (Carbonell, Bohn, & Megargee, 1986; Doren, 1983; Edinger, 1979; Edinger, Reuterfors & Logue, 1982; Megargee, 1986; Megargee, Bohn, & Carbonell, 1988; Walters, 1986; Wrobel, Wrobel & McIn-tosh, 1988) and on Death Row (Dahlstrom et al., 1986).

Some studies done in other settings reported on the characteristics associated with the types. Others focused on institutional adjustment (Baum et al., 1983; Booth & Howell, 1980; Carey et al., 1986; Edinger, 1979; Edinger & Auerbach, 1978; Hanson et al., 1983; Louscher et al., 1983; Megargee, 1984; Megargee & Carbonell, 1986; Moss et al., 1984; Motiuk et al., 1986; Walters et al., 1986; Walters et al., 1988; and Wright, 1988).

Overall, the MMPI-based classification system has generally been well received (Zager, 1988). Reviewing the system, Gearing II wrote:

> Ever since the beginning of attempts to rehabilitate the criminal offender, professionals in the field have searched for a viable classification system that would offer an understanding of criminal offenders which could facilitate the economy, efficiency and effectiveness of management and treatment approaches. That search may now be over (1981, p. 102)...

> Megargee and Bohn's MMPI classification system for criminal offenders seems to be impressive in every way. The derivation of the system stands as a methodological model for future research in the same genre. Comprehensive in its applicability, sensitive in its differentiation of the subtypes on several different characteristics, thorough in the multidimensional descriptions of its subtypes, and facile and economical in its implementation, this new MMPI system unquestionably defines the present state of the art in correctional classification. The results of studies employing the system thus far are overwhelmingly positive, suggesting that the system is even more robust than the investigators dared hope initially. The excellence of this system demands its inclusion in any research project planning to investigate criminal populations (1981, pp. 106-107).

In a more recent review, Zager (1988) noted that some studies have had differing outcomes, partly because many negative studies had serious methodological flaws. She noted, "Those investigations that did not have the serious flaws had more positive results," and concluded, "Further investigations of the validity of the system and its usefulness in predicting institutional adjustment and potential violence are essential" (Zager, 1988, pp. 53 & 54).

All in all, the preponderance of the evidence as well as its widespread adoption suggests that the MMPI-based typology does meet the basic requirements for a useful classification system

and does fill a need in correctional classification. The question is whether the rules devised for MMPI-1 can validly be applied to MMPI-2 and, if not, new rules for MMPI-2 can be devised. Before addressing these questions, let us review how MMPI-2 differs from its predecessor.

Restandardization and revision of the MMPI. In the five decades that have passed since its publication, the MMPI has become the most widely used personality assessment device in the world. It has been translated into dozens of languages (Butcher & Pancheri, 1976), hundreds of new scales have been devised and approximately 7,000 MMPI studies have been published. Partly because of this success, it had never been revised or restandardized. People were understandably afraid that in the course of restandardizing the instrument, they might somehow ruin it or at least make all the accumulated lore and research obsolete.

Nevertheless, as the years passed, the need for a new revision and standardization became increasingly apparent. At the item level, some items were dated, others had sexist wording and still others dealt with content such as religion that was inappropriate in some of the settings in which the MMPI was being used.

The norms for certain scales were also incorrect. Perhaps the most conspicuous problem was the validity scale "Qu"(Cannot Say) which represents the number of omitted items. According to the MMPI-1 profile sheet, the average person omitted 30 items and one could leave out 100 items without obtaining a "clinically elevated score" T-score of 70. These aberrant norms stemmed from the obsolete card form of the MMPI in which the subjects sorted the statements into three piles labeled "True," "False" and "Cannot Say." With the introduction of the group (paper and pencil) forms, few people omitted any items but the old norms continued to be used.

The significance of the fact that the MMPI-1 profile sheet was based on the old card sort form extends beyond the Qu scale. Because people currently being tested with the MMPI-1 group form typically answer virtually all the items, they obtain higher raw scores on the clinical scales than the normative sample did; hence their MMPI-1 profiles were more apt to be elevated and appear deviant.

Whether or not the use of the card form in obtaining the norms was responsible, it has been clear for decades that the MMPI's T-scores never behaved as true T-scores should. High scores, for example, were much more frequent than low scores. Moreover, the variability clearly differed from one scale to the next, so clinically elevated scores were more common on some scales than they were on others.

As noted earlier, although Hathaway and McKinley had intended to obtain normative data on a standardization group of over 2500 non-patients, funding limitations forced them to settle for only 724 adult men and women who were tested while visiting friends and relatives who were patients at the University of Minnesota Hospitals. Moreover, these same 724 subjects had to serve as the standardization sample as well as the derivation sample.

This created two problems. First, although the demographic characteristics of the normative sample reportedly approximated those of the state of Minnesota as indicated by the 1930 census, they obviously did not parallel the overall population of the United States in 1940, and certainly not in the 1980s. For example, after checking the Minnesota census figures, Elion and Megargee (1975) calculated that only three of the 724 would have been Black.

Second, use of the same subjects for both derivation and standardization may have skewed the T-score transformations on the profile sheet. This could have contributed to the problems with the T-scores noted above.

As the data and the norms on which the MMPI was originally based became increasingly parochial and out of date, it became clear that a revision and restandardization was necessary. Eventually the University of Minnesota Press, which owns the copyright to the MMPI, launched a major revision and restandardization of the MMPI under the leadership of Profs. James N. Butcher, Grant Dahlstrom and John Graham (Butcher & Graham, 1988). This massive research effort, begun in the early 1980s, resulted in a revised MMPI ("MMPI-2") which became available in the summer of 1989.

The revised MMPI ("MMPI-2") differs in several important ways from its predecessor. Although the test booklet is comparable in length, a number of items have been rewritten to eliminate sexist wording and outmoded content; no longer will respondents be asked if they played "drop-the-handkerchief" as a child. Because the MMPI is often used in personnel screening, all the items dealing with religious beliefs have been deleted.

Although the same clinical and validity scales have been retained, five scales have been shortened and the norms, and hence the profile sheet, are now based on a new stratified national sample of 1138 males and 1462 females ranging in age from 18 to 90 years. In addition, a new procedure has been adopted for computing the T-scores on the eight basic clinical scales (Scales 1, 2, 3, 4, 6, 7, 8, and 9). Instead of the standard scale for each scale being calculated on the basis of that individual scale's standard deviation, T-scores on MMPI-2 have been computed in a uniform fashion by using a pooled variance estimate

(Tellegen & Ben-Porath, 1992). This alteration results in configural patterns which differ from those encountered in MMPI-1. Users have discovered that about two thirds of the MMPI-1 and MMPI-2 two point codes differ. Because of these changes, it seemed likely that MMPI-based offender classifications would differ depending on whether MMPI-1 or MMPI-2 was used.

Part Two: Correspondence of Offender Types

Between MMPI-1 and MMPI-2 Using the Original Rules

In this section, the studies investigating whether the classificatory rules devised by Megargee and Dorhout (1976, 1977) for the original MMPI-1 classify MMPI-2s into the same types are presented. After describing the overall research strategy, a preliminary pilot study and two major investigations addressing this question are described.

Research strategy

Since the MMPI-2 was issued, there has been considerable controversy in the literature regarding the degree to which MMPI-2 profiles approximate those obtained with MMPI-1. It is clear that in about 30% of the cases the two highest scales, the so-called "two-point codes," obtained with MMPI-2 differ from those obtained with MMPI-1. What is not clear is why this is the case.

Critics of MMPI-2 maintain that these discrepancies result from the fact that MMPI-2 has different psychometric properties than MMPI-1. Not only do the norms differ, but also the procedures for calculating T-scores. However, most studies comparing MMPI-1 with MMPI-2 have used tests administered at different points in time; the developers of MMPI-2 maintain that these differences can be attributed to differences in responding from one administration to the next (Graham et al., in press).

To avoid any possibility of such test-retest discrepancies, a different strategy was adopted in the present research. Instead of administering MMPI-1s and MMPI-2s to the same group of subjects at two different times, only one instrument was utilized. It was scored, profiled and classified according to the original rules, and then it was rescored and reprofiled to estimate the profile that would have been obtained had the other form of the MMPI been administered.

Phase 1 procedure. In "Phase 1," MMPI-1s were used to estimate MMPI-2s and the classifications they would have yielded. Since MMPI-2 has all of its items included in MMPI-1, revised MMPI-2 raw scores can be calculated with perfect accuracy and plotted using MMPI-2 norms. This strategy had the added benefit of allowing the investigators to a utilize a large sample of 1213

offenders' MMPI-1s that had been administered and classified during the initial development of the MMPI-based system. Their actual MMPI-1 classifications were compared with the classifications obtained by applying the original Megargee and Dorhout (1976, 1977) rules to the actual MMPI-1s and the estimated MMPI-2s.

Phase 2 procedure. Although MMPI-2 retains almost all of the clinical items from MMPI-1, it presents them in a different context. In "Phase 2," MMPI-2s were administered to adult male state and federal prisoners. They were scored and profiled according to the MMPI-2 algorithms, and used to estimate MMPI-1s. Then the actual MMPI-2s and the estimated MMPI-1s were classified according to the original Megargee and Dorhout (1976, 1977) procedures. Unfortunately, going from MMPI-2 to MMPI-1 unavoidably introduces some estimation error. This is because five MMPI-1 scales lost from one to five items when MMPI-2 was published. Thus the MMPI-1 raw scores on these five scales would probably be·underestimated slightly.

One alternative would have been to use the special experimental "AX" form of the MMPI devised by the MMPI-2 restandardization team. "AX" contained all the old and new items, over 700 items in all. It seemed likely that such a lengthy inventory would cause considerable resistance among offenders, resistance that might introduce more error than the loss of a few items.

The single test strategy had the advantage of eliminating discrepancies resulting from temporal instability and allowing the use of previously administered and classified MMPI-1s. The disadvantage was that it required extensive specialized scoring and profiling. As noted in the acknowledgements, this programing and scoring was provided gratis through the good offices of the University of Minnesota Press and National Computer Systems (NCS) of Minneapolis, MN. The University of Minnesota Press owns the copyright to the MMPI, and has granted NCS a franchise to score MMPI-1s and MMPI-2s. For some years NCS has been classifying offenders' profiles for correctional agencies according to the Megargee system. Thanks to the cooperation of the Press and NCS, the Phase 1 MMPI-1s were rescored and estimated MMPI-2s were produced and classified. The Phase 2 MMPI-2s were scored and profiled and used to estimate MMPI-1s. In order to carry out this task, NCS programmers had to develop special programs to make the required estimates. While these algorithms were being developed, a preliminary pilot study was undertaken to estimate the correspondence between types based on MMPI-1 and MMPI-2.

Preliminary Pilot Study

Purpose. Arrangements with NCS for rescoring the Phase 1 data were completed in the Fall of 1989, and software development began in January, 1990. This was not an easy task, and it was not

until August, 1990 that the rescored Phase 1 data were received. In the interim, a preliminary study was carried out to provide an estimate of the correspondence that could be expected between classifications based on MMPI-1 and MMPI-2.

Sampling. Using MMPI-1, Megargee, Bohn and Carbonell (1988) had tested and classified a number of adult male offenders in the general population of the United States Medical Center for Federal Prisoners at Springfield, MO in the course of previous NIJ-sponsored research (Grant No. 1596001138A1). From this population, 100 valid classified MMPI-1s were selected, 10 representing each type.

Procedure. The 100 MMPI-1s had all been classified in the course of the previous study. In order to estimate the associated MMPI-2s, the K-corrected MMPI-1 raw scores were plotted according to MMPI-2 norms on MMPI-2 profile sheets. These estimated MMPI-2 profiles were then classified according to Megargee & Dorhout's (1976, 1977) rules by the Principal Investigator and Patricia Rivera, a graduate student in clinical psychology who had been trained in the classification procedure. Any discrepancies were resolved by reexamination, discussion and mutual agreement (Megargee & Rivera, 1990).

Results. Seven of the estimated MMPI-2s did not fit any of the rules for any type and were therefore unclassifiable. (See Table 4.) The correspondence between the classifications based on MMPI-1 and the estimates of MMPI-2 for the remaining 93 cases are presented in Table 5.

Overall, 48 of the 93 cases (51.69%) had identical classifications. There was 80% agreement for three groups (Able, Charlie and Item) and 70% for two others (Delta and How). However, the rate of agreement for the remaining five groups was substantially lower: George had a 40% correspondence, Foxtrot had 30%, Easy had 20%, Baker only 10% and Jupiter had 0%.

Probably because MMPI-2 T-scores for men are typically lower than the scores they obtain on MMPI-1 (Ward, 1991), group Item, which has the lowest mean profile of the 10 types was substantially over-represented on MMPI-2: 31 of the 93 classified profiles (33%) were classified as Items. Group George also attracted a disproportionate share of profiles: 12 estimated MMPI-2s were classified as Georges, only four of which actually belonged in this group.

Conclusions. The results of the preliminary study strongly suggested that the original rules designed for MMPI-1 could not be used to classify MMPI-2s correctly. The Phase 1 and Phase 2 investigations supported this conclusion, although neither painted as dismal a picture as the preliminary investigation.

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Phase 1 Investigation: MMPI-1 Compared with Estimated MMPI-2s

Purpose. The purpose of the Phase 1 study was to determine
the degree to which classifications based on estimated MMPI-2
profiles agreed with those based on the original MMPI.

Sampling. Two decades ago, the principal investigator under-
took a longitudinal study of 1346 youthful offenders who were
admitted to the Federal Correctional Institution at Tallahassee,
FL from Nov. 3, 1970 through Nov. 2, 1972. These subjects ranged
in age from 17 to 27 with a mean age of 22 years; 65% were white,
34% black and 1% "other." Their mean Beta IQ was 101.1. MMPI-1s
had been obtained on 1213 of these subjects, and 1163 of the
profiles had been classified into one of the 10 MMPI-based types.
The remaining 50 were unclassifiable because they were invalid or
because they failed to meet one or more of the primary rules in
each of the 10 types. (See Table 4.)

Materials. The standard group form of MMPI-1 was used in the
original study. Spanish-speaking inmates, however, were tested in
that language, and the MMPI items were read aloud to those with
reading difficulties. A number of other tests were also adminis-
tered after the MMPI; these data were not used in the present
investigation.

Procedure. The original MMPI-1 item responses as well as the
T-scores on all the validity, clinical and special scales had
been included in the computerized data base for the longitudinal
study. Following instructions from NCS, these item responses were
converted into a format identical to that used for MMPI-2. This
data file was then forwarded to NCS where they were scored and
profiled as if they had actually been MMPI-2s. Since MMPI-1
includes all the MMPI-2 items that are scored on the standard
validity and clinical scales, this procedure yielded exact esti-
mates of the regular MMPI-2 scale scores, Welsh codes and pro-
files. (Of course all of the MMPI-2 special scale "scores" were
meaningless since they were based on new items that had not been
included in the original MMPI-1.)

When the Phase 1 estimated MMPI-2s and the associated clas-
sifications were received from NCS, the first task was to classi-
fy clinically 327 profiles labeled "indeterminate." In the NCS
adaptation of Megargee and Dorhout's program, this included two
types of profiles: those that met the rules for inclusion into
two or more groups at the same level ("ties") and those that
failed to meet the primary rules for inclusion into any of the 10
groups ("unclassifiable" profiles or "Uncles"). When the original
classification rules are applied to MMPI-1s, about a third of the
profiles typically fall into these categories. The procedure
calls for such profiles to be classified clinically by trained
personnel; this task was undertaken by the principal investigator
and J. T. Fly, a graduate student in clinical psychology who had

been trained in the system.

Working independently, the two men noted a number of sup-posedly "indeterminate" profiles that actually should have been uniquely assigned to one type (Able at the High level). The same problem was uncovered in the Phase 2 profiles they were process-ing. The most likely explanation seemed to be an error in the Able point chart used by NCS. In an effort to correct for this, all profiles that met the primary rules for group Able were reexamined and the secondary points rescored. A number had to be reclassified.

The results of these Phase 1 and Phase 2 cross-tabulations were reported at the 26th Annual MMPI Symposium along with the apparent error (Megargee & Fly, 1991). After that meeting, NCS personnel reexamined their classification program. Initially they had adapted Megargee and Dorhout's program as a subroutine in their overall scoring procedure. However, when that Fortran program had been translated into another programming language, the sequence of steps had been altered. When a profile meets the basic rules for two or more groups, the correct procedure is to compute the point score for each group using the secondary rules, and then translate that score into levels; the profile is as-signed to the group with the highest level. Instead, the program assigned the such profiles to the group with the most points; levels were used only if two groups had the same point total (B. Newton, personal communication, March 27, 1991). Ables can earn only three points through the secondary rules, whereas other groups can obtain as many as seven, so the problem was most obvious among Ables. However, it could affect the classification of any profile in any group, including those that had appeared to be uniquely classified to a single group. In short, none of NCS's Phase 1 or Phase 2 classifications could be trusted. Since there was no way of knowing which cases had been affected, it was necessary for NCS to reclassify all the Phase 1 and Phase 2 cases after the error in their program had been corrected.

Corrected classifications for the Phase 1 cases were re-ceived from NCS in June, 1991, and the new classifications were entered into the data base. Since the programming error had affected only the assignment of levels according to the secondary rules, there was no need to review or reclassify the 93 indeter-minate cases that had already been found to be unclassifiable. The 254 other "indeterminate" cases, all of which involved multi-ply-classified ("tied") profiles, were reviewed and classified by the principal investigator.

Once all the Phase 1 MMPI-2s had been classified, they were cross-tabulated with the original (MMPI-1) classifications that had been made by the P.I. in the 1970s, using the Megargee/Dorh-out program followed by clinical classification. At this point, a decision had to be made regarding how "hits" or "misses" should

be operationally defined in the case of multiply-classified MMPI-2 profiles when one of the tied categories matched the MMPI-1 classification. The most stringent requirement would be to limit matches to those cases in which clinical classification of the ties indicated the matching category was clearly the better choice. The less stringent category would be to call it a hit if any of the tied groups matched the original MMPI-1 designation.

For example, suppose the MMPI-1 classification was Able, and the MMPI-2 profile could fit either Able or Foxtrot at the high level. As a general rule, Able/Foxtrot ties are decided in favor of Foxtrot since that group has the more demanding set of MMPI-1 rules (Megargee et al., 1979). However, would it be fair to the MMPI-2's developers to regard this case as a miss? After all, the program's "decision" was that the profile fit both Able and Foxtrot equally well, so the MMPI-2 profile was certainly consistent with it being designated Able. Moreover, since the types are regarded as "fuzzy" rather than as mutually exclusive, an individual with such a profile would be regarded as having a blend of Able and Foxtrot characteristics. The final decision was that multiply-classified profiles should be regarded as being "hits" if either of the tied groups agreed with the MMPI-1 classification. It should be emphasized, however, that this was true only if the profile fit both groups at the same level. In the above example, if the estimated MMPI-2 had fit Foxtrot at the high level and Able at the medium, it would have been exclusively classified into Foxtrot and tallied as a "miss."

Results. The T-score means, standard deviations, and ranges on the MMPI-1 and the estimated MMPI-2 scales for the Phase 1 subjects classified into the 10 types on the basis of their MMPI-1 profiles are presented in Tables 6-A and 6-B; the MMPI-1 data are in Table 6-A and the estimated MMPI-2 statistics are in Table 6-B. Surveying these data, some of the differences between MMPI-1 and MMPI-2 are evident. The MMPI-2 means, maximums and minimums tend to be lower than their MMPI-1 counterparts.

As noted in Table 4, 50 of the MMPI-1s were unclassifiable as were 93 of the MMPI-2s; 1075 cases were classified on both MMPI-1 and MMPI-2. The cross-tabulation of the classifications based on the estimated MMPI-2 profiles with those based on the original MMPI are presented in Table 7; 644 of the 1075 classified cases (59.9%) obtained the same type on both tests.

The proportion of identically classified profiles varied considerably from group to group. In Phase 1, agreement was highest in groups Item (92.3%), Able (74.9%) and George (67.1%). It was lowest in Jupiter (21.4%), Easy (27.4%) and Foxtrot (31.8%). The latter three groups are among those with the most stringent primary rule requirements. Jupiters, for example, could not meet the primary rule requirements for inclusion into any other group, and Foxtrots had to have Scales 4, 8, and 9 as their

highest three. (See Appendix 1.)

As in the Pilot Study, group Item was heavily overclassified; 384 of the 1075 cases (35.7%) were called Items, whereas only 222 (20.7%) had been classified as Items on the basis of MMPI-1. And, as in the Pilot, George was also over-represented; 118 MMPI-2s were assigned to George, only 55 of which (46.6%) had originally been typed as Georges.

Groups that had primary rules specifying minimum levels on specific scales tended to lose cases. Groups Charlie and How, for example, were especially hard hit. In the case of Charlie, 35 of the 103 MMPI-2s (34%) were unclassifiable. Of the remaining 68, only 32 (47.1%) were classified correctly. The primary rules for Charlie specify minimum T-scores of 65 on Scale 6 and 80 on Scale 8. In the case of group How, 21 of the 155 cases (13.5%) that had been classified as Hows on MMPI-1 were unclassifiable on MMPI-2. Of the 134 Hows that could be classified, only 64 (47.8%) remained in How. One reason was Primary Rule #3 which stipulated that to be included in How a profile had to have a T-score of 70 or more on Scale 2. (See Appendix 1.) Table 6-B, however, reveals a mean Scale 2 T-score of only 70.96 for the 155 men whose MMPI-1 profiles had been classified as How. With a mean of only 70.96, undoubtedly a substantial proportion missed the cut on Scale 2. Observations such as these suggested changes that could be made in the original rules to make them more suitable for classifying MMPI-2s.

