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ABSTRACT

Scores on the Prescriptive Reading Inventory, the California Achievement Tests, 1970 Edition, the the Short Form Tests of Academic Aptitude were obtained for black pupils and representative samples of pupils in grades 1-3. These scores were compared in an attempt to asses bias in the Prescriptive Reading Inventory, a criterion-referenced achievement test. Using factor analyses, contingency analyses, and regression analyses, interrelationships among the reading scores on the two tests were compared. It was hypothesized that the norm-referenced test would show more bias as indicated by differential relationships among scores. The regression analyses indicated some bias in all the tests used. The contingency analyses, made of the CRT only, suggested little bias. The factor analyses suggested parts of the CRT were not biased but the remaining parts and the NRT measures were. In all cases, the amount of bias appeared small. (Author)

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AN INVESTIGATION OF BIAS IN A CRITERION-REFERENCED TEST

by

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Abstract

Scores on the Prescriptive Reading Inventory, the California Achievement Tests, 1970 Edition, and the Short Form Tests of Academic Aptitude were obtained for black pupils and representative samples of pupils in grades 1-3. These scores were compared in an attempt to assess bias in the Prescriptive Reading Inventory, a criterion-referenced achievement test. Using factor analyses, contingency analyses, and regression analyses, interrelationships among the reading scores on the two tests were compared. It was hypothesized that the norm-referenced test would show more bias as indicated by differential relationships among scores. The regression analyses indicated some bias in all the tests used. The contingency analyses made of the CRT only, suggested little bias. The factor analyses suggested parts of the CRT were not biased but the remaining parts and the NRT measures were. In all cases the amount of bias appeared small.

An Investigation Of Bias In A Criterion-Referenced Test

The objective of this study was to determine if black elementary pupils respond to a criterion-referenced reading test in a manner indicative of test bias.

There is evidence that standardized achievement tests can be biased to a degree as yet unknown (e.g., Green, 1971; Green & Draper, Note 1). A biased achievement test may be defined as a test that measures at least partly different things for different groups (Green, Note 2); unless that fact is recognized, the scores may well be interpreted in a manner unfair to one or more of the groups. An example is a reading comprehension test that measures both comprehension and vocabulary for one group but only comprehension for a second group since the students in the latter know all the terms (Williams, 1970; Green & Draper, Note 1). Differential prior knowledge of the content could also be a biasing factor in the scores of such a test. Note that differences in mean scores between groups is not evidence of bias according to this definition. Only differences in the meaning of the scores as evidenced by differential interrelationships can be taken as indicative of bias.

If the example of bias just given is taken as an example of its nature, it can be argued that criterion-referenced achievement tests (CRTs) should be less biased than ordinary norm-referenced achievement tests (Green, 1973). There are two reasons why this might be the case. First, all items are written to a specific objective and are not chosen for psychometric characteristics, such as difficulty and discrimination, which can result

from factors unrelated to achievement of that objective. Thus the role of general background may be smaller than in the typical broad norm-referenced test (NRT). The second reason is based on the fact that in a CRT the items are not designed to deal with a broad range of objectives and also on the fact that scores are not summed across objectives. These facts reduce the probability that variations in unspecified skills will prove to be a dominant factor in the scores. This reasoning means that a criterion-referenced achievement test should be generally less biased than the typical general standardized achievement test in the same broad area provided that differential general background is responsible for the bias.

However, it is possible instead to conceive of test bias as a direct consequence of the systematically different interpretations given the items by the different groups. Presumably, the reason would be differences in cultural values or language systems. In this case, one might expect the measures of only some of the objectives in the criterion-referenced test to show much bias.

In either case factor analyses of test scores might yield information relevant to the issues. If the factor structure of a CRT differs for blacks and whites, the test may be called biased. Note that if done the same way the interpretation of scores for one group or the other would be at least partly erroneous and probably unfair. Presumably the interpretations would fit the majority group best (unless the test were built by and for the minority group). It seems reasonable to expect that the introduction of standarized achievement and aptitude measures into the data set would change the factor structure more for blacks than whites if bias exists.