Conclusions. In March, 1991, because of the error discovered in the classification program, the precise extent of the agreement or disagreement between the types based on MMPI-1 and MMPI-2 was unclear. Nevertheless, it seemed evident that the original MMPI-1 rules could not be used with MMPI-2s in applied correctional settings. This preliminary conclusion was confirmed when the final Phase 1 cross-tabulation data became available, showing a 59.9% rate of agreement.

Phase 2 Investigation: Estimated MMPI-1s Compared with Actual MMPI-2s.

Purpose. Although the Phase 1 data afforded an opportunity for a cost-effective estimate of the impact of the revised MMPI, MMPI-2, on the Megargee offender classification system, cross-classifications using actual MMPI-2s were needed to provide a definitive answer. The purpose of the Phase 2 study was to obtain MMPI-2s on male inmates of state and federal correctional institutions, use them to provide estimates of MMPI-1, and determine the agreement among the classifications based on the two forms of the inventory. In the event that new rules had to be formulated for MMPI-2, as seemed likely, these data could also be used to cross-validate them.

Sampling. In Phase 2, MMPI-2s were administered to male inmates of state and federal correctional institutions. Arrangements were made with the Wisconsin Department of Corrections for the administration of over 200 MMPI-2s to inmates of the Dodge Correctional Institution in Waupun, WI. Since a within-subjects comparison of estimated MMPI-1s with actual MMPI-2s was the primary concern, the psychology staff was free to select inmates for testing according to whatever criteria they chose. The goal was to make the testing program maximally useful to the Dodge psychology staff.

As noted in Table 4, MMPI-2s were received on 209 male state offenders. They ranged in age from 19 to 65 with a mean of 35.73 years and a standard deviation of 9.38 years.

The second site for administering MMPI-2s to male offenders was the Federal Correctional Institution at Tallahassee, FL. This was the institution that had provided subjects for the initial derivation and validation of the MMPI-based system. In the two decades that had passed since the system was devised, the Tallahassee FCI had grown and changed from being an institution for youthful offenders to one admitting adult men of all ages. The mean age of the Tallahassee sample was 27.83 with a standard deviation of 8.16; the youngest man was 17 and the oldest was 65. No other demographic data were included in the MMPI reports. As in the Dodge sample, the Tallahassee staff were free to select inmates for testing according to whatever criteria they chose. Thus this sample, like the state sample, should not be regarded as being representative of the overall composition of the institution.

Materials. Materials for Phase 2, all of which were supplied gratis by National Computer Systems, consisted of MMPI-2 and two brief instruments developed and used by the MMPI revision project.

The MMPI-2 is a 567-item, true/false paper and pencil inventory. It contains almost all the items scored on the validity and clinical scales of the original MMPI. However, in eliminating objectionable and sexist items, a few of the regularly scored items were lost. Scale F lost four items, Scale 1 lost one item, Scale 2 lost three items, Scale 5 lost 4 items and Scale 0 lost one item. Most of the deleted items referred to religious beliefs or excretory functions; two were deemed obsolete, one referring to the game "Drop the Handkerchief" and the other to the book Alice in Wonderland.

On MMPI-1, only 357 of the 550 items were actually scored on any of the regular scales. The rest were buffer items. Although almost all of the 357 regularly scored items were retained, many of the unscored buffer items were replaced with new items, so

even though MMPI-1 and MMPI-2 have almost exactly the same number of items, the composition of MMPI-2 differs from MMPI-1.

A brief recent life events questionnaire and a biographical data sheet were also used. These forms had been used in the MMPI-2 restandardization project, and their inclusion was aimed at making our MMPI-2 data on criminal offenders more useful to MMPI-2 researchers.

Procedure. Preliminary arrangements and agreements in principle for the collection of data at the two sites had been made in the Fall of 1988, before the application for the present grant was submitted in January, 1989. After the grant was approved and funded on Sept. 13, 1989, the principal investigator visited these two performance sites. In Wisconsin, he met with Dr. James Cowden and other personnel at the central administrative office of the Wisconsin Department of Corrections in Madison where final arrangements were made. With Dr. Cowden, he visited Dodge where he briefed the staff on the new MMPI-2 and the purpose of the research and provided them with MMPI-2 administration Manuals (Butcher, Dahlstrom, Graham, Tellegen & Kaemmer, 1989) and testing materials supplied by NCS. A similar procedure was followed in Tallahassee, where he met with Dr. Steve Inger, Southeast Regional Coordinator for the Bureau of Prisons and members of the FCI mental health staff.

After each institution had designated a local contact person who would be responsible for data collection, that person contacted Dr. Sharon Krmpotich, Senior Database/Research Coordinator for NCS. Dr. Krmpotich saw to it that each institution was supplied with MMPI-2s, answer sheets and copies of the life events and biographical questionnaires. Using the standard administration procedures as stipulated in the MMPI-2 administration Manuals (Butcher, Dahlstrom, Graham, Tellegen & Kaemmer, 1989), members of the mental health staffs at the participating institutions administered the MMPI-2 first, followed by the other two brief instruments. Testing at Dodge was begun in March, 1990 and concluded in June, 1990. At Tallahassee, testing took place from April, 1990 through August, 1990.

Completed test protocols were sent from the institutions to NCS where they were scored, profiled, and interpreted by means of the Minnesota Report (Butcher, 1989). These reports were returned to the institutional psychology staffs who used them in classification and programing. This insured that the test administration took place in a "real world" atmosphere.

Copies of all the data and scores, suitably disguised to conceal the identities of the respondents, were retained by NCS for the project. After the Phase 2 testing had been completed at both sites, the MMPI-2s were used to estimate the MMPI-1 profiles using special software developed by NCS. It was decided not to

prorate the scores on Scales F, 1, 2, 5 and 0 to compensate for the loss of items in the conversion from MMPI-1 to MMPI-2. It was felt the increase in accuracy was not worth the extra cost in time and effort that would be required for NCS to add this feature to the program.

Copies of the MMPI-2 reports, profiles, T-scores and Welsh Codes and the estimated MMPI-1 profiles were supplied to the project in October, 1991. Both the estimated MMPI-1s and the MMPI-2s had been classified by NCS using the original rules; as with the Phase 1 data, these initial classifications employed the erroneous subroutine which based final classifications on secondary rule point totals rather than levels.

In addition to the cases classified as indeterminate, 19 federal cases were had not been classified on either the estimated MMPI-1 or the actual MMPI-2. Because the Megargee MMPI-based classification system is supposed to be used only with criminal offenders, NCS has adopted a safeguard whereby no answer sheet that is not specifically designated as coming from a correctional agency can be classified by the system. Unfortunately, that "setting" code had been left blank or filled in incorrectly on these cases (K. Gialluca, personal communication, Sept. 23, 1991). Thus, for these 19 cases, the classification of the estimated MMPI-1s and the MMPI-2s had to be done entirely by hand.

Once the hard copies of the Phase 2 data had been received, the indeterminate and unclassified cases were classified clinically by J.T. Fly and the principal investigator, working independently. As with the Phase 1 data, the Ables were reclassified when it appeared that the error in the NCS program was limited to this group. Later, when the more pervasive nature of the problem was discovered by Ms. Newton in March, 1991, the entire Phase 2 data set was reclassified by NCS after the error had been corrected.

Meanwhile, NCS had discovered another error (B. Newton, personal communication, April 9, 1991.) This one was in Table K of the MMPI-2 administration Manuals (Butcher, Dahlstrom, Graham, Tellegen & Kaemmer, 1989) which contained the norms used when estimating MMPI-1s from MMPI-2s. This problem primarily affected the T-scores on MMPI Scales F, 2 and 5. While NCS was correcting the Phase 2 classifications, they corrected the estimated MMPI-1 T-scores and Welsh codes as well.

The corrected Phase 2 hard copy was received in November, 1991. By this time the P.I. had begun a 10 month overseas assignment at the Florida State University Study Center in London, England. Not having other personnel trained in the system available, he reclassified the corrected indeterminate and unclassified cases without the aid of an independent rater.

In the course of this reclassification, it was discovered that 36 federal cases had not been included among the data forwarded to London. When the P.I. returned to the U.S. in June, 1992, their estimated MMPI-1s that had been sent the previous year were retreived from the project's files and the erroneous (Table K) scale scores corrected. Then these 36 MMPI-1s were clinically classified by the P.I. in July, 1992 and added to the data set.

Despite these vicissitudes, eventually correct estimated MMPI-1 and MMPI-2 T-scores were obtained and classified according to the original rules. In cross-tabulating these classifications, a somewhat more liberal operational definition of "agreement" was used than that employed in Phase 1. In Phase 1, it will be recalled, if one or more of the classifications based on the estimated MMPI-2 profiles matched the original MMPI-1 classification, it was defined as a "hit." Whereas no data were available after all these years on MMPI-1 ties in the Phase 1 data, this information was accessible in the Phase 2 data set for both the estimated MMPI-1s and MMPI-2s. The same logic employed in Phase 1 dictated that any agreement among tied profiles in Phase 2 should be classified as a hit. For example, if a case's estimated MMPI-1 fit both Able and Baker at the same level and its actual MMPI-2 fit Baker and George equally well, the case would be classified as a "hit" based on the Baker/Baker match. However, if the MMPI-1 fit Able at the high level and Baker at the medium level, the MMPI-1 would be classified as an Able and the case would be a miss since the MMPI-2 was either a Baker or a George but not an Able. The fact that both MMPI-1 and MMPI-2 ties could be used in the matching is no doubt the reason, as we shall see, that a higher rate of agreement was obtained in the Phase 2 investigation.

Results. The T-score means, standard deviations, and ranges on the estimated MMPI-1 and MMPI-2 scales for the Phase 2 subjects classified into the 10 types on the basis of their MMPI-1 profiles are presented in Table 8; the MMPI-1 data are in Table 8-A and the estimated MMPI-2 statistics are in Table 8-B. This table combines the data from the state and federal samples. Despite the fact that these data are based on MMPI-2s administered over 20 years after the Phase 1 subjects were tested using MMPI-1, and despite the much greater range in age in the Phase 2 samples, these summary statistics for the various types are very similar to those represented in Tables 6-A and 6-B.

As noted in Table 4, 31 of the MMPI-1s (16 state and 19 federal) and 30 of the MMPI-2s (19 state and 11 federal) were unclassifiable. The cross-tabulation of the classifications based on the estimated MMPI-1 profiles and those based on the MMPI-2s are presented in Tables 9, 10, and 11. Table 9 contains the results for the 177 state offenders who could be classified on both instruments when the original rules were applied; Table 10

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provides the results for the 190 classified federal prisoners, and Table 11 includes the 367 subjects in the combined state and federal samples. As noted earlier, because the staffs at the two institutions were free to select subjects for testing according to whatever criteria they chose, the proportions of offenders in the various types should not be regarded as representative of the populations of these two settings.

As expected, given the more liberal operational definition, the rates of agreement are higher on Phase 2 than in Phase 1; 113 (63.8%) of the state prisoners' profiles were classified identically, as were 127 (66.8%) of the federal subjects. Overall, agreement was obtained in 240 (65.4%) of the 367 cases in the combined groups.

The differences among the groups with respect to the proportion of identically classified subjects are similar, but not identical, to the Phase 1 findings. Once again Item (96.2% overall) and Able (81.6%) were the highest groups, and Easy (24.3%) one of the lowest. But George ranked higher in the federal sample (69.6%) than in the state (47.6%). The number of subjects in groups Baker and Jupiter were too small to produce reliable proportions.

Group Item continued to be over-represented. Overall 135 (36.8%) of the subjects in the combined samples were called Items on the basis of MMPI-2 compared with 78 (21.3%) on MMPI-1. The over-representation of Georges in the Phase 1 data, however, was not evident in Phase 2. As before, groups for which the original rules specified minimum scores in the original primary rules, such as group How, tended to lose cases.

Conclusions. The Phase 2 results showed that overall almost two thirds (65.4%) of the MMPI-2s and the estimated MMPI-1s were classified into the same groups. Considering the fact that only 10% would be assigned to the same groups on the basis of chance, this degree of correspondence is clearly highly significant. However, demonstrating that the rate of agreement is significantly greater than chance does not mean that the correspondence is high enough for classifications based on the two tests to be regarded as equivalent for clinical or classification purposes. Revised rules that improved the rate of agreement would obviously be desirable. Part Three describes research aimed at formulating a new set of rules for the classification of MMPI-2s.

Part Three: Derivation of New Rules

for the Classification of MMPI-2s

Purpose

The studies described in Part Two of this report indicated that, although there was considerable convergence between classifications based on MMPI-1 and MMPI-2 profiles when the original Megargee and Dorhout (1976, 1977) rules were employed, there was substantial room for improvement. The purpose of the research to be reported in Part Three was to formulate a revised set of rules that would be more appropriate for the classification of the revised and restandardized MMPI-2s of male criminal offenders. The primary criterion was agreement with classifications based on the application of the Megargee/Dorhout rules to the MMPI-1s of the same subjects. Other desirable goals were fewer unclassifiable or multiply-classified profiles.

Although the present research focuses on male offenders, the same research questions need to be raised and resolved with respect to the impact of MMPI-2 on the classification system among female offenders. Research designed to address these questions is currently in progress.

Background

A brief description on how the MMPI-based classification system was derived and validated was provided in Part One of this report. This section presents a more detailed description of how the initial classificatory rules were written so the reader can better understand how the procedures utilized in the present research differed from those that were previously employed.

The initial Meyer-Megargee rules. It will be recalled that in the initial derivation of the system, Meyer and Megargee (1972; 1977) subjected the MMPI profiles of three samples of male youthful offenders to hierarchical profile analyses designed to cluster similar profiles into homogeneous groups. The profiles clustered into each group on the basis of these analyses were plotted simultaneously on MMPI profile sheets, using different colors and patterns of lines to identify each individual case. The Welsh codes of the subjects in each group were also noted. By studying these configurations, Meyer and Megargee were able to observe which aspects were common to most of the profiles in a group and which were not.

Based on these observations, Meyer and Megargee (1972) formulated rules to capture the essential characteristics of the profiles in each group. By and large, these rules and guidelines were inclusionary; in essence, the rules for each types stated, "If the profile being classified has these characteristics, then

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it can be included in this group." Exclusionary rules, on the other hand, would have stipulated, "If the profile has this characteristic, it cannot be included in these groups, and if it has that characteristics it cannot be included in those groups."

The language used in the initial Meyer-Megargee (1972, pp. 12-14) rules reflects their clinical origins. Some were almost conversational in tone:

"Peak scale often less than 70T with generally moderate elevation" (Baker).

"Profile slopes up to the right" (Charlie).

"Profile slopes down to the right" (Easy).

"Scale 2 spike not uncommon" (Dog, later renamed Delta).

"Usually a bimodal profile" (Foxtrot).

"The profile is jagged, with more than two pronounced peaks" (How).

No operational definitions were provided for terms such as "slopes up," "slopes down," or "jagged," nor were the precise meanings of such terms as "usually," "generally," "often," or "not uncommon" specified. Not surprisingly, clinicians who had not participated in the derivation of the types and who had not examined the individual profiles assigned to each cluster found it difficult to apply these "rules" reliably. A more precise set of rules was obviously needed.

The revised Megargee and Dorhout rules. In the mid-1970s, Megargee collaborated with Brent Dorhout in an effort to produce a more reliable set of rules for classifying MMPIs into the 10 offender types. One goal was a computerized classification program that could be used when large numbers of MMPIs, such as the 1213 cases in the FCI longitudinal project, had to be classified. The process whereby they revised the rules and constructed a computer program for classifying offenders' MMPI into the 10 types was described by Megargee et al. (1979, pp. 96-98):

> The revision of the original rules took place
> with Megargee providing the expertise on the MMPI
> typology and Dorhout providing the programming
> skills. After discussing the original rules with
> Dorhout, Megargee then classified a number of MMPI
> profiles of randomly selected Federal Correctional
> Institution (FCI) inmates, commenting on the
> principles he was using as he did so. Dorhout
> noted that Megargee was guided in part by the
> original rules, but that he also frequently re-

ferred back to the original profiles obtained in
the hierarchical profile analysis as well as the
85 that he and Meyer had independently sorted. As
Megargee sorted the new profiles, Dorhout took
notes and demanded that Megargee specify the MMPI
profile characteristics he was responding to when
he said, "This one looks sort of like a George,
but it's really more of an Easy,"....

After Megargee had classified a number of
profiles, articulating the principles as he did
so, a revised set of rules was derived which
Dorhout embodied in a computer program. The most
important addition to the original rules was
specifying which rules were critical and which
served as mere guidelines. For example, for Group
Delta, the first rule, which stated "Scale 4 is
greater than 70, often greater than 80, resulting
in a prominent 4 spike profile," was absolutely
essential. No profiles without this characteris-
tic were ever included in Group Delta. On the
other hand, Rule 3, which had stated "Scale 2
greater than Scales 1 and 3," was less important;
a profile could violate this rule and still be
included in the group.

The revised rules incorporated this differen-
tial weighting. For each group, two sets of rules
were specified: "essential" and "accessory." If
a profile failed to meet any of the essential
rules for a type, it could not be included in that
group. The accessory rules provided a "goodness
of fit" approximation. When profiles meet the
essential rules for two or more groups, the acces-
sory rules are used to decide which of the possi-
ble groups the profile fits best.

Dorhout's first computer program was applied
to a set of 50 inmate profiles that had been
independently classified by Megargee. The program
was found to classify 35 (70%) correctly. The 15
discrepant profiles were examined, and Megargee
made further changes in the rules which Dorhout
embodied in a revised program.

This process continued, with each successive
version of the classificatory program being
checked on new samples of profiles, followed by
refinements in the specifications for the groups
so that the computerized classification would more
closely approximate the clinical typing. Those
modifications that improved the classification

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were retained; others, which decreased the accuracy, were abandoned....

After a series of revisions, a program was finally written which correctly identified 91% of a sample of 35 cases independently typed by Megargee. This program was deemed satisfactory.

The rules formulated by Megargee and Dorhout (1976,1977) are presented in Appendix 1. As noted above, in addition to being more precise, the main innovation was Dorhout's distinction between primary (essential) rules, used to determine whether it is possible to assign a profile to a given group, and secondary (accessory) rules used to determine goodness of fit if all the primary rules have been met. As noted previously, these secondary rules are used to score points which are translated into "levels" by means of the "point chart" associated with the rules for each group. (See Appendix 1.) Like Meyer and Megargee's (1972) original set of rules, Megargee and Dorhout's (1976, 1977) rules are inclusionary rather than exclusionary; that is the emphasis is on identifying those profiles which belong to a group rather than excluding those which do not belong.

Megargee and Dorhout's (1976, 1977) rules were designed to classify the easiest, most typical, cases, with the more difficult discriminations being reserved for clinicians familiar with the MMPI and well-versed in the classification system. Typically about one third of the MMPI-1 profiles would be unclassifiable or multiply classified. These indeterminate profiles were to be classified clinically. If an unclassifiable profile met the essential requirements for a group and just missed being included because a scale was a bit too high or a two-point code was not exactly right, the clinician was encouraged to classify the case into that group anyway. In making this decision, he or she could refer to the summary data on the original clusters and note that some of these cases, too, did not exactly fit the parameters specified by Megargee and Dorhout's (1976, 1977) rules. (See Table 3.) Multiply classified cases could be resolved by consulting published guidelines and inspecting frequency distributions that enabled the clinician to determine which group the profile in question resembled most closely.

When Dorhout's computer program was applied to the 1213 MMPI-1 cases used in Phase 1 of the present study, 769 (63.4%) were classified uniquely and 444 (36.6%) were indeterminate. Of the 444, 248 were multiply classified and the remaining 196 were unclassified because they failed to meet primary rules or were possibly invalid. Clinical classification by Megargee resolved all the ties and succeeded in classifying all but 50 of the 196 indeterminate cases.

Over the years, in numerous studies, these percentages have

remained quite constant. Most investigators found that about two thirds of the MMPI-1 profiles are classified uniquely by routine application of the rules. The remaining third were typically divided equally between "ties" and "Uncles" (unclassifiable profiles) (Zager, 1988). Unfortunately many investigators fail to classify these indeterminate profiles clinically, thereby biasing their samples (Zager, 1988).

Implications for revising the rules. The primary goal in producing a new revision of the rules was, of course, to modify the operational definitions of the types so that they would be more appropriate for the revised MMPI. However, experience with the system suggested approaches to the task that differed from those used in formulating the original Meyer and Megargee or Megargee and Dorhout rules.

One aspect concerned the clinical classification of indeterminate profiles. Attempting to classify profiles which miss one or more of the essential rules for each of the 10 types is a much more demanding and arduous clinical task than resolving ties between multiply-classified profiles. In the former case, the clinician must examine the correspondence between the profile in question and all the primary rules for all 10 of the types; in the latter, only the tied groups' characteristics need to be considered, and guidelines to aid in the most common decisions are available. In formulating the new rules, it was hoped that the number of indeterminate profiles could be reduced, especially the difficult "Uncles" that failed to meet the primary rules for inclusion in any group.

The Meyer and Megargee (1972) rules and, to a lesser extent, the Megargee and Dorhout (1976, 1977) rules were designed to be used by clinicians inspecting individual profiles. It was felt then that the computer program would only be used in the case of mass screening, such as when Megargee's longitudinal research cohort had to be classified. For this reason, the rules emphasized aspects of the profile that could readily be observed by the clinician, rather than formulas which required special computations. Reliability studies of clinical classification indicated that errors were most likely to occur on the few rules which did require arithmetic calculations, such as, "Sum of T-scores of Scales 1, 2, and 3 > sum of T-scores of Scales 6, 8, and 9" (George) (Megargee, Bohn, Jr., & Carbonell, 1988). Many clinicians make (incorrect) "eyeball" estimates of such inequalities instead of taking the time to compute the actual scores.

Today, computerized assessment procedures are more widely used. Most psychologists who employ the MMPI-based system in research or in applied correctional settings evidently rely on computerized classification. Today's zeitgeist favors rules which utilize the quantitative indices and calculations which better suit computers, such as the rule cited above, instead of the

configural observations of profile characteristics preferred by humans. Moreover computerized approaches make it possible to use a larger number of more precise, quantitative rules without substantially increasing the time required for profile classification. It is for these reasons that the revised rules for the MMPI-2 are better suited for computerized or computer-assisted application than they are for clinical classification.

Procedures used in revising the classificatory rules for MMPI-2

The methods actually used in deriving and cross-validating a revised set of rules to be used when classifying the MMPI-2s of male offenders differed from those originally planned. In planning the project, the P.I. had assumed that no revision of the rules would take place until after the Phase 1 and Phase 2 studies cross-tabulating the classifications based on MMPI-1s with those based on MMPI-2s had been completed. The revision of the old rules, if such a revision was necessary, would begin with a close examination of the classificatory errors or "misses," which, it was hoped, would be concentrated in a few groups. Once it had been determined what went wrong in those cases, the specific rules responsible for the misclassifications would be identified and changed to eliminate the problem.

When the extent of the NCS programming error was discovered in late March, 1991, the project was faced with a different set of circumstances. Although it seemed evident from the pilot, Phase 1 and Phase 2 studies that revised rules were needed, the error cast doubt on the accuracy of all the new classifications: those based on the 1163 estimated MMPI-2s in Phase 1 and those based on both the estimated MMPI-1s and the actual MMPI-2s among the 422 Phase 2 subjects, 2007 profiles in all.

Another factor that had to be considered was the fact that the P.I. was scheduled to spend the 1991-1992 academic year teaching at the Florida State University's London Study Center, where he would be cut off from the resources of the FSU Computing Center on the Tallahassee campus. (England has a four wire telephone system that is incompatible with the two wire systems used in America and most European countries. Consequently, American modems are inoperable in the U.K.) This made it impractical to enter all the data into mainframe files to be classified using Megargee and Dorhout's Fortran program, because further mainframe analyses would be extremely difficult as long as the P.I. was overseas.

A final important consideration was the need to get on with a project that had already experienced serious delays. This argued against waiting until NCS was able to supply corrected classifications.

All of these considerations led to a change in the planned

procedures to be used in the derivation project. It was decided
to suspend the Phase 1 and Phase 2 cross-tabulation research
until corrected classifications were computed by NCS, and instead
proceed directly with the revision of the classificatory rules
using the only reliable data that were available, namely the
Phase 1 classifications based on the original MMPIs administered
in the 1970s, and the estimated MMPI-2 T-scores and Welsh codes.

A second decision was to eschew use of the FSU mainframe
computer and instead rely on hardware that could be taken over-
seas, a four pound battery-powered Tandy 1500-HD notebook comput-
er, and the software it could support, namely Lotus 1-2-3, ver-
sion 2.01, so that research on the project could proceed overseas
in venues that included planes, trains, buses and, for one week,
a ship.

In retrospect, these decisions, although forced by necessi-
ty, appear serendipitous. The rules that resulted from the analy-
ses of all 1163 estimated MMPI-2s are undoubtedly more comprehen-
sive, more accurate and more generalized than any aimed solely at
correcting misclassified cases would have been. The utilization
of a personal computer with a 20 megabyte hard drive and one
megabyte of RAM and widely available commercial software led to a
system that can be adopted in a wider variety of settings than
the Megargee and Dorhout, rules which required mainframe hardware
and specially written software. Although special software embody-
ing the new MMPI-2 rules will be prepared, classification can be
greatly assisted by the use of standard business spreadsheet
software programs.

Sampling. The revision of the rules utilized the Phase 1
sample for rule derivation and the Phase 2 sample for cross-
validation. The Phase 1 sample, described in Part Two, consisted
of 1163 male youthful offenders who had been tested with the
standard group form of MMPI-1 in the 1970s and whose profiles had
been classified into the 10 MMPI-based types using Megargee and
Dorhout's (1976, 1977) mainframe program, followed by clinical
classification of the 444 indeterminate profiles by Megargee.

The Phase 2 sample consisted of 391 state and federal
prisoners classified on the basis of their estimated MMPI-1
profiles by means of the corrected NCS classification program,
after the estimated profiles had been adjusted to compensate for
the incorrect "Table K" norms. As explained in Part Two, Megargee
clinically classified the 19 "no setting" cases and the 36
"missing" cases that had not been forwarded to London.

Revising the rules. The procedures used to obtain and clas-
sify the MMPI-1s of the subjects in Phases 1 and 2 were described
in Part 2. The present section will focus on the methods used to
derive new rules for use with MMPI-2s, using the MMPI-1 classifi-
cations as criteria.

A Lotus spreadsheet was created which included the 1163 Phase 1 subjects' original MMPI-1 classifications, their estimated MMPI-2 T-scores on three validity scales (L, F, and K) and the 10 clinical scales, and their Welsh codes. The MMPI-1 classifications were retrieved from the files of the longitudinal research project; the rest of the data were entered from the hard copies of the Phase 1 estimated MMPI-2 profiles provided by NCS. After these data were proofed and edited, the 1163 cases were sorted on the basis of their MMPI-1 classification, and a subfile was created for each of the 10 types. Hard copies of each subfile were printed out. The number of subjects included in each MMPI-based group can be found in the first column of Tables 6-A and 6-B; the groups ranged in size from 37 (Jupiter) to 224 (Item). Next the means, standard deviations and ranges for every group on every estimated MMPI-2 scale were computed using the Lotus "AVG," "STD," "MIN," and "MAX" functions. The results are reported in Table 6-B.

The process of reformulating the classificatory rules proceeded in an orderly fashion. The primary rules for each group were considered first, followed by the secondary rules. Point charts and levels were not considered until the revision was in its final stages. The MMPI-2 characteristics, elevations, distributions and Welsh codes, were considered in turn, beginning with Able and ending with Jupiter.

First Megargee and Dorhout's (1976, 1977) rules were studied. The effect of each was evaluated and various adjustments considered. For example, the first primary rule for Able had been, "Top (clinical) scale < or = 90T." Table 6-B, however, shows that the highest MMPI-2 T-score for Able was 85, so that rule was revised to read, "Highest (clinical) scale < 86T." Other rules dealing with levels were adjusted in a similar fashion.

The Welsh codes were examined and the patterns of new and two-point codes were noted. Because of the uniform T-scores used in MMPI-2, these patterns differed from those in MMPI-1 and the rules had to be modified accordingly. For example, on MMPI-1, Group Delta had always had Scale 4 as its highest scale by at least five T-score points. This is not true on MMPI-2. Some Deltas had Scales 5 or 0 as the highest, so the rule was relaxed to exclude these two scales. Later, ties were permitted so that some Deltas that had Scales 4 and 6 tied for highest would not be excluded. The five point T-score difference was relaxed to four points, and only applied to Scales 1, 2, 3, 7, 8, and 9. While these measures succeeded in retaining some Deltas who would otherwise have been excluded, they had the disadvantage of permitting cases that belonged in other groups to meet the primary criteria for Delta. Increased convergence within a group usually came at the expense of decreased discrimination from other groups, as changes aimed at solving problems noted in one

group often created new difficulties in classifying other groups.

Unlike the Megargee and Dorhout rules which rely on clinical observations of profile patterns, the computerized data base made it possible to investigate the effects of much more precise formulations. By sorting all the cases in a group in ascending or descending order on a particular scale, and comparing the distribution with those obtained in other groups, the effects of various cutting scores could easily be determined. Similarly, inequalities such as "Scale 4 > Scale 3," could quickly be calculated and sorted to determine their ability to discriminate among relevant groups. None of this had been done when the Meyer and Megargee or Megargee and Dorhout rules were formulated.

After the original rules were reviewed, the MMPI-2 characteristics of the groups were studied in an effort to formulate new guidelines that might help classify profiles correctly. New indices were invented to capture aspects of certain profiles such as elevation and slope. "Left Sum," is the sum of T-scores on Scales 1, 2, 3, and 4, and "Right Sum" is the sum of the T-scores on Scales 6, 7, 8, and 9. "Big Sum" consists of Right Sum plus Left Sum, and "Slope" is the difference of Left Sum minus Right Sum. When these measures were calculated and sorted into frequency distributions so optimal cutting scores could be determined, they proved useful in defining certain rather nondescript groups that had been clustered primarily on the basis of elevation, such as group How at the upper levels and group Item at the lower.

In contrast to the previous efforts to write rules, the exclusion of profiles belonging to other groups became an important consideration. This was because one effect of the MMPI revision has been to lower overall elevations and, by basing the T-scores on pooled variances, to produce profiles that appear more homogeneous and, therefore, less distinguishable from one another. When the Phase 1 cross-tabulations were finally completed, these tendencies were evident in the fact that applying Megargee and Dorhout's (1976, 1977) rules to the estimated MMPI-2s resulted in 384 cases, 35.7% of the total number of classified cases, being assigned to group Item. It is noteworthy that Item is described in Table 2 as having a "very low" profile with "no particular pattern."

By mid-April of 1991, the goal of the revision project had changed. No longer was it to adapt Megargee and Dorhout's (1976, 1977) rules to MMPI-2. Instead the goal was to create a new set of rules that would classify MMPI-2s into the same categories that the old rules had classified MMPI-1s. However, close examination of the estimated MMPI-2 data clearly showed that this could not be achieved with 100% accuracy. MMPI-2s are clearly different from MMPI-1s; indeed, if they were not, the revision project would have been a failure. The question was whether new

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classificatory rules could be written so that the essential features of the MMPI-1 classification system could be carried over and applied to MMPI-2. As a rule of thumb, a criterion of 80% agreement in classifications was adopted as goal.

On May 16, 1991, all the proposed primary and secondary rules were compiled. Some were new and some had been adapted from the original rules. The primary consideration in formulating this first set of new rules had been the effect of each rule on the particular group it was supposed to define. The questions being asked were on the order of, "Do all, or at least most, of the profiles in group Able fit this proposed primary rule for Able?" The issue of how many profiles in other groups also met that criterion had not yet been explicitly addressed. The time had come to investigate this aspect.

Another concern was the cumulative effect of the proposed rules, especially the primary ones. Obviously rules which were satisfied by 100% of the people in a group posed no problems, but as rules that characterized only 98% or 95% were considered the question arose whether the individuals being excluded were the same few cases whose MMPI-2s no longer fit the parameters established for the type, or whether each new rule excluded different subjects. If they were different, then a 2% loss here or a 5% loss there might quickly add up to a substantial false negative rate.

Testing the May 16, 1991 rules: The sample of 100. After primary and secondary rules had been proposed for each of the 10 types, these issues were investigated. The first 10 cases from each of the 10 groups were drawn from the Phase 1 MMPI-2 database, 100 cases in all. Heather Dunham, a research assistant who had been responsible for entering and editing the MMPI-2 scores, evaluated the effect of each of the proposed rules on all 100 cases. Thus for proposed Able Rule No. 1, she determined not only whether each of the 10 Ables fit the proposed rule, but also how many Bakers, Charlies, Deltas and so on also met that particular rule. This was a tedious task, since it meant making 100 decisions for each proposed rule, and there were about 15 rules to be tested for each of the 10 groups. For this exercise, actual MMPI-2 profiles were not drawn; instead Ms. Dunham relied on printouts of the T-scores, Welsh codes and indices, such as "Big Sum," of the 100 test cases.

Not surprisingly, virtually all of the "May 16" primary rules were found to be satisfactory according to the criterion of whether or not all the subjects in the group in question were included. For example, the May 16 rules included 11 proposed primary rules for group Able. It was found that 10 of the rules being considered were satisfied by all 10 Ables in the test sample. The remaining rule, which was satisfied by nine of the 10, was demoted to secondary rule status.

The May 16 primary rules were much less satisfactory in excluding cases that did not belong in the group being tested. For example, one essential rule being considered for group Delta was satisfied by all 10 of the Delta test subjects. However, it was also met by all 10 of the subjects in groups Able, Baker, Charlie, Easy, Foxtrot, George, Item, and Jupiter. Its only apparent contribution, at least in the test sample, was to rule out two subjects in group How.

This first test also showed that many of the secondary rules being considered were unsatisfactory. For example, one of the proposed secondary rules for group Delta was met by only four of the 10 Deltas, while all 10 of the test subjects in George and nine of the 10 Bakers met that criterion. While this is an extreme example, it was clear that much work remained to be done.

Finally, all 100 of the cases were classified on the basis of the May 16 primary and secondary rules. This identified the groups that were presenting the most problems. It was found, for example, that group Easy needed considerable work; 10 Georges, nine Bakers, eight Ables and seven Items were tied with group Easy. Clearly new primary rules were required, both for Easy and these other groups, that would discriminate group Easy from these other types, and better secondary rules were needed that would boost the scores for Easys relative to these other groups' point totals.

Further revisions: The June 20, 1991 rules. The comprehensive test of all the May 16 rules gave a clear picture of which rules were satisfactory, which should be dropped, and which needed further refinement. It also demonstrated which groups were posing the major problems. In revising the May 16 rules, the emphasis changed from formulating general rules to solving specific problems, such as decreasing the number of Georges tied with Easy. This effort utilized not only the results obtained in the sample of 100, but also the subfiles containing the T-scores and Welsh codes for each group.

As work proceeded, detailed notes were kept of every attempted rule change and its effects. These notes show an increasing concern with profile discrimination. For example, primary Rule No. 9 for group Baker specifies that Scale 2 is higher than both Scale 1 and Scale 3. The notes show that this rule was adopted because it excluded 23% of the subjects in Group George and 44% of the subjects in Group Item from the possibility of being included in Group Baker.

Some proposed primary rules proved to be too costly. For example, a rule stating "Scale 9 > Scale 8" that was considered for Group Foxtrot would have eliminated 78% of the subjects in Group Charlie from being included in Foxtrot; however, further

calculations showed that 21% of the true Foxtrots would also be lost if this rule was adopted as a primary or essential rule. This was too great a price to pay, so this rule was instead used as a secondary rule to help differentiate Foxtrots from those Charlies whose profiles met the primary rules for Foxtrot.

By June 20, 1991, the changes that had been made to the May 16, 1991 rules were so extensive that a new compilation was needed. These "June 20, 1991" rules were tested using a new sample of Phase 1 subjects.

Testing the June 20, 1991 rules. In testing the May 16 rules, the emphasis had been on evaluating each specific rule. In testing the June 20 rules, and in all the tests that followed, the emphasis was on the number of cases correctly classified, with the MMPI-1 type being the criterion.

The 1163 subjects in the Phase 1 data set were arranged according to their original Bureau of Prisons identification numbers. The "Sample of 100" used to test the May 16 rules had utilized the first 10 subjects in each group. A new test sample was formed by entering the Phase 1 data at the 100th case and then selecting all the evenly-numbered cases until 500 had been chosen.

These cases were then prepared for computer-assisted classification. First, the major indices used in the June 20 rules were calculated and entered into the data array for each subject, along with his estimated MMPI-2 T-scores and Welsh code. Next, 10 columns, one for each group, were defined to the right of the indices. These columns were to be used to record the results of applying the classificatory rules. The word "NO" was to be inserted if a profile failed to meet all the primary rules for a group; otherwise the actual score on the secondary rules would be recorded.

Next, standard Lotus sort functions were used to assist in classification by identifying cases that failed to meet one or more of the major primary rules for each group. For example, the array of 500 cases was sorted in descending order on Scale 1. The primary rules for Group Able stipulate that Scale 1 must be less than 71T, so the word "NO" was inserted in the "ABLE" column for all the cases with T scores of 71 or more. Group Baker's primary rules have the same provision, so the array of "NOs" under the column for ABLE was copied onto that for Baker. Group Charlie specifies that Scale 1 must be less than 82T, so "NOs" were entered under Column CHARLIE for those cases with Scale 1 scores of 82 or higher. This continued until all the rules regarding maximum or minimum scores on Scale 1 had been dealt with, then the spreadsheet was saved, resorted on Scale 2, and the process repeated. The same procedure was used to rule out cases on the basis of indices or inequalities. In addition to decreasing the

number of human judgments required for classifying cases, this procedure also provided excellent feedback on the discriminating power of various rules. One could see immediately whether a given cutting score eliminated a large number of cases or only a few. It also demonstrated which rules were rather redundant, identifying the same cases already tagged by other rules.

When as many cases as possible had been eliminated through this computer-assisted procedure, hard copies of the 500-subject test file were printed out to be classified clinically by the Principal Investigator. In order to test the June 20 rules, the first 200 cases were used. The 200 test cases included 39 Ables, 12 Bakers, 12 Charlies, 26 Deltas, 15 Easys, 18 Foxtrots, 11 Georges, 23 Hows, 37 Items and 7 Jupiters.

Using the June 20 rules, the PI first scored all those cases that did not have a "NO" under the ABLE column according to the rules for Able. He wrote "NO" if they failed to meet one or more of the primary rules. When a case satisfied all the primary rules for a group, he scored it on the basis of the secondary rules and recorded the point total in the column. (Later versions of the rules were to weight some secondary rules higher than others, but at this stage the rules were all unit-weighted.)

When the 200 cases had been scored for all 10 types, levels were assigned, and the cases were classified. Next the MMPI-2 classifications were cross-tabulated with the original optimal MMPI-1 classifications. The same criterion of agreement used in the Phase 1 study was adopted: that is, in the event of ties, if either of the tied groups matched the original MMPI-1 classification it was considered to be a correct classification or "hit." (It will be recalled that no record of ties was available for the Phase 1 cases which had been classified in the 1970s.)

Two estimated MMPI-2 profiles proved to be unclassifiable, leaving 198 cases that were classified according to both procedures; 156 of the 198 (78.8%) received identical classifications. The cross-tabulations are presented in Table 12. Groups Able, How and Jupiter had hit rates ranging from 87% to 100%, and Charlie and Foxtrot both attained 83.3%; it appeared that the rules for those groups were working well and should not be tampered with. On the other hand, groups Baker, Delta, George and Item had hit rates under 70% that needed to be improved.

Revising the June 20, 1991 rules. The 42 incorrectly classified cases in the 200-person test file were closely studied so that the problems that had resulted in their misclassification could be identified and, if possible, corrected. Group Baker, for example, was troublesome. Of the 20 MMPI-2s classified into Baker, only eight actually belonged in that group. The other 12 came primarily from groups Delta, Easy and Item. The data in Table 12 also revealed that only one third of the cases that

belonged in groups Baker, Delta, George and Item were assigned to those groups.

Various measures were considered to deal with problems such as these. Often a change aimed at correcting one problem ended up creating another, but some improved the hit rate in the test sample by a case or two.

Another new compilation dated March 2, 1992 was formulated and tested using the same basic test file of 200 cases. (The two unclassifiable cases had been replaced with the next two classifiable cases, restoring the sample size to 200.) The March 2, 1992 rules achieved a hit rate of 82%, with 164 of the 200 cases classified correctly.

In a final effort to increase the rate of agreement, attention was shifted from the secondary rules to the point charts for each type. Thus far the "levels" associated with the point totals had been assigned rather arbitrarily. Now they were examined more closely and fine tuned. The final set of rules, including the adjusted point charts was labeled the "April 15, 1992" rules. Table 13 presents the cross-tabulation of the 200 test cases using the April 15, 1992 rules. It can be seen that when this final set of rules was applied to the estimated MMPI-2s of the 200 Phase 1 test subjects, the final classifications agreed with the original optimal MMPI-1 classifications in 168 of the 200 cases for a hit rate of 84%.

The problem, of course, was that the same Phase 1 cases being used to test the rules were also among those used to formulate them. Obviously an independent cross-validation of the new MMPI-2 rules was required. For this, the Phase 2 data, which had not been employed in formulating the new rules, were utilized.

Cross-validating the revised rules for MMPI-2.

After the error in the classification program had been corrected and the estimated MMPI-1 T-scores of the Phase 2 samples had been adjusted, copies of the Phase 2 data were forwarded to the P.I. at the FSU London Study Center. A disk containing the classifications was received in September, 1991 and the hard copies of the MMPI-2 and estimated MMPI-1 profiles for all 209 state offenders and 177 of the 213 federal prisoners was received in November, 1991. The indeterminate cases and the "no setting" cases were classified by the P.I. using Megargee and Dorhout's (1976, 1977) rules.

MMPI-2 T-scores on all 422 Phase 2 subjects had been entered into a Lotus spreadsheet by Heather Dunham before the P.I. moved to London. In London, Sara Jill Mercer first modified the standard Lotus program so that it could accommodate data bases exceeding 600 K on a PC with only 1 megabyte of RAM; then she wrote

macros to combine the Phase 2 T-scores with the output of the NCS classification programs. Next she computed the basic indices and inequalities for the Phase 2 MMPI-2s and conducted sorts of the Phase 2 data, identifying cases that could be eliminated from consideration because of failure to meet one or more of the March 2, 1992 rules. Hard copies of the Phase 2 data base, including MMPI-2 T-scores, Welsh codes, classification indices and the results of the sorts were prepared. Two undergraduate student assistants, Ann Wollan and Brian Blair, classified the Phase 2 cases using the March 2, 1992 rules. All discrepancies in their scoring were identified and resolved by the P.I. Later, when the point charts used in the March 2 rules were fine tuned, the P.I. reclassified the 386 Phase 2 cases using the newly adjusted levels incorporated into the final "April 15, 1992" version of the classificatory rules.