Another approach is to develop an empirical hierarchy among the objectives using the contingency analysis technique developed by Roudabush (1974). The structural hierarchy of objectives created from a contingency analysis should yield parallel results for the two groups if there is no bias, but a different structural pattern of objectives if there is bias.

A third way to look at this question is through regression analyses. If the regression equations using CRT scores to predict NRT scores yield less adequate predictions for one group than for the other as shown by cross validation, it follows that the CRT measures less of what the NRT measures in this latter group than the former. If the regression equations for one group applied to the other produce poor predictions, that again is evidence that the tests are measuring different things and that bias exists.

Method

Measures

Three instruments were used, the Prescriptive Reading Inventory (PRI), the reading tests of the California Achievement Tests, 1970 Edition (CAT), and the Short Form Test of Academic Aptitude (SFTAA). The PRI is a criterion-referenced reading test measuring 90 objectives in four overlapping levels. Most of the data reported here are based on Level B of the test. The 41 Level B objectives which are typical of Grade 2 and Grade 3 curricula are listed in Table 1. Level C measures 42 objectives, 20 of which are the same as those in Level B. Separate scores are reported for each objective; there is no total score. The CAT tests are the traditional standardized achievement measures of reading vocabulary and reading compre-

hension; Level 1 designed for Grades 1.5 - 2.9 was used in this study. The SFTAA is a traditional group aptitude measure and yields both a language and a non-language score. Level 1 which is appropriate for Grades 1.5 - 3.4 was used.

Insert Table 1 about here

Subjects

The tests were administered to a number of groups in the fall of 1972 as part of a larger study of the PRI. Data from black pupils were obtained in a single large district in the southern region of the United States; included are 935 cases at Grade 2 and 916 at Grade 3. To the degree this school district has characteristics that have uniquely affected the interaction of students and test materials differentially by ethnic group the inferences drawn may not be general.

Data from a standard sample were collected in all regions of the United States. A standard sample is a representative group and includes minorities in about the proportion they occur in the population. There were 685 students in the Grade 2 standard sample.

Data Analysis

Three sorts of analyses were made.

Two factor analyses were made for each group. The first used only the scores of the PRI; the second added the CAT Reading

Vocabulary, CAT Reading Comprehension, SFTAA Language, and SFTAA Non-language scores. Principal component analyses followed by varimax rotations were done and interpretation of all major factors was attempted. Differences in structure among the groups were examined as were the effects on structure of adding the CAT and SFTAA scores to those from the PRI. In addition, the similarity of the factor structures were examined by a modification of a technique developed by Roudabush (1968). It involves using one matrix as the target and trying to fit the other to it one vector at a time. It yields a similarity index.

A series of contingency analyses were made within each group relating mastery of each objective to that for every other (Roudabush, 1974). The results were hierarchical patterns or structures indicating which objectives were prerequisites for which others. These hierarchies were examined for major differences between the black and standard groups.

Finally, regression analyses were made. PRI scores were used to predict CAT scores and vice versa. Black-white differences in score interrelationships were examined by using the weights derived for one group on the other group and comparing the adequacy of the predictions across groups with cross validation samples within group and across grades within group.

Results

Factor Analyses

Two factor analyses were made for each of the three groups, one with and one without the NRT scores. Tables 2-7 show the factor loadings for these six analyses. Factor I is essentially the same in all six, dealing primarily with comprehension but with a strong word knowledge influence in Grade 2 standard and Grade 3 black groups. CAT reading scores are prominent in this factor, but it is otherwise unchanged when they are not included in the analysis. The aptitude scores do not affect it. Factor II appears to be identical in all six; the objectives concern phonetic parts of words, especially vowel sounds. The CAT and SFTAA scores are not related to this dimension and their presence or absence leaves it unaltered.