Final cross-validation of the April 15 rules had to be postponed until the data on the 36 missing federal cases, which by now had been dubbed the "lost sheep" sample, could be retrieved. After the P.I. returned to the U.S. in June, 1992, the estimated MMPI-1s and the actual MMPI-2s of the "lost sheep" were retrieved from the files of Phase 2 hard data that had been supplied by NCS in October, 1990. Since those MMPI-1s had been estimated using the old Table K norms, Sheila Marks corrected the estimated MMPI-1 T-scores. E. I. Megargee then classified the estimated MMPI-1s according to the Megargee/Dorhout rules and the MMPI-2s according to the new April 15, 1992 rules.

The results of this final cross-tabulation are presented in Table 14. As noted in Part Two, 31 of the 422 Phase 2 estimated MMPI-1s were unclassifiable on the basis of the Megargee/Dorhout rules, but only 15 of the MMPI-2s were unclassifiable on the basis of the April 15 rules. Thus the new rules applied to MMPI-2s result in less than half the number of unclassified cases as the old rules applied to MMPI-1. This is a noteworthy improvement, but what of the agreement between the two systems among the profiles that were classifiable? Of the 380 cases that could be classified on both MMPI-1 and MMPI-2, 304 (80.0%) received identical classifications. Given the fact that the missing items make it impossible to estimate MMPI-1s from MMPI-2s exactly, and that no attempt was made to prorate the estimated MMPI-1 scores to compensate for the missing items, the degree of agreement seems satisfactory. Based on considerable trial and error, it seems certain that further tinkering with these rules is unlikely to increase the rate of agreement.

The April 15, 1992 rules for classifying the MMPI-2s of male offenders are presented in Appendix 2. Based on the cross-validation, their use applied to MMPI-2s results in classifications that match those that would have been obtained using MMPI-1 in 80% of the cases. The new rules also result in fewer profiles that are classified as "indeterminate" because they fail to meet

one or more primary rules for all 10 of the types. As noted earlier, these are the profiles that are especially difficult for clinicians to classify by hand.

Unfortunately the cross-validation data indicate the rate of multiply classified profiles is no lower and probably somewhat higher when the new rules are applied to MMPI-2s. The Phase 2 data indicated that 11% more of the MMPI-2 profiles were multiply classified using the new rules than the estimated MMPI-1 profiles were using the old rules. It is possible that this is because MMPI-2 profiles are generally lower and more homogeneous than MMPI-1 profiles.

Summary and Conclusions

The recent revision of the Minnesota Multiphasic Personality Inventory has resulted in an instrument, MMPI-2, that differs from its predecessor, MMPI-1. It appears to be more "user friend-ly," the norms are based on larger, more representative samples, and the statistical properties of the profiles differ. MMPI-2 profiles are less elevated and appear more homogeneous, and the use of pooled variances for calculating T-scores has resulted in less inter-scale variation and has altered the patterns of high point codes somewhat.

In this investigation, two major studies were carried out to determine the impact of these changes on the Megargee MMPI-based offender classification system. Both applied Megargee and Dorhout's (1976, 1977) classificatory rules to MMPI-1s and MMPI-2s and cross-tabulated the results. The "Phase 1" study utilized 1075 MMPI-1s and estimated MMPI-2s; the "Phase 2" investigation used 367 estimated MMPI-1s and actual MMPI-2s. The results indicated that applying the original rules to the revised MMPI-2 results in agreement in less than two thirds of the cases. It was concluded that MMPI-2s should not be classified using the old MMPI-1 rules; instead Megargee and Dorhout's classification procedures should be revised to make them more applicable to MMPI-2.

It was soon found that simply revising the MMPI-1 rules was not enough. Instead, a new set of rules, only some of which were adapted from those used to classify MMPI-1s, were developed. In contrast to the old rules, the new MMPI-2 rules rely more heavily on quantitative indices and computer-assisted classification than did the former rules, which focused on aspects of MMPI profiles that were readily observed by clinicians trained in MMPI inter-pretation. Eventually a set of rules was constructed that at-tained 84% agreement in the derivation sample and 80% agreement on cross-validation. Applied to MMPI-2s, the new rules result in half the number of unclassified profiles, but a somewhat higher rate of multiply classified profiles. This may be due to the greater uniformity of MMPI-2s compared with MMPI-1s; in any event

it is an easy task for clinicians familiar with the system to classify and interpret multiply classified ("tied") profiles.

Future research applying the system to MMPI-2 should proceed in at least two directions. First, studies need to be undertaken of the characteristics of male offenders classified into the various groups to determine whether the descriptions of and pre-scriptions for the treatment of such offenders derived from empirical studies of subjects classified on the basis of MMPI-1 can be generalized to those types classified on the basis of MMPI-2.

Meanwhile, the question of the impact of MMPI-2 on the classification of female offenders needs to be addressed. MMPI-2 data have been collected on women in state and federal correc-tional institutions. Estimated MMPI-1s have been produced by NCS so the Phase 2 study can be replicated among women. If, as seems likely, the original MMPI-1 rules prove to be unable to classify their MMPI-2s satisfactorily, the new MMPI-2 rules will be tried. If necessary, adjustments will be made to better classify the women's MMPI-2 profiles. Subsequently, the question of the degree to which the descriptions of the women whose profiles fall into the 10 types conform to the findings obtained on their male counterparts will need to be addressed.

A number of researchers have attempted to apply the MMPI-based system to the MMPI-1 profiles of juvenile delinquents with indifferent success. Recently a new version of the MMPI specifi-cally designed for research with adolescents was issued. Studies are being planned to investigate whether the MMPI-based system, or some variation thereof, based on the adolescent form of the MMPI, MMPI-A, is feasible.

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Tables 1 - 14

TABLE 1 : DESCRIPTION OF MMPI SCALES

VALIDITY SCALES

LABEL	NAME	ELEVATED SCORES INDICATE
Qu or ?	Cannot Say	Number of items omitted or marked both true and false
L	Lie	Naive attempts to present self too favorably
F	Frequency	Random responding or reading difficulties
K	Correction or Suppressor	Reflects a defensive test-taking attitude. Used to correct certain clinical scales

CLINICAL SCALES

NUMBER	LABEL	NAME	ELEVATED SCORES INDICATE
1	Hs + .5K	Hypochondriasis	Excessive concern over physical complaints
2	D	Depression	Sadness, pessimism, hopelessness, guilt
3	Hy	Hysteria	Somaticization, repression, unrealistic optimism
4	Pd + .4K	Psychopathic deviate	Antisocial and criminal behavior, impulsivity, conflict with family and authorities
5	Mf	Masculinity/ Femininity	Stereotypic male or female attitudes; possible homosexuality
6	Pa	Paranoia	Suspiciousness, sensitivity, feelings of persecution
7	Pt + 1K	Psychaesthenia	Anxiety, agitation, compulsivity, worrying
8	Sc + 1K	Schizophrenia	Bizarre thoughts or behavior, withdrawal, alienation
9	Ma + .2K	Hypomania	Excessive energy, denial, impulsivity, euphoria
0	Si	Social Introversion	Shyness, introversion, social withdrawal

Table 2

Capsule characteristics of the ten types

Name and proportion	MMPI characteristics		Observed modal characteristics	Management and treatment recommendations
	Elevation	Pattern		
Able (17%)	Moderate, peak score ca. 70 or less	Bimodal with peaks on 4 and 9	Charming, popular; impulsive, and manipulative. Middle class, achievement oriented, do well in institution but emerge relatively unaffected	Need change agent with sense of humor and structured setting to deal with their manipulative games and confront them with outcomes of their behavior
Baker (4%)	Moderate; Pd ca. 70; D ca. 65	Peaks on 4 and 2, slopes down to right	Inadequate, anxious, defensive, constricted and dogmatic; tends to abuse alcohol but not other drugs	Initial anxiety requires supportive help. Later many will benefit from alcohol treatment and educational programming. Need counseling to stop self-defeating patterns
Charlie (9%)	High; peak scale >80; several >70	Peaks on 8, 6, and 4; slopes up to right	Hostile, misanthropic, suspicious with extensive histories of maladjustment, crime, and drug and alcohol abuse. Alienated, aggressive, antagonistic and antisocial	Require secure setting and extensive programming. Consistency, fairness and perseverance needed to avoid further need of drugs and/or acting out when stressed
Delta (10%)	Moderate to high Pd at least 70, often 80 or 90	Unimodal; prominent Pd spike; others below 70	Amoral, hedonistic, egocentric; bright and manipulative. Poor relations with peers and authorities. Impulsive, sensation-seeking leads to frequent infractions	Often have extensive records requiring incarceration. Separate from weaker, more easily exploited inmates. Challenging and confronting needed but prognosis poor
Easy (7%)	Low. To scale below 80, often below 70	43 profile; slopes down to right	Bright, stable, well educated middle class, with good adjustment and resources. Underachievers who take easy path, but have good interpersonal relationships	Minimal needs for structure or treatment. Challenge them to take advantage of assets. Respond well to educational programming
Foxtrot (8%)	High. Top scale(s) over 80 and others over 70	Slopes up to right; 89 and 4 top three scales	Tough, street-wise, cynical, antisocial. Deprivation and deviance lead to extensive criminal histories, poor prison adjustment. Deficits in all areas	Require structure and strong change agent. Extensive changes needed; peer counseling and program with obvious contingencies required to make behavior more socialized
George (7%)	Moderate; D and Pd ca. 70	Like Baker but scales i, 2 and 3 more elevated	Hardworking, submissive, anxious from deviant families. Learned criminal values; do their own time and take advantage of educational and vocational opportunities	Need to learn alternatives to crime as livelihood. Supportive treatment at outset, followed by rational-cooperative approach and education and vocational programming
How (13%)	Very high. Top scales >80 or 90	Elevated multimodal profile. No particular code pattern	Unstable, agitated, disturbed, "mental health" cases. Function ineffectively in all areas and have extensive needs	Require further diagnosis and program aimed at overcoming mental-health problems. Warm but structured therapeutic environment with mental health resources needed
Item (19%)	Very low. Scales usually under 70	No particular pattern	Stable, effectively functioning well adjusted group with minimal problems, few authority conflicts	Basically normal group with minimal needs for structure, support or treatment beyond what dictated by legal situation
Jupiter (3%)	Moderate to high. Peak scales over 70	Slopes up to right with top scores on 8, 9, 7	Overcoming deprived background fairly well but have conflicts with staff and other inmates. Work hard and do better than expected after release	Change agent supportive of efforts to overcome deficits via educational and/or vocational programming. Counseling and tolerance for setbacks that occur

Table 3

Summary Statistics of the MMPI-1 Scores of the Original Derivation Group

MMPI K-CORRECTED T-SCORES

GROUPS		L	F	K	1	2	3	4	5	6	7	8	9	0
ABLE N = 43	MEAN =	49	59	55	51	50	54	69	49	52	53	58	73	43
	STD =	5.17	6.93	8.16	5.47	5.76	7.16	7.70	7.72	8.09	7.87	7.92	6.98	6.03
	MAX =	37	50	38	39	39	38	57	34	41	40	44	59	30
	MIN =	57	90	70	65	60	75	86	69	76	73	71	86	58
BAKER N = 25	MEAN =	59	64	49	47	63	54	71	57	60	55	57	61	57
	STD =	10.16	9.52	8.80	7.59	8.79	6.73	8.47	11.42	9.92	8.55	13.58	8.77	8.61
	MAX =	48	52	36	36	46	45	55	35	44	30	38	44	45
	MIN =	83	86	66	65	77	67	90	78	80	75	103	79	76
CHARLIE N = 32	MEAN =	48	77	46	57	64	57	74	64	72	71	83	73	56
	STD =	7.21	12.09	8.07	10.14	10.84	7.44	8.84	9.83	11.38	9.89	11.21	10.43	8.26
	MAX =	40	54	33	39	46	42	57	45	53	56	63	51	40
	MIN =	70	78	62	77	80	76	.93	86	94	106	105	96	76
DELTA N = 28	MEAN =	52	63	55	56	66	58	83	57	64	63	68	66	53
	STD =	6.49	7.06	9.77	8.06	8.85	7.96	8.15	10.03	6.59	7.27	7.01	7.51	5.45
	MAX =	40	54	35	34	56	44	67	41	53	54	55	54	43
	MIN =	70	78	79	75	87	76	104	80	73	79	86	79	66
EASY N = 31	MEAN =	56	55	66	56	58	64	71	57	55	56	57	57	44
	STD =	7.80	3.73	5.77	6.43	6.36	3.61	6.00	9.52	6.00	5.45	6.34	8.10	6.05
	MAX =	43	48	53	47	48	55	60	43	44	46	46	41	30
	MIN =	80	64	77	70	70	73	83	80	67	69	71	74	61
FOXTROT N = 11	MEAN =	44	67	51	50	48	53	74	50	56	54	67	79	45
	STD =	4.97	9.04	4.74	5.76	9.88	6.28	5.48	10.99	7.58	4.75	7.61	6.03	5.33
	MAX =	40	60	44	44	37	45	67	34	47	48	55	71	35
	MIN =	53	86	59	52	70	62	83	74	67	64	80	89	52
GEORGE N = 34	MEAN =	52	60	55	55	64	59	69	55	55	54	53	57	51
	STD =	5.96	6.67	4.67	7.65	8.39	8.18	10.70	10.58	7.78	9.61	8.65	10.71	6.73
	MAX =	40	50	46	39	46	36	32	18	38	21	26	24	27
	MIN =	67	75	66	72	87	75	86	84	67	71	74	71	63
HOW N = 26	MEAN =	56	83	55	74	80	72	81	67	75	81	91	69	58
	STD =	8.46	16.41	7.64	9.74	9.53	6.65	9.75	10.04	11.46	10.51	17.14	7.95	8.23
	MAX =	43	60	44	54	56	64	67	49	62	66	65	55	42
	MIN =	73	112	68	95	99	85	102	88	96	110	124	79	75
ITEM N = 25	MEAN =	58	58	57	55	60	57	64	53	56	56	55	57	50
	STD =	7.58	5.50	9.93	8.70	7.94	6.61	9.30	9.79	6.97	10.30	9.63	8.91	5.34
	MAX =	50	48	43	44	48	47	59	26	47	38	33	46	40
	MIN =	77	70	79	77	80	73	81	78	70	79	76	76	65

Table 4

Samples of Adult Male Offenders Used in the Research

Sample	Number of Cases in Sample	Number of Classified Cases	Number of Unclassified MMPI-1	Number of Cases MMPI-2
Pilot	100	93	0	7
Phase 1	1213	1075	50	93
Phase 2: State	209	177	16	19
Phase 2: Federal	213	190	15	11

Note: Some cases were unclassified on both MMPI-1 and MMPI-2

Table 5

Cross-Tabulation of MMPI-1 and MMPI-2 Types Using Original Rules: Pilot Study Data

MMPI-1 Classifications		Able	Baker	Charlie	Delta	Easy	Foxtrot	George	How	Item	Jupiter	MMPI-1 Total	Type %
						MMPI-2 Classifications							
Able	N =	8	0	0	0	0	0	0	0	2	0	10	10.8%
	% =	80.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	20.0%	0.0%	100.0%	
Baker	N =	0	1	0	0	0	0	5	0	4	0	10	10.8%
	% =	0.0%	10.0%	0.0%	0.0%	0.0%	0.0%	50.0%	0.0%	40.0%	0.0%	100.0%	
Charlie	N =	0	0	8	0	0	0	0	1	1	0	10	10.8%
	% =	0.0%	0.0%	80.0%	0.0%	0.0%	0.0%	0.0%	10.0%	10.0%	0.0%	100.0%	
Delta	N =	1	0	0	7	1	0	1	0	0	0	10	10.8%
	% =	10.0%	0.0%	0.0%	70.0%	10.0%	0.0%	10.0%	0.0%	0.0%	0.0%	100.0%	
Easy	N =	0	1	0	0	2	0	1	0	6	0	10	10.8%
	% =	0.0%	10.0%	0.0%	0.0%	20.0%	0.0%	10.0%	0.0%	60.0%	0.0%	100.0%	
Foxtrot	N =	2	0	1	0	0	3	0	0	2	0	8	8.6%
	% =	25.0%	0.0%	12.5%	0.0%	0.0%	37.5%	0.0%	0.0%	25.0%	0.0%	100.0%	
George	N =	0	0	0	0	0	0	4	0	6	0	10	10.8%
	% =	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	40.0%	0.0%	60.0%	0.0%	100.0%	
How	N =	0	0	0	0	1	1	0	7	0	0	9	9.7%
	% =	0.0%	0.0%	0.0%	0.0%	11.1%	11.1%	0.0%	77.8%	0.0%	0.0%	100.0%	
Item	N =	0	1	0	0	0	0	1	0	8	0	10	10.8%
	% =	0.0%	10.0%	0.0%	0.0%	0.0%	0.0%	10.0%	0.0%	80.0%	0.0%	100.0%	
Jupiter	N =	1	1	1	0	0	0	0	1	2	0	6	6.5%
	% =	16.7%	16.7%	16.7%	0.0%	0.0%	0.0%	0.0%	16.7%	33.3%	0.0%	100.0%	
MMPI-2 Total =		12	4	10	7	4	4	12	9	31	0	93	100.0%
Type % =		12.9%	4.3%	10.8%	7.5%	4.3%	4.3%	12.9%	9.7%	33.3%	0.0%	100.0%	

Number of identical classifications = 48

Percent identical classifications = 51.6%

Table 6-A

Summary Statistics of the MMPI-1s of the Original Cohort

MMPI K-CORRECTED T-SCORES

GROUPS		L	F	K	1	2	3	4	5	6	7	8	9	0
ABLE N = 204	MEAN =	51.80	56.80	55.80	51.00	52.10	55.40	71.10	55.10	53.70	53.80	56.30	72.10	44.80
	STD =	8.47	8.71	8.07	6.89	6.99	6.64	6.91	9.21	7.56	8.16	6.78	7.20	5.89
	MAX =	78	93	72	75	77	73	90	84	79	81	71	89	68
	MIN =	36	43	29	34	29	38	53	35	38	34	40	54	30
BAKER N = 51	MEAN =	55.40	59.40	52.00	51.10	65.70	55.30	71.30	51.90	56.90	56.50	57.50	61.60	55.30
	STD =	9.91	8.06	10.02	7.63	7.51	6.48	5.78	9.01	8.22	10.15	10.11	6.27	9.19
	MAX =	78	81	72	72	87	71	78	67	76	77	78	76	75
	MIN =	36	46	35	34	51	40	55	26	44	36	38	46	37
CHARLIE N = 103	MEAN =	51.00	84.60	47.50	62.30	65.80	60.40	78.80	61.00	81.60	71.10	86.50	73.80	57.20
	STD =	8.37	14.39	8.15	10.70	9.77	8.12	9.63	10.86	9.19	9.97	11.07	10.79	6.93
	MAX =	71	126	74	90	96	82	107	94	105	91	113	101	76
	MIN =	36	53	33	36	39	35	55	37	56	50	71	49	39
DELTA N = 120	MEAN =	51.90	58.80	57.50	55.70	63.50	58.60	83.00	58.20	58.30	60.70	61.90	61.80	51.50
	STD =	7.35	8.67	9.27	9.07	7.54	7.71	6.28	8.59	8.89	8.26	7.78	7.51	6.26
	MAX =	71	100	77	80	84	78	104	80	73	81	84	91	72
	MIN =	36	46	36	36	44	40	71	39	38	44	42	46	36
EASY N = 84	MEAN =	57.80	54.50	60.60	59.30	61.50	65.10	69.00	56.90	55.60	57.50	57.60	59.00	49.10
	STD =	8.49	8.24	8.56	8.92	9.59	7.15	5.78	8.97	6.95	6.44	7.73	8.42	7.76
	MAX =	84	100	72	77	82	76	97	74	79	77	101	99	72
	MIN =	39	46	33	36	32	36	67	37	41	42	53	69	39
FOXTROT N = 100	MEAN =	50.9	69.5	51.9	53.7	57.6	56.2	78.5	54.9	59.7	60.2	72.8	79.8	50.1
	STD =	7.25	10.75	7.54	8.75	9.75	8.4	6.53	7.65	8.3	8.46	9.22	7.77	6.9
	MAX =	78	100	72	77	82	76	97	74	79	77	101	99	72
	MIN =	39	46	33	36	32	36	67	37	41	42	53	69	39
GEORGE N = 85	MEAN =	57.50	57.20	58.00	59.90	71.20	61.70	72.50	56.40	53.80	60.40	58.60	56.90	52.80
	STD =	9.22	8.49	8.46	11.75	8.63	9.21	7.36	9.75	7.89	8.71	8.07	9.25	7.95
	MAX =	78	93	74	93	92	91	88	84	70	83	84	81	76
	MIN =	39	43	38	34	56	42	53	35	35	46	40	34	36
HOW N = 155	MEAN =	54.50	82.40	51.60	75.80	82.30	71.60	80.80	61.10	74.00	80.80	91.90	68.10	60.60
	STD =	9.65	17.05	9.35	12.60	8.55	9.58	10.58	8.92	11.68	10.61	14.70	10.55	7.80
	MAX =	84	133	81	111	106	98	111	88	111	105	134	104	84
	MIN =	36	43	31	39	63	40	53	41	47	54	59	46	41
ITEM N = 225	MEAN =	54.20	57.10	54.30	53.30	58.00	55.70	61.40	58.80	56.60	56.30	56.30	60.90	51.20
	STD =	9.04	9.14	8.89	8.90	8.08	8.14	7.04	10.17	9.01	8.40	8.67	8.35	8.19
	MAX =	78	100	79	80	80	76	78	82	79	79	78	79	76
	MIN =	36	43	33	34	41	36	39	35	35	34	32	39	31
JUPITER N = 37	MEAN =	51.70	76.50	48.30	58.80	58.60	54.70	64.10	60.00	63.80	70.50	82.20	79.80	55.20
	STD =	8.11	18.61	7.65	9.61	8.99	8.8	6.52	8.56	8.62	8.72	11.6	8.55	8.11
	MAX =	74	126	61	82	82	75	78	78	88	87	109	96	75
	MIN =	39	50	33	34	39	38	50	43	50	54	65	64	37

Table 6-B

Summary Statistics on Estimated MMPI-2s of the Original Cohort

ESTIMATED MMPI-2 K-CORRECTED T-SCORES

GROUPS		L	F	K	1	2	3	4	5	6	7	8	9	0
ABLE N = 204	MEAN =	54.59	52.25	50.38	4C.99	44.60	46.88	61.53	42.27	47.70	46.75	48.75	63.53	42.84
	STD =	10.55	11.27	8.98	7.31	7.15	7.28	7.36	8.22	8.97	8.10	6.49	8.76	7.08
	MAX =	87.00	98.00	68.00	70.00	64.00	69.00	82.00	72.00	79.00	74.00	65.00	85.00	69.00
	MIN =	35.00	36.00	30.00	32.00	30.00	32.00	44.00	30.00	34.00	31.00	35.00	45.00	30.00
BAKER N = 51	MEAN =	59.18	55.49	46.06	46.90	57.37	46.65	61.75	40.27	51.10	49.71	49.86	51.88	54.63
	STD =	12.20	10.16	10.90	7.97	6.66	7.05	5.98	7.38	10.74	9.73	9.01	5.99	10.17
	MAX =	87.00	79.00	68.00	68.00	72.00	66.00	69.00	54.00	83.00	70.00	69.00	69.00	77.00
	MIN =	35.00	39.00	30.00	32.00	42.00	33.00	48.00	30.00	37.00	32.00	35.00	39.00	35.00
CHARLIE N = 103	MEAN =	53.35	87.92	41.08	58.01	57.45	52.82	69.39	47.79	82.68	64.82	77.48	66.55	56.82
	STD =	10.76	18.36	8.94	10.54	8.37	9.87	10.64	9.87	11.24	10.22	11.22	13.42	7.69
	MAX =	78.00	120.00	70.00	81.00	78.00	81.00	100.00	78.00	112.00	87.00	108.00	101.00	78.00
	MIN =	35.00	45.00	30.00	33.00	34.00	30.00	44.00	30.00	57.00	43.00	62.00	41.00	36.00
DELTA N = 120	MEAN =	54.69	55.30	52.13	51.73	55.55	50.85	74.13	45.23	53.59	53.86	54.49	52.51	50.39
	STD =	9.20	11.86	10.36	9.38	7.12	9.06	7.26	8.21	11.06	8.58	7.88	7.74	7.25
	MAX =	78.00	104.00	75.00	75.00	74.00	76.00	97.00	68.00	72.00	77.00	75.00	88.00	73.00
	MIN =	35.00	39.00	30.00	33.00	38.00	33.00	62.00	30.00	32.00	37.00	36.00	39.00	34.00
EAST N = 84	MEAN =	61.88	49.58	55.62	55.71	53.39	58.70	59.61	44.26	49.88	50.46	49.70	50.10	47.76
	STD =	10.83	11.03	9.61	8.73	8.49	8.95	6.09	8.61	8.10	6.62	7.04	8.66	8.55
	MAX =	96.00	95.00	72.00	79.00	74.00	89.00	69.00	68.00	68.00	66.00	65.00	78.00	73.00
	MIN =	39.00	36.00	33.00	37.00	38.00	33.00	46.00	30.00	32.00	34.00	33.00	38.00	33.00
FOXTROT N = 100	MEAN =	53.35	68.50	45.79	49.30	49.45	47.96	69.21	42.09	55.20	53.14	63.86	73.24	48.84
	STD =	9.23	13.58	8.33	9.08	9.02	9.47	7.26	6.95	10.41	8.60	8.07	9.93	7.78
	MAX =	87.00	110.00	68.00	70.00	72.00	74.00	90.00	60.00	79.00	70.00	87.00	98.00	73.00
	MIN =	39.00	36.00	30.00	33.00	30.00	31.00	57.00	30.00	34.00	36.00	45.00	59.00	36.00
GEORGE N = 85	MEAN =	61.68	53.05	52.84	55.45	61.80	54.60	62.92	43.53	47.79	53.42	51.21	48.27	51.91
	STD =	11.51	11.36	9.54	11.24	7.65	11.67	7.76	8.81	9.11	9.22	7.98	8.22	8.96
	MAX =	87.00	98.00	77.00	86.00	77.00	94.00	79.00	70.00	68.00	77.00	75.00	75.00	78.00
	MIN =	39.00	36.00	30.00	32.00	45.00	34.00	44.00	30.00	31.00	39.00	35.00	31.00	34.00
HOW N = 155	MEAN =	57.86	83.86	45.72	70.15	70.96	67.64	71.83	47.99	72.76	74.46	80.83	59.59	60.26
	STD =	12.53	21.13	10.59	11.94	7.25	14.50	11.16	8.55	15.17	10.81	13.30	12.87	8.52
	MAX =	96.00	120.00	79.00	101.00	91.00	104.00	105.00	74.00	119.00	100.00	120.00	104.00	87.00
	MIN =	35.00	36.00	30.00	35.00	57.00	33.00	44.00	30.00	39.00	47.00	53.00	39.00	37.00
ITEM N = 224	MEAN =	57.42	52.73	48.62	49.23	51.15	47.65	52.15	45.63	51.50	49.58	49.13	51.75	50.13
	STD =	11.21	11.74	9.71	9.25	7.50	9.12	6.89	9.25	11.02	8.45	8.18	7.80	9.24
	MAX =	87.00	107.00	77.00	73.00	72.00	74.00	77.00	68.00	79.00	72.00	70.00	72.00	78.00
	MIN =	35.00	36.00	30.00	32.00	34.00	31.00	34.00	30.00	31.00	31.00	31.00	35.00	30.00
JUPITER N = 37	MEAN =	54.51	76.14	42.19	54.89	51.16	46.54	54.30	45.95	60.57	64.05	71.35	73.27	54.59
	STD =	9.86	23.18	7.66	10.56	8.55	9.79	6.17	8.43	12.62	8.43	9.53	10.64	8.87
	MAX =	83.00	120.00	56.00	77.00	70.00	71.00	67.00	64.00	97.00	79.00	96.00	94.00	77.00
	MIN =	39.00	45.00	30.00	32.00	32.00	32.00	40.00	32.00	42.00	49.00	58.00	53.00	35.00

Table 7

Cross-Tabulation of MMPI-1 and MMPI-2 Types Using Original Rules: Phase 1 Data

MMPI-1 Classifications		Able	Baker	Charlie	Delta	Easy	Foxtrot	George	How	Item	Jupiter	MMPI-1 Total	Type %
						MMPI-2 Classifications							
Able	N =	152	1	1	4	6	0	7	0	31	1	203	18.9%
	% =	74.9%	0.5%	0.5%	2.0%	3.0%	0.0%	3.4%	0.0%	15.3%	0.5%	100.0%	
Baker	N =	3	22	0	0	0	0	11	0	13	0	49	4.6%
	% =	6.1%	44.9%	0.0%	0.0%	0.0%	0.0%	22.4%	0.0%	26.5%	0.0%	100.0%	
Charlie	N =	2	1	32	1	1	5	3	4	16	3	68	6.3%
	% =	2.9%	1.5%	47.1%	1.5%	1.5%	7.4%	4.4%	5.9%	23.5%	4.4%	100.0%	
Delta	N =	5	11	0	57	10	1	16	0	17	0	117	10.9%
	% =	4.3%	9.4%	0.0%	48.7%	8.5%	0.9%	13.7%	0.0%	14.5%	0.0%	100.0%	
Easy	N =	2	1	0	0	23	0	16	0	40	2	84	7.8%
	% =	2.4%	1.2%	0.0%	0.0%	27.4%	0.0%	19.0%	0.0%	47.6%	2.4%	100.0%	
Foxtrot	N =	34	0	1	4	1	28	1	0	14	5	88	8.2%
	% =	38.6%	0.0%	1.1%	4.5%	1.1%	31.8%	1.1%	0.0%	15.9%	5.7%	100.0%	
George	N =	2	1	0	0	4	0	55	0	20	0	82	7.6%
	% =	2.4%	1.2%	0.0%	0.0%	4.9%	0.0%	67.1%	0.0%	24.4%	0.0%	100.0%	
How	N =	0	2	31	4	10	3	5	64	13	2	134	12.5%
	% =	0.0%	1.5%	23.1%	3.0%	7.5%	2.2%	3.7%	47.8%	9.7%	1.5%	100.0%	
Item	N =	10	3	0	0	0	0	4	0	205	0	222	20.7%
	% =	4.5%	1.4%	0.0%	0.0%	0.0%	0.0%	1.8%	0.0%	92.3%	0.0%	100.0%	
Jupiter	N =	0	0	6	0	0	0	0	1	15	6	28	2.6%
	% =	0.0%	0.0%	21.4%	0.0%	0.0%	0.0%	0.0%	3.6%	53.6%	21.4%	100.0%	
MMPI-2 Total =		210	42	71	70	55	37	118	69	384	19	1075	100.0%
Type % =		19.5%	3.9%	6.6%	6.5%	5.1%	3.4%	11.0%	6.4%	35.7%	1.8%	100.0%	

Number of identical classifications = 644

Percent identical classifications = 59.9%

Table 8-A: ,

Summary Statistics of Estimated MMPI-1 Scores for Phase 2 Male Subjects

ESTIMATED MMPI-1 K-CORRECTED T-SCORES

GROUPS		L	F	K	1	2	3	4	5	6	7	8	9	0
ABLE N = 49	MEAN =	53.81	55.79	57.09	51.72	54.32	54.79	69.11	55.19	55.26	53.62	56.74	69.55	45.13
	STD =	7.38	7.20	7.31	7.99	5.60	7.06	7.66	9.08	9.46	7.05	7.55	7.53	5.89
	MAX =	73.00	78.00	74.00	72.00	65.00	65.00	86.00	84.00	82.00	73.00	74.00	91.00	60.00
	MIN =	44.00	44.00	40.00	36.00	41.00	33.00	53.00	37.00	35.00	36.00	38.00	55.00	34.00
BAKER N = 9	MEAN =	59.89	56.56	56.89	51.11	63.78	54.22	67.22	54.22	56.00	52.44	53.78	59.00	51.00
	STD =	5.84	7.93	5.72	4.77	6.20	6.32	6.25	7.69	4.69	4.69	6.27	7.18	2.87
	MAX =	66	70	68	62	72	67	79	68	65	64	69	68	56
	MIN =	50	44	46	44	56	45	57	43	50	48	46	45	46
CHARLIE N = 16	MEAN =	50.27	82.77	49.65	62.62	70.88	60.85	79.81	64.58	82.27	75.77	90.77	73.23	58.54
	STD =	8.06	15.55	9.12	11.95	11.89	8.39	10.26	11.41	10.66	10.17	11.29	8.71	9.39
	MAX =	70	120	68	80	92	78	104	88	97	101	109	96	76
	MIN =	40	50	35	41	46	44	64	41	50	54	48	55	42
DELTA N = 45	MEAN =	54.31	60.18	57.62	53.51	66.11	58.33	83.07	59.47	60.44	61.98	62.18	57.82	52.51
	STD =	7.81	9.88	8.70	7.97	7.04	6.96	6.63	8.41	7.22	7.12	8.60	7.69	7.02
	MAX =	76	98	74	80	82	69	100	78	73	75	80	73	72
	MIN =	40	46	36	39	46	42	71	39	44	44	46	40	39
EASY N = 37	MEAN =	58.65	54.65	61.19	60.96	63.85	67.50	69.27	57.04	58.96	56.62	56.38	59.50	47.46
	STD =	6.60	6.58	7.51	7.62	7.08	4.68	5.03	6.71	7.01	5.14	6.13	8.28	5.17
	MAX =	70	73	77	77	77	80	79	74	76	66	73	78	61
	MIN =	44	46	48	47	51	55	60	39	47	46	46	45	40
FOXTROT N = 17	MEAN =	54.75	69.50	58.50	58.17	56.25	60.08	83.42	62.58	63.58	63.42	77.33	81.67	47.50
	STD =	9.87	12.69	7.73	7.95	8.78	7.79	8.50	7.59	10.17	8.18	10.62	7.10	6.73
	MAX =	76	90	75	72	68	73	95	76	79	79	97	96	65
	MIN =	44	53	42	47	36	49	67	51	44	52	63	70	40
GEORGE N = 44	MEAN =	55.02	56.75	58.32	59.89	72.05	62.14	73.98	60.84	58.75	62.07	60.30	58.02	54.00
	STD =	9.27	6.85	8.33	11.18	9.24	7.69	7.51	10.44	8.13	7.88	11.07	8.51	9.38
	MAX =	80	80	79	90	96	82	90	82	82	79	92	75	79
	MIN =	40	48	42	41	51	49	60	39	41	48	32	40	38
HOW N = 68	MEAN =	55.51	78.77	54.63	76.34	86.71	74.11	80.07	68.15	74.51	80.05	90.45	65.92	61.05
	STD =	11.30	17.77	10.56	12.02	10.60	9.72	10.04	8.32	11.31	10.50	18.20	12.19	9.25
	MAX =	83	120	81	103	113	95	100	90	105	114	120	96	83
	MIN =	36	50	36	41	70	53	55	49	50	58	55	30	45
ITEM N = 78	MEAN =	57.15	56.78	54.77	53.20	60.19	54.46	61.09	60.00	57.06	55.01	55.08	59.87	51.89
	STD =	7.99	8.40	8.17	9.17	8.25	8.66	8.18	9.13	9.14	8.51	8.03	9.61	7.54
	MAX =	76	82	74	77	82	73	79	80	79	83	80	78	69
	MIN =	40	44	38	34	41	36	39	39	38	38	38	38	34
JUPITER N = 5	MEAN =	51.20	72.00	46.80	53.60	62.20	53.60	62.00	56.60	61.80	70.80	78.00	73.20	55.40
	STD =	6.01	8.10	6.43	7.23	3.43	4.59	4.77	2.94	3.97	7.73	3.35	8.08	3.07
	MAX =	60	82	55	62	65	58	67	61	67	85	82	88	60
	MIN =	44	60	38	41	58	45	53	53	56	64	74	65	52

Table 8-B

Summary Statistics on MMPI-2 Scores for Phase 2 Male Subjects

MMPI K-CORRECTED T-SCORES

GROUPS		L	F	K	1	2	3	4	5	6	7	8	9	0
ABLE N - 49	MEAN -	57.47	49.38	51.70	47.89	45.68	46.36	59.34	41.83	49.21	46.70	48.83	61.68	43.13
	STD -	9.83	9.34	8.33	8.46	5.20	7.15	7.77	7.80	11.14	6.84	6.92	9.15	6.50
	MAX -	83	79	70	68	52	59	77	64	83	66	65	88	58
	MIN -	43	39	33	33	34	30	44	30	31	32	34	47	31
BAKER N - 9	MEAN -	65.80	51.11	51.33	47.22	55.00	45.44	57.44	40.44	49.44	45.11	45.78	50.33	49.78
	STD -	7.55	10.17	6.62	5.37	5.42	7.04	6.15	6.52	5.83	4.75	5.86	6.25	3.39
	MAX -	74	70	64	59	62	61	69	48	61	57	60	59	56
	MIN -	52	39	39	39	47	37	48	30	42	41	39	39	44
CHARLIE N - 16	MEAN -	52.54	86.19	43.50	58.92	60.54	53.46	70.69	50.62	82.92	69.04	78.58	66.04	57.65
	STD -	10.74	20.27	10.20	11.55	10.33	10.36	11.10	10.77	13.17	10.54	10.33	10.34	9.99
	MAX -	78	120	64	75	78	76	97	74	101	96	96	94	77
	MIN -	39	42	30	37	38	35	54	30	42	47	40	47	40
DELTA N - 45	MEAN -	57.93	55.36	52.22	49.89	56.89	50.49	73.91	46.00	55.40	54.93	53.89	49.58	51.56
	STD -	10.47	14.05	9.66	8.52	6.09	7.99	7.04	7.52	8.99	7.18	8.00	6.78	7.48
	MAX -	87	110	70	75	70	64	92	64	72	68	70	65	72
	MIN -	39	36	30	35	38	34	62	30	37	37	39	36	36
EASY N - 37	MEAN -	63.85	47.58	56.58	57.62	54.85	61.85	59.58	43.85	53.35	49.58	48.35	51.19	45.88
	STD -	8.81	8.86	8.64	7.67	6.42	6.35	5.26	5.63	8.93	5.18	5.59	8.05	5.78
	MAX -	78	73	75	73	62	79	69	56	75	59	63	72	59
	MIN -	43	36	41	42	42	45	50	30	39	39	39	39	37
FOXTROT N - 17	MEAN -	58.58	68.50	53.25	54.67	47.92	52.75	74.25	48.83	59.67	56.33	67.67	76.42	45.75
	STD -	13.21	18.08	8.82	8.21	8.35	9.53	9.07	6.90	12.74	8.30	9.78	8.66	7.37
	MAX -	87	98	72	68	59	69	87	62	79	72	86	94	64
	MIN -	43	45	35	42	30	40	57	38	37	44	55	62	37
GEORGE N - 44	MEAN -	58.86	50.39	53.11	56.05	61.55	54.93	64.48	47.00	53.25	55.02	52.09	49.86	52.82
	STD -	12.41	9.34	9.43	11.04	7.77	9.92	7.89	9.19	9.92	7.94	9.92	7.61	10.07
	MAX -	91	82	77	84	81	81	82	68	83	72	81	69	80
	MIN -	39	39	35	37	42	40	50	30	34	41	31	36	35
HOW N - 68	MEAN -	59.56	80.03	49.03	71.56	73.63	70.70	70.92	53.97	73.29	73.48	79.53	58.34	60.52
	STD -	14.78	22.93	11.73	10.63	8.25	12.99	10.62	7.89	14.39	10.95	16.62	13.18	9.91
	MAX -	96	120	79	94	95	99	92	76	112	109	113	94	85
	MIN -	35	42	30	37	61	43	46	36	42	51	47	30	43
ITEM N - 78	MEAN -	61.85	50.67	49.13	49.61	51.29	46.24	51.73	46.04	51.29	47.98	47.17	51.82	50.63
	STD -	10.69	11.45	9.26	9.54	7.56	9.56	7.50	8.41	10.94	8.47	7.39	8.92	8.11
	MAX -	87	85	70	73	74	76	59	66	79	77	70	72	69
	MIN -	39	36	30	32	34	31	34	30	32	33	34	35	30
JUPITER N - 5	MEAN -	53.80	71.80	40.00	50.40	54.20	44.80	52.20	43.60	56.80	64.00	68.60	66.20	54.40
	STD -	8.13	10.83	7.16	7.79	3.43	4.49	4.40	2.94	5.38	8.10	2.87	10.34	2.73
	MAX -	65	85	49	59	57	50	57	48	64	79	72	85	58
	MIN -	43	55	30	37	50	37	44	40	49	57	65	56	51

Table 9

Cross-Tabulation of MMPI-1 and MMPI-2 Types Using Original Rules: State Prisoner

MMPI-1 Classifications		MMPI-2 Classifications										MMPI-1 Total	Type %
		Able	Baker	Charlie	Delta	Easy	Foxtrot	George	How	Item	Jupiter		
Able	N -	21	0	0	0	0	0	0	0	6	0	27	15.3%
	% -	77.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	22.2%	0.0%	100.0%	
Baker	N -	0	2	0	0	1	0	0	0	1	0	4	2.3%
	% -	0.0%	50.0%	0.0%	0.0%	25.0%	0.0%	0.0%	0.0%	25.0%	0.0%	100.0%	
Charlie	N -	0	0	5	2	0	0	0	0	1	0	8	4.5%
	% -	0.0%	0.0%	62.5%	25.0%	0.0%	0.0%	0.0%	0.0%	12.5%	0.0%	100.0%	
Delta	N -	0	2	0	19	1	0	4	0	6	0	32	18.1%
	% -	0.0%	6.3%	0.0%	59.4%	3.1%	0.0%	12.5%	0.0%	18.8%	0.0%	100.0%	
Easy	N -	1	0	0	0	4	0	2	0	9	0	16	9.0%
	% -	6.3%	0.0%	0.0%	0.0%	25.0%	0.0%	12.5%	0.0%	56.3%	0.0%	100.0%	
Foxtrot	N -	2	0	0	1	0	6	0	0	1	0	10	5.6%
	% -	20.0%	0.0%	0.0%	10.0%	0.0%	60.0%	0.0%	0.0%	10.0%	0.0%	100.0%	
George	N -	0	3	0	1	2	0	10	0	5	0	21	11.9%
	% -	0.0%	14.3%	0.0%	4.8%	9.5%	0.0%	47.6%	0.0%	23.8%	0.0%	100.0%	
How	N -	0	0	3	1	2	0	3	20	2	0	31	17.5%
	% -	0.0%	0.0%	9.7%	3.2%	6.5%	0.0%	9.7%	64.5%	6.5%	0.0%	100.0%	
Item	N -	1	1	0	0	0	0	0	0	25	0	27	15.3%
	% -	3.7%	3.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	92.6%	0.0%	100.0%	
Jupiter	N -	0	0	0	0	0	0	0	0	0	1	1	0.6%
	% -	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	
MMPI-2 Total -		25	8	8	24	10	6	19	20	56	1	177	100.0%
Type % -		14.1%	4.5%	4.5%	13.6%	5.6%	3.4%	10.7%	11.3%	31.6%	0.6%	100.0%	