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Insert Tables 2-7 about here

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The same cannot be said for Factor III. In each of the three groups, aptitude plays either a dominant or large role in the factor when present but the three groups differ even so. The third factor without the normed tests is Word Attack Skills for the black Grade 3 group, Word Knowledge and Definitions in the black Grade 2 group, but Reading Comprehension as well as Word Attack Skills and Definitions in the standard Grade 2 group.

The consistencies are even fewer among the remaining factors although some parallels exist. For example, Main Idea is Factor IV in the Grade 2

standard and Grade 3 black PRI only analyses while it is Factor VI for both the Grade 2 black analyses and for the Grade 2 standard group when the NRTs are included.

In short, the first two factors are alike among the groups and are not seriously affected by the presence or absence of the CAT and SFTAA scores. Beyond that, they are not alike and are affected by the additional scores. Grade 3 black is a bit more like Grade 2 standard than Grade 2 black.

The similarity coefficients shown in Tables 8 and 9 support these interpretations. It should be noted that these coefficients are derived from the unrotated matrices and that the zero coefficients in the upper off diagonal half are a necessary outcome of the technique. It can be seen that the first two factors are generally similar but that most of the remaining factors related to more than one other factor in not very consistent ways. These data do make the two black groups look the most alike, somewhat contrary to the interpretation of the rotated structures. However, the Grade 2 groups differ the most. The presence or absence of the norm-referenced measures have relatively little systematic effects on the coefficients.

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Insert Tables 8 and 9 about here

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Since in all cases the first two factors account for many times the amount of the variance attributable to any other factor, one could

argue that little evidence of bias has been found by these two analyses. However, the differences in both the rotated and unrotated factor matrices are substantial for the remaining factors that were judged to have meaning. From these data it seems most reasonable to infer that there is some bias in the PRI but that its amount is small and occurs for only some objectives.

Contingency Analyses

Figures 1 and 2 show the structure of objectives based on the contingency analyses for Level B of the PRI for the standard sample and black sample, respectively. Note first that the general placement of objectives in the hierarchy is similar in the two figures; that is, the objectives at the bottom of the hierarchy tend to be the same in both figures and those intermediate and at the top also tend to be the same.

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Insert Figures 1-3 about here

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The main difference between the two is the greater number of interconnections in the data for the black sample. The hierarchy for the standard sample has many "end" points throughout the figure where achievement of an objective does not seem to contribute to achievement of other objectives in the test. The hierarchy for the black sample, on the other hand, has only one end point -- Objective 1, Like Vowel Sounds -- other than the two end points at the very top of the hierarchy. This result may mean that the students in the black sample need to learn the phonic and structural

analysis skills before they can progress far in reading even simple stories while the students in the standard sample can progress in comprehension skill while learning the phonic and structural analysis skills as relatively separate activities.

Figure 3 shows a hierarchy for Level C of the test for a third grade standard sample. The objectives for Level C of the PRI are somewhat different but there is considerable overlap between the levels. The interconnectedness of phonic and structural analysis skills with comprehension skills is apparent as in the Level B black sample. One interpretation possible is that as reading passages become more difficult, phonic and structural analysis skills become more important in comprehending the materials and that, at Level B of the PRI for the black sample, the reading passages have become difficult enough for this phenomenon to occur. Another possibility is that Southern black students are drilled on these discrete skills much more than are students in general. Neither of these explanations indicates bias in the test as we have defined it.

A final possibility is that the standard sample students, because of a relatively enriched preschool experience, implicitly have many of these phonic and structural analysis skills (although not necessarily at a mastery level) so that they can proceed more directly to mastering comprehension objectives, while the black students require drill on these skills before proceeding far with comprehension objectives. This might indicate bias in the first sense of the definition given earlier and the cause of the bias is probably deficiencies in the early education of the students.

Regression Analyses

The outcomes of the regression analyses are summarized in Tables 10 through 13. Table 10 shows the results of the prediction of CAT scores from the 41 PRI scores. Each group was divided randomly into 70% and 30% samples and the latter group was used for cross validation. The cross validation values are near the CAT reliabilities for the Grade 2 standard group and the Grade 3 black group but lower for the Grade 2 black group. It seems probable that these lower figures reflect lower reliabilities for the PRI scores among these pupils. Their mean scores suggest that the test was in many cases too difficult for meaningful variations in scores to occur. Given that explanation of the lower correlations for the Grade 2 black scores, one can infer from Table 9 that the test generally measures the same thing for both groups.