Number of identical classifications = 113

Percent identical classifications = 63.8%

Table 10

Cross-Tabulation of MMPI-1 and MMPI-2 Types Using Original Rules: Federal Prisoners

MMPI-1 Classifications		MMPI-2 Classifications										MMPI-1 Total	Type %
		Able	Baker	Charlie	Delta	Easy	Foxtrot	George	How	Item	Jupiter		
Able	N -	19	0	0	0	0	0	0	0	2	1	22	11.6%
	% -	86.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	9.1%	4.5%	100.0%	
Baker	N -	1	4	0	0	0	0	0	0	0	0	5	2.6%
	% -	20.0%	80.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	
Charlie	N -	0	0	5	1	0	0	0	1	1	0	8	4.2%
	% -	0.0%	0.0%	62.5%	12.5%	0.0%	0.0%	0.0%	12.5%	12.5%	0.0%	100.0%	
Delta	N -	0	3	0	4	1	0	3	0	2	0	13	6.8%
	% -	0.0%	23.1%	0.0%	30.8%	7.7%	0.0%	23.1%	0.0%	15.4%	0.0%	100.0%	
Easy	N -	1	0	0	0	5	0	4	0	11	0	21	11.1%
	% -	4.8%	0.0%	0.0%	0.0%	23.8%	0.0%	19.0%	0.0%	52.4%	0.0%	100.0%	
Foxtrot	N -	3	0	2	0	0	2	0	0	0	0	7	3.7%
	% -	42.9%	0.0%	28.6%	0.0%	0.0%	28.6%	0.0%	0.0%	0.0%	0.0%	100.0%	
George	N -	0	1	0	0	1	0	16	0	5	0	23	12.1%
	% -	0.0%	4.3%	0.0%	0.0%	4.3%	0.0%	69.6%	0.0%	21.7%	0.0%	100.0%	
How	N -	0	0	5	0	1	0	4	21	6	0	37	19.5%
	% -	0.0%	0.0%	13.5%	0.0%	2.7%	0.0%	10.8%	56.8%	16.2%	0.0%	100.0%	
Item	N -	0	0	0	0	0	0	1	0	50	0	51	26.8%
	% -	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.0%	0.0%	98.0%	0.0%	100.0%	
Jupiter	N -	0	0	0	0	0	0	0	0	2	1	3	1.6%
	% -	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	66.7%	33.3%	100.0%	
MMPI-2 Total -		24	8	12	5	8	2	28	22	79	2	190	100.0%
Type % -		12.6%	4.2%	6.3%	2.6%	4.2%	1.1%	14.7%	11.6%	41.6%	1.1%	100.0%	

Number of identical classifications = 127

Percent identical classifications = 66.8%

Table 11

Cross-Tabulation of MMPI-1 and MMPI-2 Types Using Original Rules: Combined State and Federal Data

MMPI-1 Classifications		MMPI-2 Classifications										MMPI-1 Total	Type %
		Able	Baker	Charlie	Delta	Easy	Foxtrot	George	How	Item	Jupiter		
Able	N -	40	0	0	0	0	0	0	0	8	1	49	13.4%
	% -	81.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	16.3%	2.0%	100.0%	
Baker	N -	1	6	0	0	1	0	0	0	1	0	9	2.5%
	% -	11.1%	66.7%	0.0%	0.0%	11.1%	0.0%	0.0%	0.0%	11.1%	0.0%	100.0%	
Charlie	N -	0	0	10	3	0	0	0	1	2	0	16	4.4%
	% -	0.0%	0.0%	62.5%	18.8%	0.0%	0.0%	0.0%	6.3%	12.5%	0.0%	100.0%	
Delta	N -	0	5	0	23	2	0	7	0	8	0	45	12.3%
	% -	0.0%	11.1%	0.0%	51.1%	4.4%	0.0%	15.6%	0.0%	17.8%	0.0%	100.0%	
Easy	N -	2	0	0	0	9	0	6	0	20	0	37	10.1%
	% -	5.4%	0.0%	0.0%	0.0%	24.3%	0.0%	16.2%	0.0%	54.1%	0.0%	100.0%	
Foxtrot	N -	5	0	2	1	0	8	0	0	1	0	17	4.6%
	% -	29.4%	0.0%	11.8%	5.9%	0.0%	47.1%	0.0%	0.0%	5.9%	0.0%	100.0%	
George	N -	0	4	0	1	3	0	26	0	10	0	44	12.0%
	% -	0.0%	9.1%	0.0%	2.3%	6.8%	0.0%	59.1%	0.0%	22.7%	0.0%	100.0%	
How	N -	0	0	8	1	3	0	7	41	8	0	68	18.5%
	% -	0.0%	0.0%	11.8%	1.5%	4.4%	0.0%	10.3%	60.3%	11.8%	0.0%	100.0%	
Item	N -	1	1	0	0	0	0	1	0	75	0	78	21.3%
	% -	1.3%	1.3%	0.0%	0.0%	0.0%	0.0%	1.3%	0.0%	96.2%	0.0%	100.0%	
Jupiter	N -	0	0	0	0	0	0	0	0	2	2	4	1.1%
	% -	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%	50.0%	100.0%	
MMPI-2 Total -		49	16	20	29	18	8	47	42	135	3	367	100.0%
Type % -		13.4%	4.4%	5.4%	7.9%	4.9%	2.2%	12.8%	11.4%	36.8%	0.8%	100.0%	

Number of identical classifications -   240

Percent identical classifications -   65.4%

Table 12

Cross-Tabulation of MMPI-1 and MMPI-2 Types Using Initial Version of Revised Rules: Test Sample of 200 Phase 1 Cases

MMPI-1 Classifications		Able	Baker	Charlie	Delta	Easy	Foxtrot	George	How	Item	Jupiter	MMPI-1 Total	Type %
Able	N -	37	1	0	0	0	0	0	0	1	0	39	19.7%
	% -	94.9%	2.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.6%	0.0%	100.0%	
Baker	N -	0	8	1	0	1	0	1	0	1	0	12	6.1%
	% -	0.0%	66.7%	8.3%	0.0%	8.3%	0.0%	8.3%	0.0%	8.3%	0.0%	100.0%	
Charlie	N -	0	0	10	0	0	0	0	1	0	1	12	6.1%
	% -	0.0%	0.0%	83.3%	0.0%	0.0%	0.0%	0.0%	8.3%	0.0%	8.3%	100.0%	
Delta	N -	2	5	0	17	1	0	1	0	0	0	26	13.1%
	% -	7.7%	19.2%	0.0%	65.4%	3.8%	0.0%	3.8%	0.0%	0.0%	0.0%	100.0%	
Easy	N -	0	3	0	0	11	0	0	0	1	0	15	7.6%
	% -	0.0%	20.0%	0.0%	0.0%	73.3%	0.0%	0.0%	0.0%	6.7%	0.0%	100.0%	
Foxtrot	N -	2	0	1	0	0	15	0	0	0	0	18	9.1%
	% -	11.1%	0.0%	5.6%	0.0%	0.0%	83.3%	0.0%	0.0%	0.0%	0.0%	100.0%	
George	N -	0	1	0	0	1	0	7	1	1	0	11	5.6%
	% -	0.0%	9.1%	0.0%	0.0%	9.1%	0.0%	63.6%	9.1%	9.1%	0.0%	100.0%	
How	N -	0	0	1	0	1	0	1	20	0	0	23	11.6%
	% -	0.0%	0.0%	4.3%	0.0%	4.3%	0.0%	4.3%	87.0%	0.0%	0.0%	100.0%	
Item	N -	3	3	1	0	2	0	2	0	24	0	35	17.7%
	% -	8.6%	8.6%	2.9%	0.0%	5.7%	0.0%	5.7%	0.0%	68.6%	0.0%	100.0%	
Jupiter	N -	0	0	0	0	0	0	0	0	0	7	7	3.5%
	% -	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	
MMPI-2 Total -		44	21	14	17	17	15	12	22	28	8	198	100.0%
Type % -		22.2%	10.6%	7.1%	8.6%	8.6%	7.6%	6.1%	11.1%	14.1%	4.0%	100.0%	

Number of identical classifications - 156

Percent identical classifications - 78.8%

Table 13

Cross-Tabulation of MMPI-1 and MMPI-2 Types Using Final Version of Revised Rules: Test Sample of 200 Phase 1 Cases

MMPI-1 Classifications		Able	Baker	Charlie	Delta	Easy	Foxtrot	George	How	Item	Jupiter	MMPI-1 Total	Type %
					MMPI-2 Classifications								
Able	N =	37	0	0	0	0	1	0	0	1	0	39	19.5%
	% =	94.9%	0.0%	0.0%	0.0%	0.0%	2.6%	0.0%	0.0%	2.6%	0.0%	100.0%	
Baker	N =	0	7	1	1	1	0	1	0	1	0	12	6.0%
	% =	0.0%	58.3%	8.3%	8.3%	8.3%	0.0%	8.3%	0.0%	8.3%	0.0%	100.0%	
Charlie	N =	0	0	10	0	0	0	0	1	0	1	12	6.0%
	% =	0.0%	0.0%	83.3%	0.0%	0.0%	0.0%	0.0%	8.3%	0.0%	8.3%	100.0%	
Delta	N =	0	2	0	23	0	0	1	0	0	0	26	13.0%
	% =	0.0%	7.7%	0.0%	88.5%	0.0%	0.0%	3.8%	0.0%	0.0%	0.0%	100.0%	
Easy	N =	0	2	0	0	10	0	1	0	2	0	15	7.5%
	% =	0.0%	13.3%	0.0%	0.0%	66.7%	0.0%	6.7%	0.0%	13.3%	0.0%	100.0%	
Foxtrot	N =	1	0	1	1	0	15	0	0	0	0	18	9.0%
	% =	5.6%	0.0%	5.6%	5.6%	0.0%	83.3%	0.0%	0.0%	0.0%	0.0%	100.0%	
George	N =	0	0	0	0	1	0	9	1	0	0	11	5.5%
	% =	0.0%	0.0%	0.0%	0.0%	9.1%	0.0%	81.8%	9.1%	0.0%	0.0%	100.0%	
How	N =	0	0	1	0	1	0	1	20	0	0	23	11.5%
	% =	0.0%	0.0%	4.3%	0.0%	4.3%	0.0%	4.3%	87.0%	0.0%	0.0%	100.0%	
Item	N =	2	1	1	1	1	0	1	0	30	0	37	18.5%
	% =	5.4%	2.7%	2.7%	2.7%	2.7%	0.0%	2.7%	0.0%	81.1%	0.0%	100.0%	
Jupiter	N =	0	0	0	0	0	0	0	0	0	7	7	3.5%
	% =	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	
MMPI-2 Total =		40	12	14	26	14	16	14	22	34	8	200	100.0%
Type % =		20.0%	6.0%	7.0%	13.0%	7.0%	8.0%	7.0%	11.0%	17.0%	4.0%	100.0%	

Number of identical classifications =   168

Percent identical classifications =   84.0%

Table 14

Cross-Tabulation of MMPI-1 and MMPI-2 Types Using Final Version of Revised Rules: All Male Phase 2 Subjects

MMPI-1 Classifications		MMPI-2 Classifications										MMPI-1 Total	Type %
		Able	Baker	Charlie	Delta	Easy	Foxtrot	George	How	Item	Jupiter		
Able	N -	36	1	2	0	1	1	2	0	3	1	47	12.4%
	% -	76.6%	2.1%	4.3%	0.0%	2.1%	2.1%	4.3%	0.0%	6.4%	2.1%	100.0%	
Baker	N -	0	3	0	1	0	0	3	0	0	0	7	1.8%
	% -	0.0%	42.9%	0.0%	14.3%	0.0%	0.0%	42.9%	0.0%	0.0%	0.0%	100.0%	
Charlie	N -	0	0	24	0	1	0	0	1	0	0	26	6.8%
	% -	0.0%	0.0%	92.3%	0.0%	3.8%	0.0%	0.0%	3.8%	0.0%	0.0%	100.0%	
Delta	N -	0	2	0	37	0	0	5	0	1	0	45	11.8%
	% -	0.0%	4.4%	0.0%	82.2%	0.0%	0.0%	11.1%	0.0%	2.2%	0.0%	100.0%	
Easy	N -	2	2	0	0	21	0	0	1	1	0	27	7.1%
	% -	7.4%	7.4%	0.0%	0.0%	77.8%	0.0%	0.0%	3.7%	3.7%	0.0%	100.0%	
Foxtrot	N -	0	0	0	0	0	10	0	1	1	0	12	3.2%
	% -	0.0%	0.0%	0.0%	0.0%	0.0%	83.3%	0.0%	8.3%	8.3%	0.0%	100.0%	
George	N -	0	3	0	1	6	0	29	2	3	0	44	11.6%
	% -	0.0%	6.8%	0.0%	2.3%	13.6%	0.0%	65.9%	4.5%	6.8%	0.0%	100.0%	
How	N -	0	0	3	0	1	0	2	66	1	1	74	19.5%
	% -	0.0%	0.0%	4.1%	0.0%	1.4%	0.0%	2.7%	89.2%	1.4%	1.4%	100.0%	
Item	N -	4	0	2	1	6	3	2	0	74	1	93	24.5%
	% -	4.3%	0.0%	2.2%	1.1%	6.5%	3.2%	2.2%	0.0%	79.6%	1.1%	100.0%	
Jupiter	N -	0	0	0	0	0	0	0	0	1	4	5	1.3%
	% -	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	20.0%	80.0%	100.0%	
MMPI-2 Total -		42	11	31	40	36	14	43	71	85	7	380	100.0%
Type % -		11.1%	2.9%	8.2%	10.5%	9.5%	3.7%	11.3%	18.7%	22.4%	1.8%	100.0%	

Number of identical classifications -   304

Percent identical classifications -   80.0%

Appendix 1:

Megargee & Dorhout's Rules for Classifying the Original MMPI

Male

| TorTc | ? | L | F | K | Hs+.5K | D | Hy | Pd+.4K | Mf | Pa | Pt+1K | Sc+1K | Ma+.2K | Si | TorTc |
| | | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | |
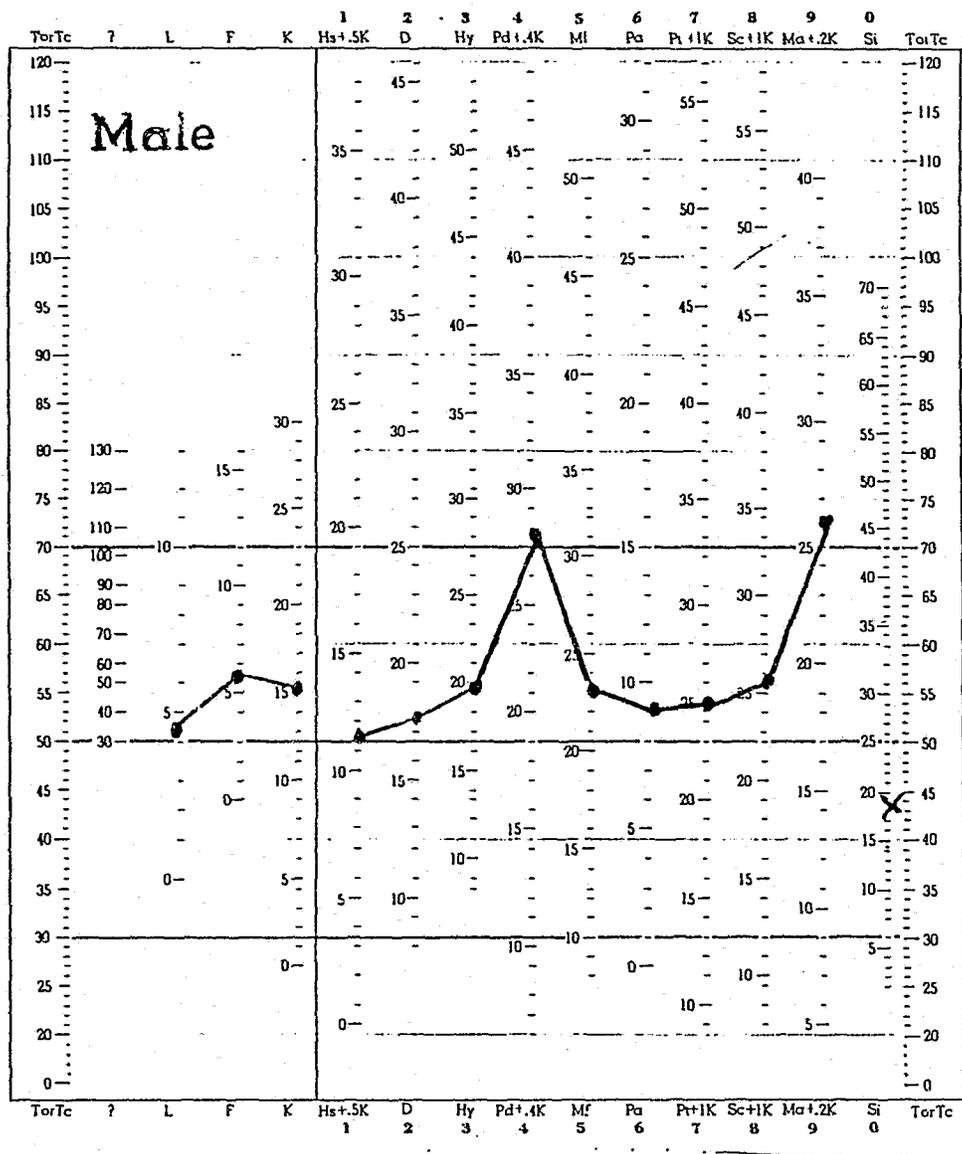
RULES

I.   (1) Top scale ≤ 90T
    (2) Scale 8 ≤ 71 T
    (3) Scale 4 > Scale 3
    (4) Scale 2 ≤ 60T
    (5) Scales 4 and 9 in the top three

		Points
II. (1)	Scales 4 and 9 are the top two	(+1)
(2)	Lowest scale is Scale 0 or Scale 5 (for men)[3]	(+1)
(3)	Scale 0 < 50T	(+1)

Point Chart

No. Points	Level
3	High
2	Medium
1	Low
0	Minimum

BAKER

Male

TorTc	?	L	F	K	1 Hs+.5K	2 D	3 Hy	4 Pd+.4K	5 Mf	6 Pa	7 Pt+1K	8 Sc+1K	9 Ma+.2K	0 Si	TorTc
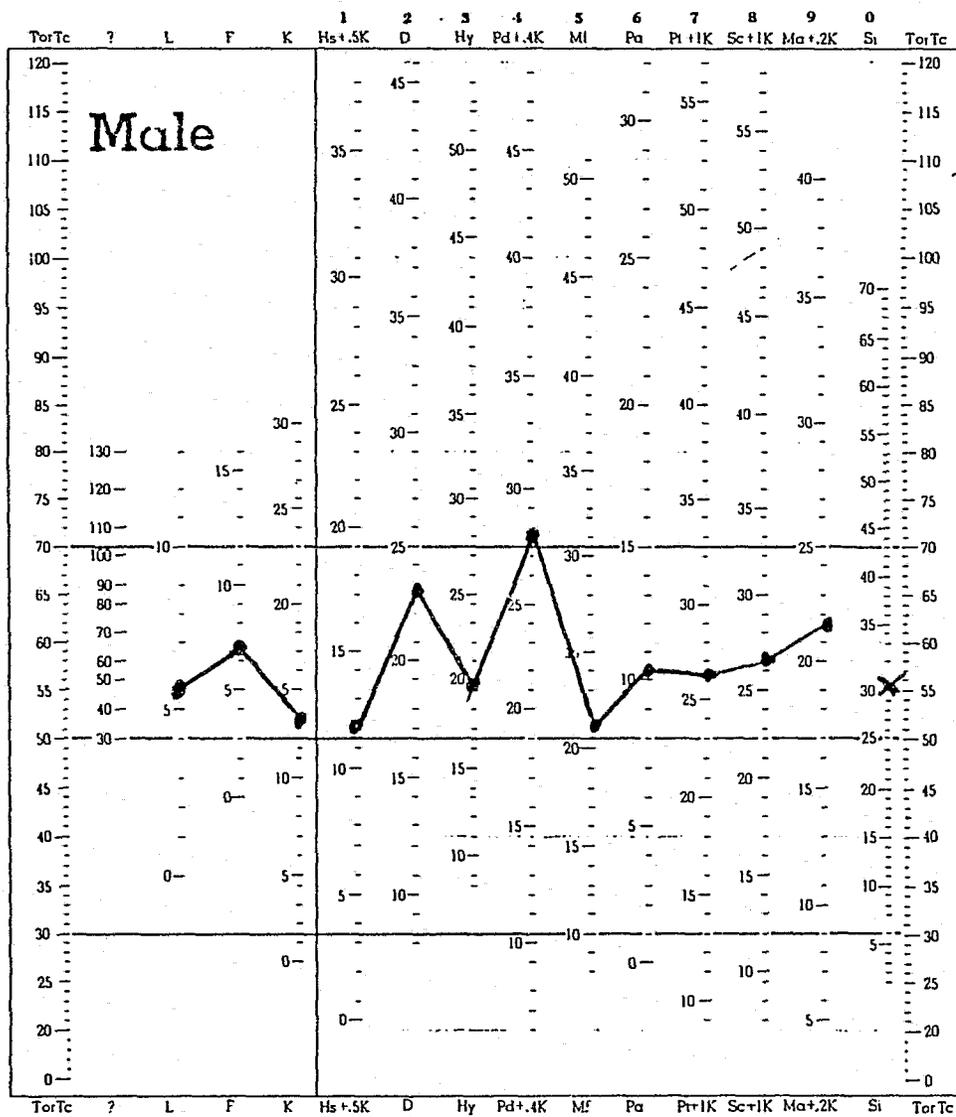
RULES

I. (1) Top scale ≤ 80T
   (2) Peak on Scale 2, relative to Scale 1 and Scale 3
   (3) Scale 4 > Scale 3
   (4) Scale 4 or Scale 9 one of top two
   (5) Scale 6 > Scale 5 *or* Scale 6 > Scale 7
   (6) Profile slopes down to the right

		Points
II. (1) Scale 6 > Scale 5 and Scale 6 > Scale 7		(+1)
(2) Top scale < 75T		(+1)
(3) Scale 1 < 60T		(+1)
(4) Scale 4 > Scale 5		(+1)
(5) Scale 0 > 45T		(+1)

Point Chart

No. Points	Level
5	High
3, 4	Medium
1, 2	Low
0	Minimum

CHARLIE

Male
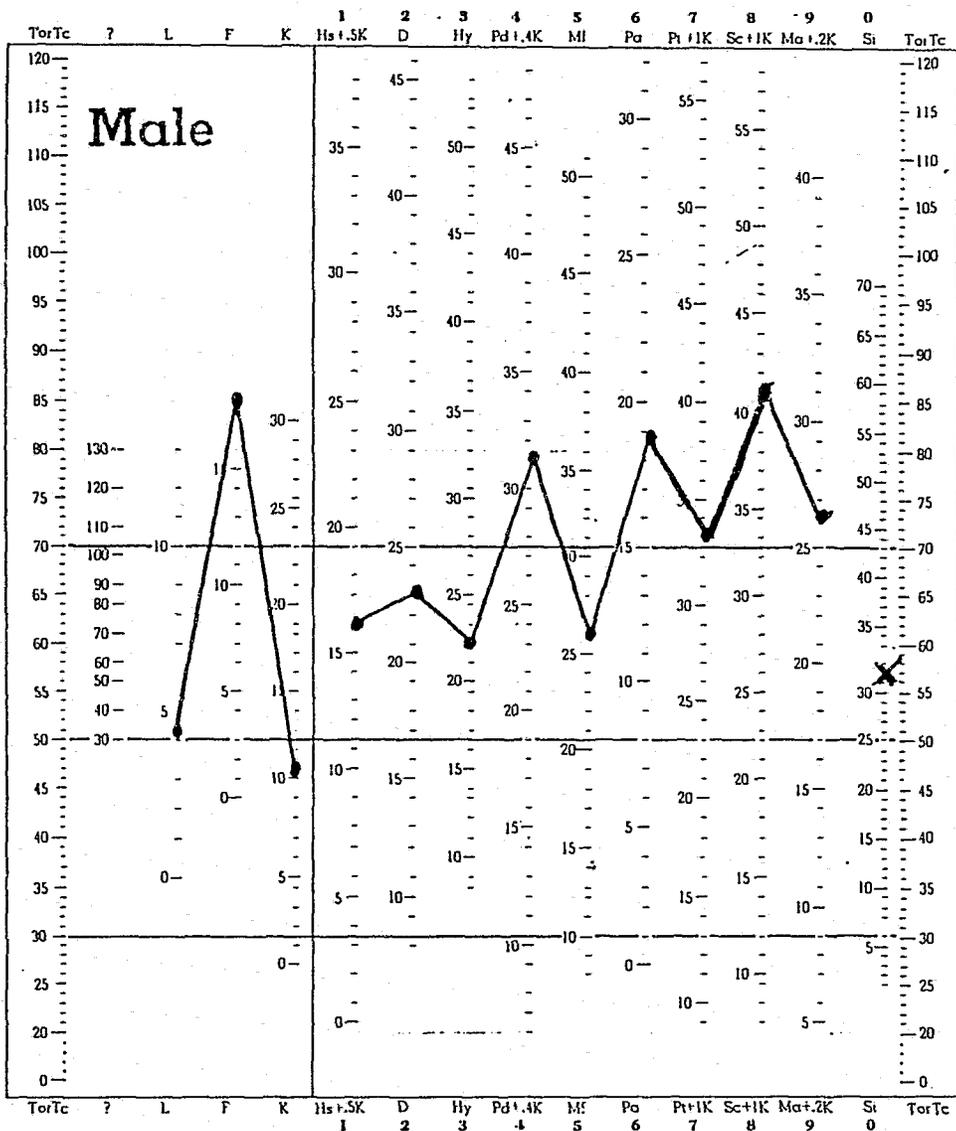
RULES

I. (1) Top scale $\geq$ 80T and $\leq$ 110T
    (2) Scale 8 $\geq$ 80T
    (3) Scale 6 $\geq$ 65T
    (4) Scale 4 or Scale 6 > 70T

	Points
II. (1) Scale 2 > 50T	(+1)
(2) Scale 6 > 70T	(+1)
(3) Scale 6 one of the top two scales	(+1)
(4) Scale 8 one of the top two scales	(+1)
(5) Profile slopes up to the right	(+1)

Point Chart

No. Points	Level
5	High
3, 4	Medium
1, 2	Low
0	Minimum

DELTA

Male

	1	2	3	4	5	6	7	8	9	0	
TorTc	?	L	F	K	Hs+.5K	D	Hy	Pd+.4K	Mf	Pa	Pt+1K	Sc+1K	Ma+.2K	Si	TorTc
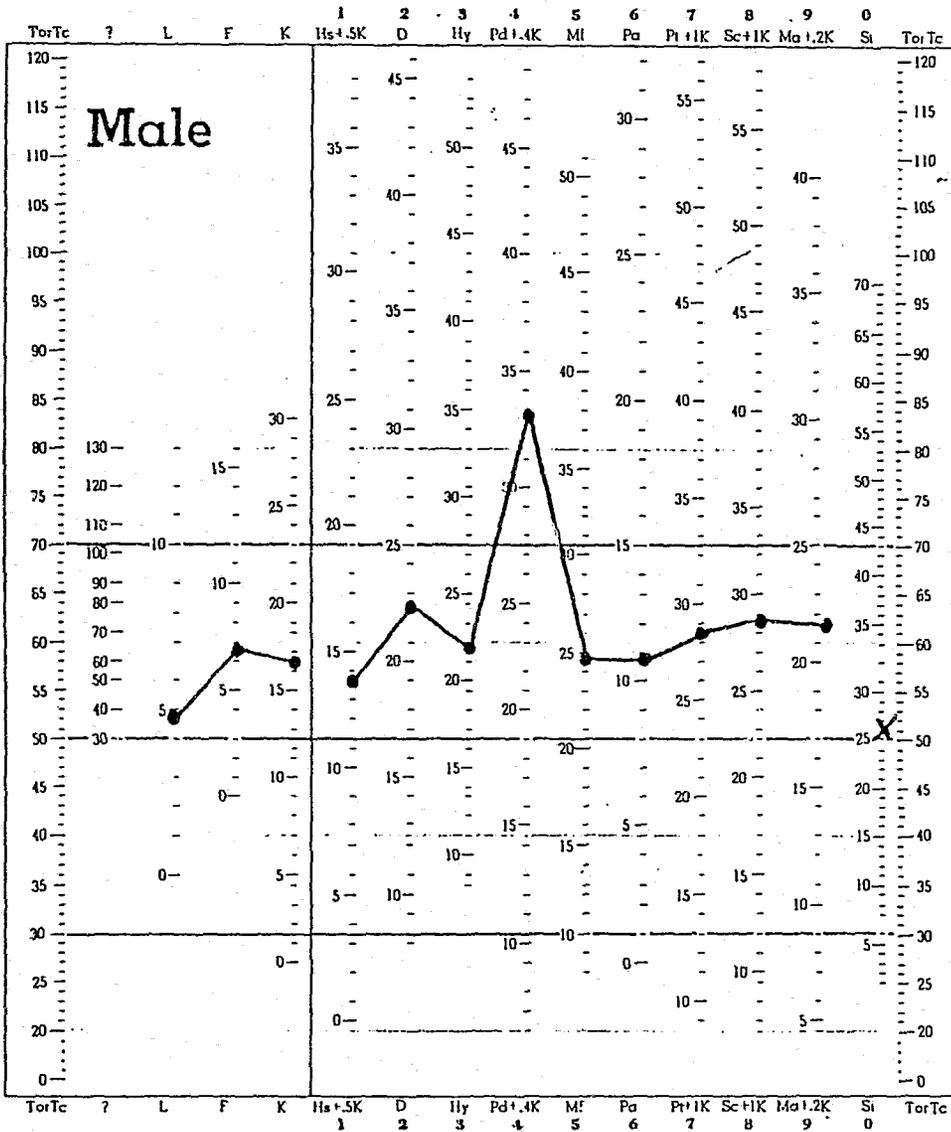
RULES

I. (1) Scale 4 is the top scale
    (2) Scale 4 ≥ 70T
    (3) Scale 4 is greater than the second highest scale by 5T or more

    (4) If Scale 9 is the second highest, it is less than Scale 4 by 15T or more
    (5) Scales 1, 3, 5, 6, 7, and 9 are each ≤ 80T

Points

II. (1) Peak on Scale 2 relative to Scale 1 and Scale 3   (+1)
    (2) Scale 4 is greater than the second highest scale by 10T or more   (+2)
    (3) Scale 4 > 80T   (+1)
    (4) Scale 8 > 60T and < 75T   (+1)
    (5) Scale 9 < 70T   (+1)
    (6) Scale 0 ≤ 60T   (+1)

Point Chart

| No. Points	Level
6, 7	High
4, 5	Medium
1, 2, 3	Low
0	Minimum

EASY

Male
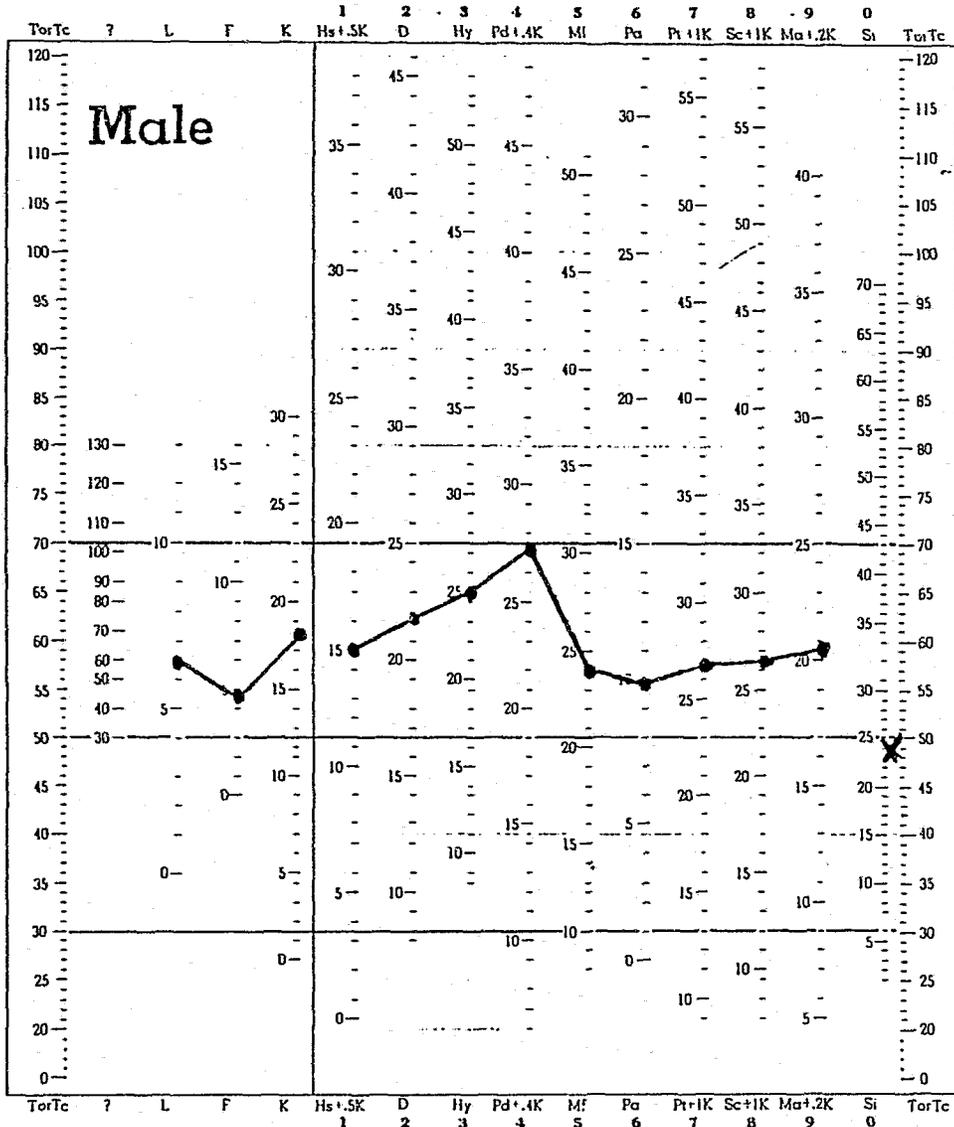
RULES

I. (1) Top scale ≤ 80T
    (2) Scale 4 ≥ 60T
    (3) At least two of Scales 2, 3, and 4 are among the top three scales

		Points
II.	(1) Profile slopes down to the right	(+1)
	(2) Scale 3 is one of the top two scales	(+1)
	(3) Scale 3 > 60T	(+1)
	(4) Scale 9 < 65T	(+1)
	(5) Top scale ≤ 70T	(+1)
	(6) Second highest scale ≤ 70T	(+1)

Point Chart

No. Points	Level
6	High
4, 5	Medium
1, 2, 3	Low
0	Minimum

Male
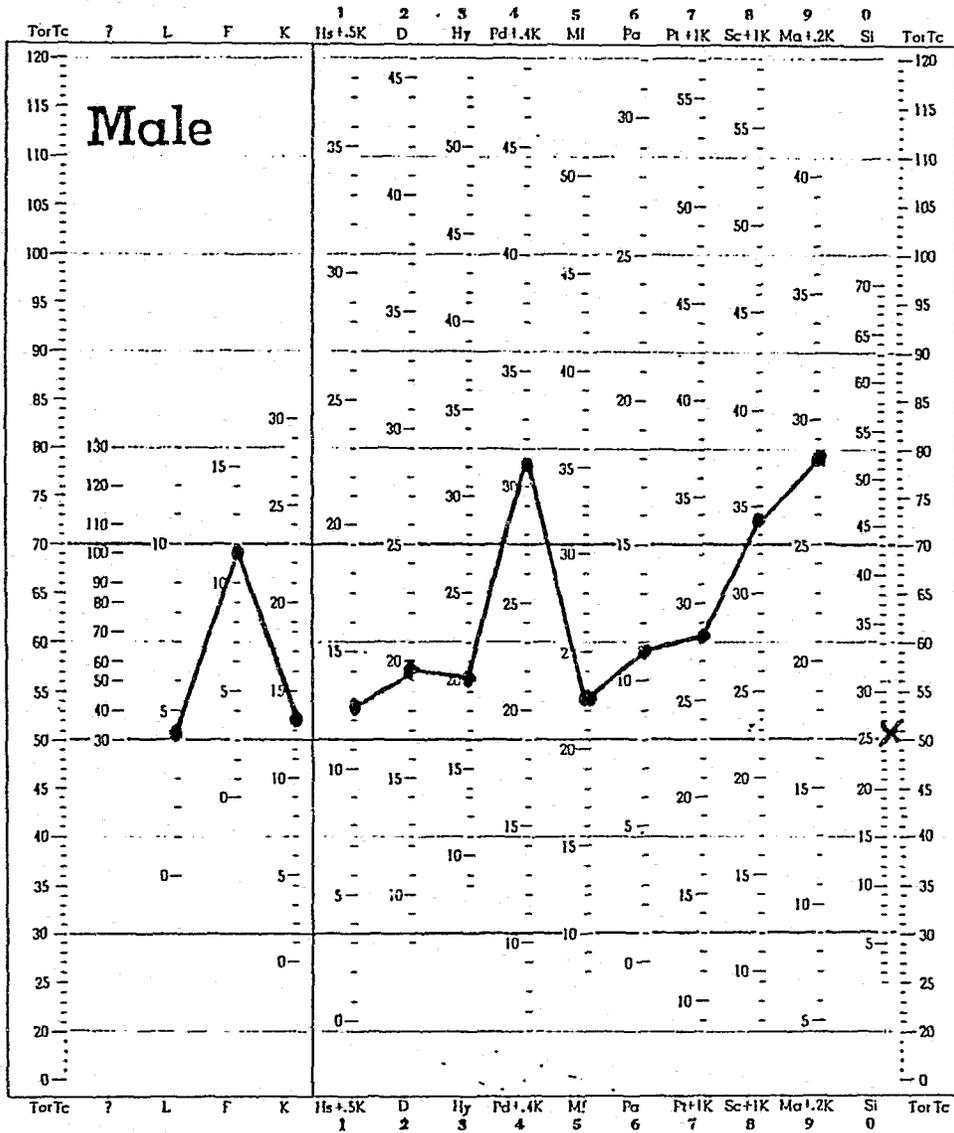
RULES

I. (1) Scales 4, 8, and 9 are the top three scales
   (2) Scale 9 ≥ 69T
   (3) Scale 4 ≥ 65T

		Points
II. (1)	Scale 1 < 60T	(+1)
(2)	Scale 2 < 65T	(+1)
(3)	Scale 3 < 65T	(+1)
(4)	Scale 9 > 70T	(+1)
(5)	Scale 0 < 55T	(+1)

Point Chart

No. Points	Level
4, 5	High
2, 3	Medium
1	Low
0	Minimum

GEORGE

Male
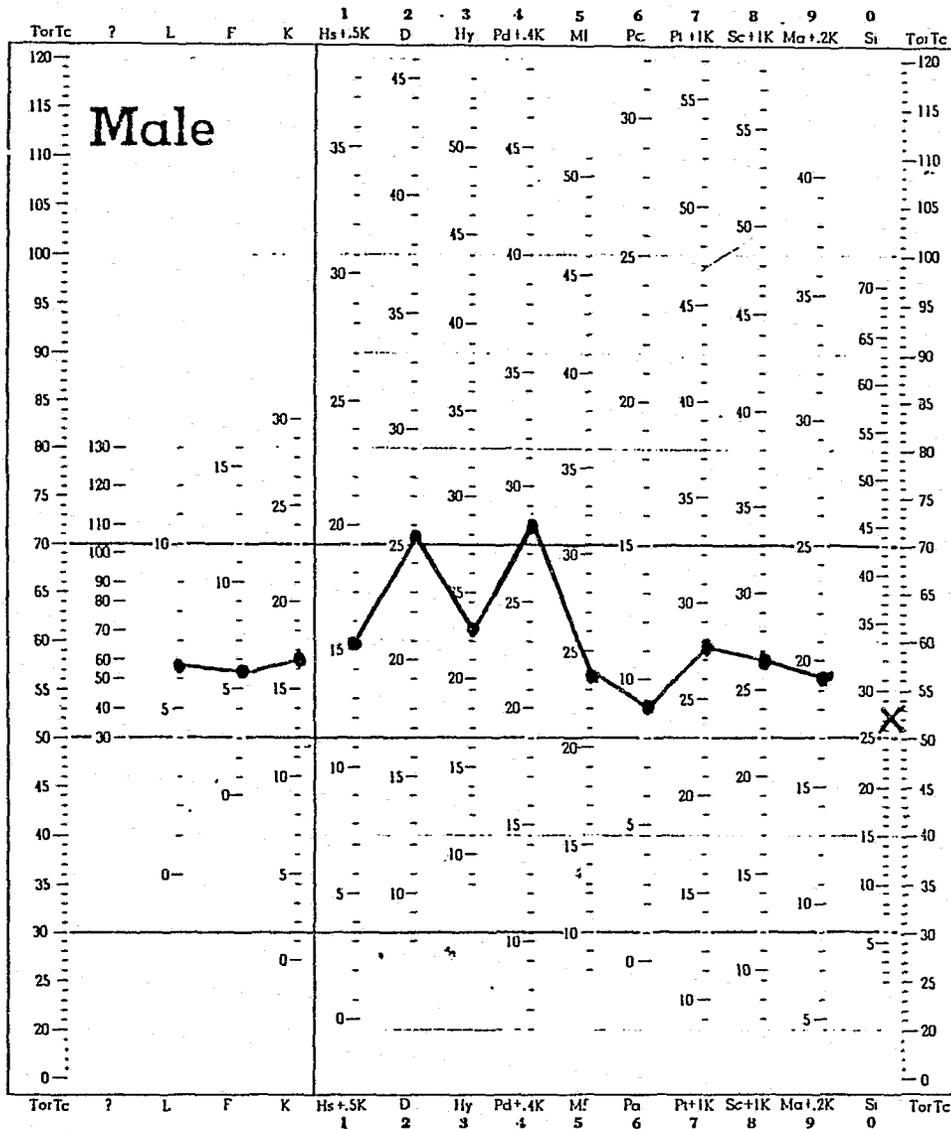
RULES

I.
(1) Scale 9 is *not* one of the top two scales
(2) Scale 4 *is* one of the top two scales
(3) Top scale ≤ 90T
(4) One of Scales 1, 2, or 3 is among the top three scales
(5) Does *not* fit Group Delta at any level