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Insert Tables 10-13 about here

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Tables 11 through 13 show the predictions of PRI scores from the two CAT reading scores. The predictions are moderately good for many of the objectives in the standard groups, less good for the Grade 3 black group and frequently poor for the Grade 2 blacks. In each of the three groups the cross validation results are as often a point or two higher than the obtained multiple R as they are below it; substantial shrinkages occur in only a few instances. In all cases, substituting the weights for one of the other groups yields multiple Rs just about the same as those in the

within group cross validations. In this instance at least the result is unambiguous: no evidence of bias.

Conclusions

Recognition that achievement tests of any type are probably somewhat biased should be given by anyone using tests with individuals or groups having divergent backgrounds. It seems reasonable to infer from this report that this is less of a concern the more specific and well-defined (concrete) the behavior being measured. Thus standardized norm-referenced achievement tests are probably more biased because they measure broader functions than criterion-referenced tests. Both are biased to a degree, large or small, that is yet to be assessed since no absolute measure of amount of bias exists. However, the evidence presented here makes it seem reasonable to assume the degree is small in criterion-referenced tests; at least we believe that the amount of bias in the criterion-referenced test we studied is small.

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Table 1

Objectives Measured in Level B of the Prescriptive Reading Inventory

Number	Label	Description
1	Vowel Sounds: like	Recognize like vowel sounds by choosing the word with the same vowel sound as a given printed word.
2	Consonant Sounds: letters	Identify letter representing a consonant sound by identifying a printed word that contains the sound presented orally.
5	Consonant Substitution: initial & final	Given a printed word, choose from specified consonants one which would make a new word if substituted for the initial or final consonant in the word.
7b	Syllables: number	Identify number of syllables in printed words.
8	Rhyming Words	Identify rhyming words.
9	Silent Letters	Identify silent letters within given words.
10	Silent Vowels	Identify silent vowels in given words.
11	Variant Vowel Sounds: y	Identify a word that contains the same sound as the y sound in a given word.
12	Variant Vowel Sounds: r-controlled	Identify a word that contains the same r-controlled vowel sound as a given word.
14	Phonetic Parts: variant sounds	Identify a word that has the same sound as an underlined digraph or dipthong in a given word.
17b	Inflected Words: endings & affixes	Identify an affix that makes sense when added to a word in a phrase or sentence.
18	Possessives	Identify the correct possessive form of a noun or pronoun to complete a given sentence.

Table 1 Continued

Number	Label	Description
19	Adjectives: positive, comparative, superlative	Identify the correct form of an adjective -- positive, comparative, or superlative -- to complete a sentence.
21	Pronouns	Identify the correct pronoun to complete a sentence.
23	Contractions	Identify contractions for given word pairs or identify word pairs given their contracted form.
26	Word Structure: endings with spelling changes	Identify root word given a word with an affix requiring a spelling change or identify from a given root word the corresponding affixed word requiring a spelling change.
27	Verb Tense	Identify the correct verb phrase to complete a sentence in the present or past tense.
34	Defining Affixed Words	Identify the correct definitions of affixed words.
47	Context: metaphors	Identify the correct definition of a metaphorical phrase in context.
48	Word Definition in Context	Identify the correct definition of a word as it is used in a given sentence.
49	Word Definition in Isolation	Identify the correct definition of a word given in isolation.
50	Multi-meaning Words & Definitions	Given a particular definition of a multi-meaning word, identify a sentence in which the word is used in the sense defined.
52	Synonyms	Identify the correct synonym for a word given in isolation.
54a	Homonyms	Identify the correct homonym from a given pair to complete an incomplete sentence.
55	Homographs	Identify the correct homograph from two given phonetic transcriptions (e.g., wind, wind) to complete a given incomplete sentence.