		Points
II.	(1) Sum of T scores of Scales 1, 2, and 3 > sum of T scores of Scales 6, 8, and 9	(+2)
	(2) Scale 2 > 55T	(+1)
	(3) Scale 6 < 65T	(+1)
	(4) Scale 7 < 65T	(+1)
	(5) Scale 8 < 65T	(+1)
	(6) Scale 9 < 70T	(+1)

Point Chart

No. Points	Level
7	High
5, 6	Medium
1, 2, 3, 4	Low
0	Minimum

Male
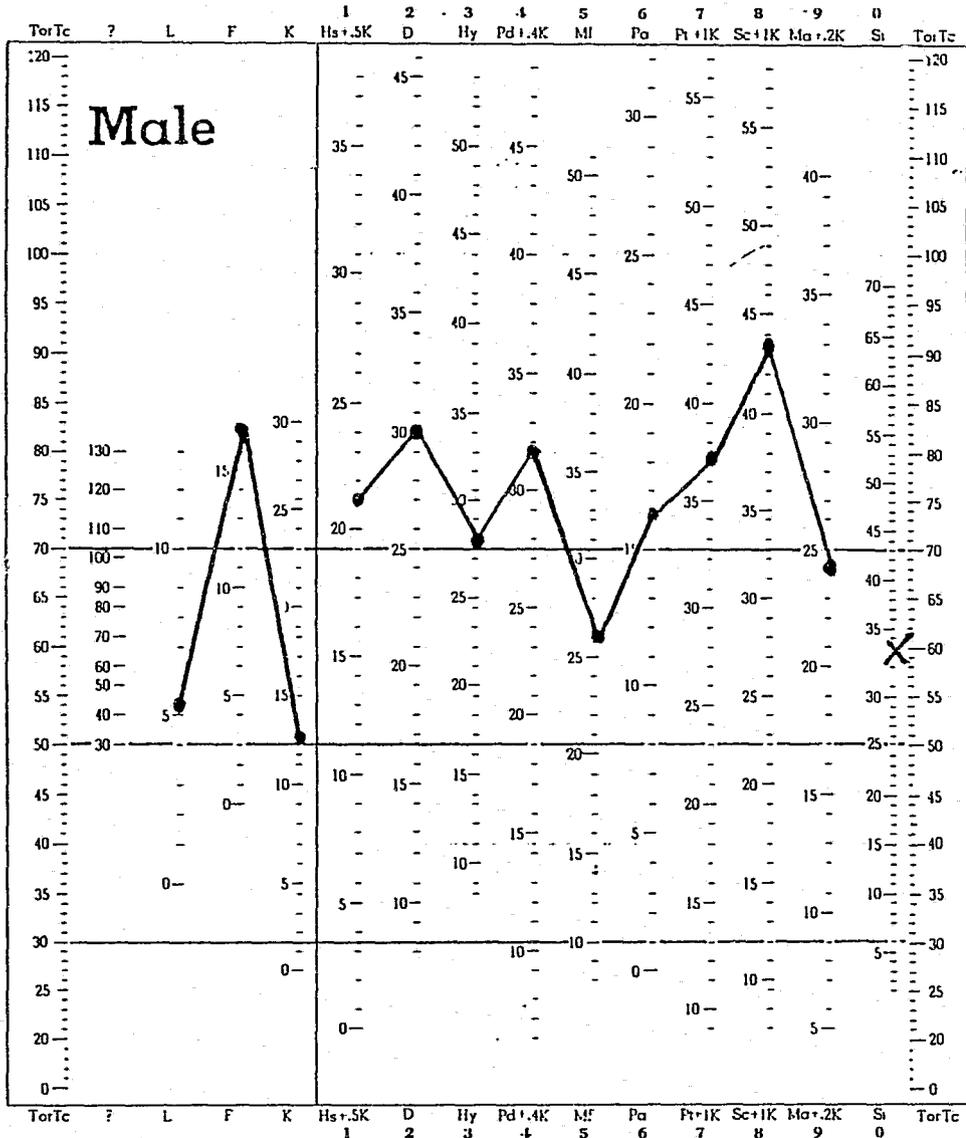
RULES

I. (1) Top scale ≥ 80T
   (2) Scale 8 ≥ Scale 9
   (3) Scale 2 ≥ 70T
   (4) At least three scales ≥ 70T

	Points
II. (1) At least five scales ≥ 70T	(+1)
(2) Scale 1 > 60T	(+1)
(3) Scale 3 > 65T	(+1)
(4) Scale 7 > 65T	(+1)
(5) Scale 8 > 75T	(+1)

Point Chart

No. Points	Level
5	High
3, 4	Medium
1, 2	Low
0	Minimum

Male
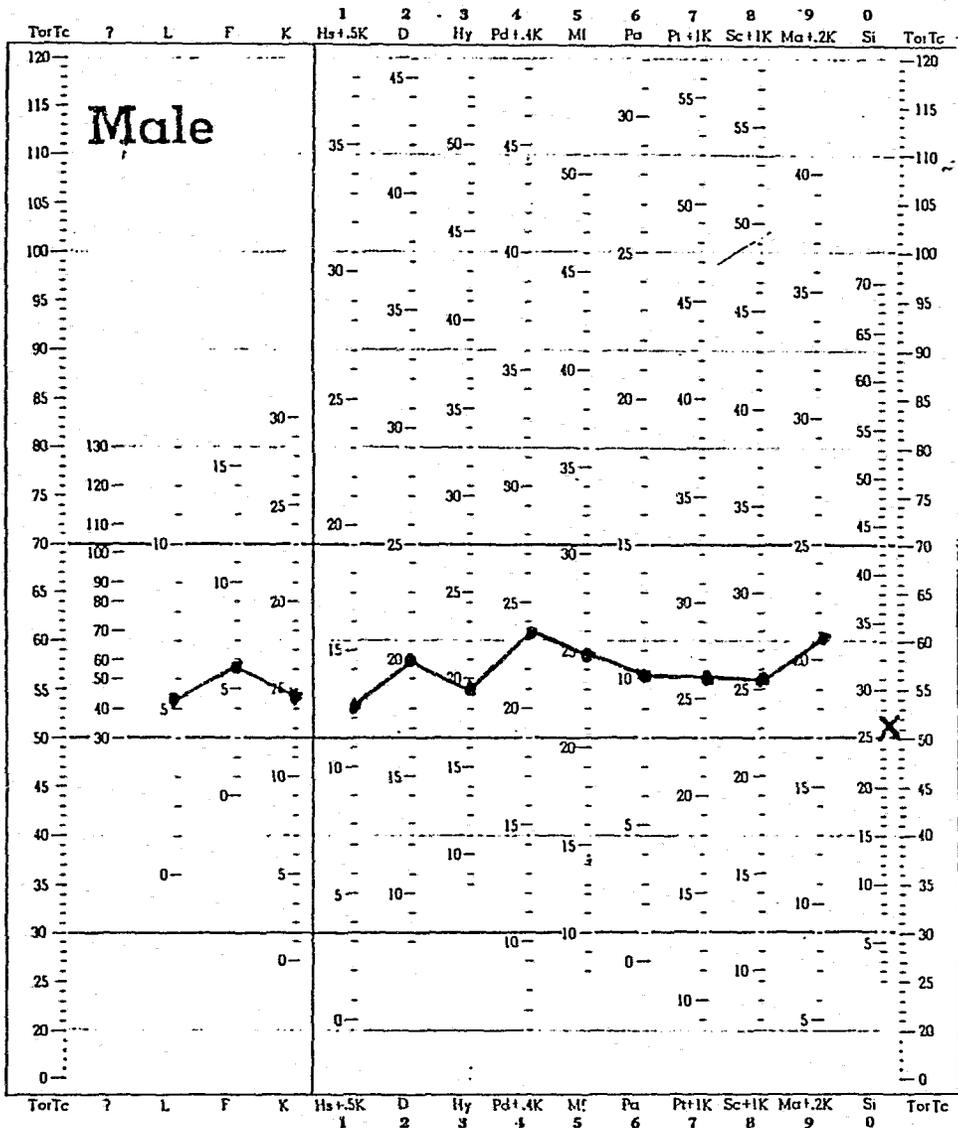
RULES

I. (1) Top scale ≤ 80T
    (2) Scale 9 ≤ 75T
    (3) Scale 8 ≤ 70T

		Points
II.	(1) Scale 1 ≥ 45T and ≤ 60T	(+1)
	(2) Scale 2 > 55T and ≤ 65T	(+1)
	(3) Scale 4 ≥ 55T and < 70T	(+1)
	(4) Scale 0 ≤ 55T	(+1)
	(5) Second highest scale < 70T	(+1)

Point Chart

No. Points	Level
—	High
4, 5	Medium
1, 2, 3	Low
0	Minimum

Chart (MMPI profile sheet) with scales:

TorTc ? L F K Hs+.5K D Hy Pd+.4K Mf Pa Pt+1K Sc+1K Ma+.2K Si TorTc

Scales: 1 2 3 4 5 6 7 8 9 0

JUPITER

Appendix 2:

New Rules for Classifying the Revised MMPI

REVISED RULES FOR CLASSIFYING MMPI-2

PROFILES OF MALE CRIMINAL OFFENDERS

ACCORDING TO THE MEGARGEE CLASSIFICATION SYSTEM

April 15, 1992 Revision

Using K-corrected MMPI-2 T-scores, compute the following:

SUMS:

1] Sum Scales [1 + 2 + 3 + 4] ("LEFT SUM")

2] Sum Scales [6 + 7 + 8 + 9] ("RIGHT SUM")

3] [Left Sum] + [Right Sum] ("BIG SUM")

4] Sum Scales [1 + 2 + 3]

5] Sum Scales [2 + 4]

6] Sum Scales [4 + 6 + 8]

7] Sum Scales [4 + 9]

DIFFERENCES:

8]   Difference [Right Sum – Left Sum]

9]   Difference Scales [F – K]

10] Difference Scales [4 – 9]

11] Difference Scales [7 – 6]

12] Difference Scales [9 – 8]

MMPI-2 CLASSIFICATORY RULES : GROUP ABLE

	PRIMARY	SECONDARY
1]	Highest scale < 86 T	1] Scale 9 is the highest scale
2]	Scale 4 or Scale 9 is the highest scale	2] Scales 4 and 9 are the top two scales*
3]	Disregarding Scales 5 and 0, Scales 4 & 9 are both in top 4.*	3] Scales 4 and 9 are in the top three*
4]	Scale 7 < 75 T	4] Scale 0 < 51 T
5]	Scales 1, 3, & 0 < 71 T	5] Scale 0 or Scale 5 is the lowest scale
6]	Scales 2 & 8 < 66 T	6] Scale 8 is not in the top 4 scales
7]	Scales 4 & 9 are > 43 T	7] Scale 2 is not one of the top 3 scales
8]	[Scale 4 - Scale 9] < +21 T	8] Scale 2 < Scale 1
9]	Scale 3 < or = Scale 4	9] Scale 2 < Scale 3
10]	Scale 9 > or = Scale 8	10] [Scale 9 - Scale 8] > +14 T
11]	Sum Scales [1 + 2 + 3] < 195 T	
12]	If Scale 3 is > 60 T, it can not be one of the top 3 scales	

POINT CHART

High = 7 - 10 points

Medium = 4 - 6 points

Low = 1 - 3 points

* Ties are permitted

Note: The term "scales" refers to clinical scales.

MMPI-2 CLASSIFICATORY RULES: GROUP BAKER

PRIMARY	SECONDARY

PRIMARY

1] Highest scale < 85 T

2] Scales 1 and 5 can not be the highest scale

3] Scale 3 can not be one of the two top scales

4] Disregarding Scale 0, either Scale 2 or Scale 4

    is one of the two top scales

5] Scales 1, 2, 3, 4, 5, 7, 8, & 9 < 71 T

6] Scale 2 > 41 T

7] Scale 4 > 47 T

8] Scale 5 < 55 T

9] Scale 2 > or = Scale 1 and > Scale 3

10] Scale 4 > or = Scale 3 and > Scale 5

11] Sum Scales [1 + 2 + 3] < 181 T

* Ties are permitted

Note: The term "scales" refers to clinical scales.

SECONDARY

1] The highest scale is Scale 6, 8, 9, or 0   [+ 1]

2] Scale 0 is one of the top three scales*   [+ 1]

3] Scale 1 is not one of the top three scales*   [+ 1]

4] Scale 3 is not one of the top three scales*   [+ 1]

5] Left Sum > Right Sum   [+ 1]

6] Scale 1 < 55 T   [+ 1]

7] Scale 3 < 55 T   [+ 1]

8] Scale 6 > Scale 5   [+ 1]

POINT CHART

High = 8 points

Medium = 5 - 7 points

Low = 1 - 4 points

PRIMARY	SECONDARY

PRIMARY

1] Highest scale > 68 T & < 112 T

2] Scale 4, 6, or 8 is one of the two highest scales

3] Scales 1, 2, 3, 5 & 0 can not be the highest scale

4] Scales 1, 2, & 3 < 82 T

5] Scale 6 > 57 T

6] Scale 8 > 60 T

7] [Scale 7 – Scale 6] < 11 T

8] Sum Scales [4 + 6 + 8] > 185 T

Note: The term "scales" refers to clinical scales.

SECONDARY

1] Scale 6 is the highest scale

   (May be tied with Scales 4 or 8.)   [+ 1]

2] Scales 4, 6 & 8 are all

   among the top four scales   [+ 1]

3] Scale 6 > Scale 7   [+ 1]

4] Scale 6 > Scale 8   [+ 1]

5] Scales 6 and 8 are the two highest scales [+ 1]

6] Left Sum < or = Right Sum   [+ 1]

POINT CHART

High = 5 – 6 points

Medium = 3 – 4 points

Low = 1 – 2 points

MMPI-2 CLASSIFICATORY RULES : GROUP DELTA

PRIMARY	SECONDARY

PRIMARY

1] Disregarding Scales 5 and 0, Scale 4

is the highest scale*

2] Scale 4 is at least 4 points higher than any of

Scales 1, 2, 3, 7, 8, or 9.

3] Scale 4 > 61 T

4] Scales 2 & 3 < 77 T

5] Scales 6, 8, & 0 are all < 74 T

6] Scales 1, 5, 7, & 9 are < 71 T

* Ties are permitted

** Note the higher weight

Note: The term "scales" refers to clinical scales.

SECONDARY

1] Scale 4 is at least 5 T-score points higher

than any other clinical scale   [+ 2] **

2] Scale 4 is at least 10 T-score points higher

than any other clinical scale   [+ 1]

3] [Scale 4 – Scale 9] > 14 T   [+ 1]

4] Scale 4 > 65 T   [+ 1]

5] Scale 4 > 70 T   [+ 1]

6] Scale 4 > 79 T   [+ 1]

7] Scale 2 > Scales 1 & 3   [+ 1]

8] Scale 6 is the second highest scale   [+ 1]

POINT CHART

High = 6 – 9 points

Medium = 3 – 5 points

Low = 1 – 2 points

MMPI-2 CLASSIFICATORY RULES : GROUP EASY

PRIMARY

1] Neither Scale 8 or Scale 9 can be the highest scale

2] Disregarding Scales 5 and 0, at least two of Scales

   1, 2, 3, or 4 are among the top three scales*

3] Scales 4 and 9 can not both be in the top three scales

4] Scales 1 and 9 are < 80 T

5] Scales 2 and 0 < 75 T

6] Scales 4, 5, 6, 7, & 8 < 70 T

7] Scale 3 > 49 T

8] Scale 4 > 45 T

* Ties are permitted

Note: The term "scales" refers to clinical scales.

SECONDARY

1] Scale 3 is the highest scale*   [+ 1]

2] Scale 3 is one of the two highest scales   [+ 1]

3] Scales 2 and 4 are not

   the two highest scales   [+ 1]

4] Scale F < Scale L   [+ 1]

5] Scale F < Scale K   [+ 1]

6] Scale 3 > Scale 2   [+ 1]

7] Left Sum > Right Sum   [+ 1]

POINT CHART

High = 7 points

Medium = 4 - 6 points

Low = 1 - 3 points

MMPI-2 CLASSIFICATORY RULES : GROUP FOXTROT

PRIMARY	SECONDARY

PRIMARY

1] Highest scale < 100 T

2] Scales 1, 2, 3, 5, or 0 are never the top scale

3] Disregarding Scale 0, Scales 4, 8, & 9 are

    all among the top four scales*

4] Scale 6 < 80 T

5] Scales 1, 2, 3, 7 and 0 are all < 76 T

6] Scale 4 > 56 T and < 91 T

7] Scale 8 > 45 T and < 91 T

8] Scale 9 > 58 T

9] [Scale 4 – Scale 9] < + 21 T-score points

10] Big Sum > 366 T

11] Big Sum < 607 T

   * Ties are permitted

   Note: The term "scales" refers to clinical scales.

SECONDARY

1] Scales 4, 8 and 9 are the top three scales [+ 1]

2] Scales 4, 8 and 9 are among

    the top four scales [+ 1]

3] Scale 9 is the highest scale [+ 1]

4] Scale 9 > Scale 6 [+ 1]

5] Scale 9 > Scale 8 [+ 1]

6] Scale F > Scale K [+ 1]

POINT CHART

High = 5 – 7 points

Medium = 3 –4 points

Low = 1 – 2 points

MMPI-2 CLASSIFICATORY RULES : GROUP GEORGE

PRIMARY	SECONDARY

PRIMARY

1] Highest Scale < 95 T

2] If the highest scale is > 61 T, then it

    can not be Scales 5, 6, 8 or 9.

3] If Scale 3 < 70 T, it can not be one of

    the two highest scales or tied for second

4] Scale 2 > 49 T and < 78 T

5] Scale 4 > 43 T and < 80 T

6] Scale 6 < 69 T

7] Scale 7 < 78 T

8] Scales 8 & 9 < 76 T

9] Big Sum > 345 T

10] Big Sum < 540 T

11] If Scale 7 is < 70 T, Left Sum > Right Sum

SECONDARY

1] Scale 1, 2 or 4 is the top scale*   [+ 1]

2] Scale 1, 2 or 4 is the second highest scale*   [+ 1]

3] Scales 2 and 4 are the highest scales*   [+ 1]

4] Scale 2 is one of the top three scales*   [+ 1]

5] Scale 2 > Scale 3   [+ 1]

6] Scale 2 > 64 T   [+ 1]

POINT CHART

High = 5 - 6 points

Medium = 3 - 4 points

Low = 1 - 2 points

* Ties are permitted

Note: The term "scales" refers to clinical scales.

MMPI-2 CLASSIFICATORY RULES : GROUP HOW

PRIMARY

1] Highest clinical scale > 71 T

2] Second highest clinical scale > 67 T

3] Highest scale is never Scale 5 or 0

4] Scale 2 > 56 T

5] [Scale 9 – Scale 8] < +11 T-score points

6] Big Sum > 479 T

7] At least five clinical scales > 59 T

Note: The term "scales" refers to clinical scales.

SECONDARY

1] Three clinical scales > 69 T   [+ 1]

2] Seven or more clinical scales > 59 T   [+ 1]

3] Highest scale > 80 T   [+ 1]

4] Scale 7 > Scale 6   [+ 1]

5] Scale 8 is the highest scale   [+ 1]

6] Scale 8 > Scale 6   [+ 1]

POINT CHART

High = 5 – 6 points

Medium = 3 – 4 points

Low = 1 – 2 points

MMPI-2 CLASSIFICATORY RULES : GROUP ITEM

PRIMARY	SECONDARY

PRIMARY

1] All clinical scales are < 70 T*

2] Third highest clinical scale < 66 T

3] Big Sum < 495 T

4] Sum Scales [1 + 2 + 3] < 185 T

5] Sum Scales [2 + 4] < 129 T

6] Sum Scales [4 + 9] < 135 T

7] Sum Scales [4 + 6 + 8] < 195 T

8] Right Sum < 258 T

* EXCEPTION: If the profile does not meet the basic
      rules for any other group and would be classified
      "Uncle," it can be classified in Group Item with one
      scale in the range 70 T through 79 T providing all
      other primary rules for Group Item are met.

SECONDARY

1] Scales 1 through 9 are all < 66 T   [+ 1]

2] Scale 5, 6, or 0 is the highest scale   [+ 1]

3] Scale 8 is not the highest scale   [+ 1]

4] Scale L > or = Scale F   [+ 1]

5] Left Sum < or = Right Sum   [+ 1]

6] Sum Scales [4 + 9] < 110 T   [+ 1]

POINT CHART

High = 5 – 6 points

Medium = 3 – 4 points

Low = 1 – 2 points

Note: The term "scales" refers to clinical scales.

MMPI-2 CLASSIFICATORY RULES: GROUP JUPITER

PRIMARY	SECONDARY

PRIMARY

1] Highest scale > 66 T

2] Disregarding Scale 0, the

   highest scale is 6, 7, 8, or 9*

3] Scales 1 & 0 < 78 T

4] Scale 3 < 72 T

5] Scale 4 > 39 T and < 68 T

6] Scale 7 > 48 T and < 80 T

7] Scale 8 > 57 T and < 97 T

8] Scale 9 > 52 T and < 95 T

9] [Right Sum − Left Sum] > +10 T

   * Ties are permitted

   Note: The term "scales" refers to clinical scales.

SECONDARY

1] Highest scale < 91 T   [+ 1]

2] Disregarding Scale 0, Scales 7, 8, or 9

   are among the two highest scales*   [+ 1]

3] Disregarding Scale 0, Scales 7, 8, & 9

   are all among the four highest scales*   [+ 1]

4] Difference Scales [F − K] > +9 T   [+ 1]

5] Difference Scales [9 − 8] > +19 T   [+ 1]

POINT CHART

High = 5 points

Medium = 3 − 4 points

Low = 1 − 2 points