Table 1 Continued

Number	Label	Description
57a	Event Sequence	Identify what happened or what a character did first or last in a given story.
58	Setting	Identify the setting of a story, a designated part of a story, or where particular events occurred in a story.
59	Story Detail: recall	Identify specific events, places, or names that occurred in a given story.
62	Cause & Effect	Identify the cause of a given effect in a story or the effect of a given cause in a story.
63	Inference	Make correct inferences about reading material or answer questions that require inferences to be made.
64	Conclusions	Draw conclusions from reading material or answer questions that require conclusions to be drawn.
66	Predict Future Action	Anticipate or predict future action or events based upon reading material.
67a	Main Idea	Identify the most appropriate word, phrase, or sentence that describes the main idea of a passage or select the most appropriate title for a passage.
68	Character Analysis: feelings	Identify the feelings of a character at a particular time or throughout the story.
69	Character Analysis: motive or cause	Identify the reason for, or justification of, a story character's action.
70	Character Analysis: desc. words, traits	Identify descriptive words or sentences applying to the traits or attitudes of characters in a story.
72	Sensory Imagery	Identify the most intense or appropriate imagery for a given sense or indicate the sense to which given sensory images appeal.

Table 1 Continued

Number	Label	Description
74	Figurative Expression: definition	Identify the definition of a figurative expression as used in a sentence or story.
77a	Mood	Identify story elements that set the mood of a story.
78	Time Span & Period	Identify the period or the time span of a story, a part of a story, or a particular event in a story.
83a	Reality and Fantasy	Identify make-believe and real sentences in a group of sentences.

Table 2

Factor Loadings for Grade 2 Standard Group on PRI Only

	Variable	Factor I	II	III	IV	V	VI	VII	VIII
1	Vowel Sounds--matching like or variant	.37	.64	.33	.03	.12	.01	.07	.08
2	Consonant Sounds--Letters	.53	.38	.11	.16	.15	-.19	.22	-.04
5	Consonant Substitution--Initial & Final	.15	.14	.19	-.01	.01	.82	.08	-.01
7b	Syllables--Number	.14	.07	.18	.05	.03	.09	.86	.02
8	Rhyming Word Parts	.35	.67	.10	.14	-.01	.15	.05	.16
9	Silent Letters	.44	.36	.42	.00	-.02	.07	.15	.17
10	Silent Vowels	.52	.17	.40	-.16	.03	.10	.01	.05
11	Variant Vowel Sounds--Y	.18	.58	.30	-.05	.20	.24	.16	.20
12	Variant Vowel Sounds--R controlled	.10	.60	.39	.17	.01	.02	.00	.04
14	Phonetic Parts--Variant Sounds	.10	.74	.24	.10	.11	.04	-.01	.05
17b	Inflected Words--Endings & Affixes	.54	.31	.44	-.01	.09	-.05	.00	.09
18	Possessives	.71	.00	.20	.06	.06	.11	.10	.10
19	Adjectives--Pos., Comp., Super.	.55	.30	.35	.13	.06	-.04	-.02	.09
21	Pronouns	.69	.19	.24	.00	.10	.10	-.05	.10
23	Contractions--Word Pairs/Verb Phrases	.50	.30	.23	.09	.16	.17	.13	.17
26	Word Structure--Endings, Spelling Change	.19	.16	.06	.26	.32	.25	.04	.58
27	Verb Tense	.60	.14	.35	.10	.21	.02	.08	.09
34	Defining Affixed Words	.33	.23	.51	.00	.22	-.07	.13	.04
47	Phrase Defined in Context	.16	.31	.34	-.19	.40	-.07	.25	.09

Table 2 Continued

	Variable	I	II	III	IV	V	VI	VII	VIII
48	Word Defined in Context	.32	.24	.58	.01	.03	-.09	.10	.12
49	Word Defined in Isolation	.21	.30	.59	.03	.17	.09	.08	.14
50	Multimeaning Words & Definitions	.12	.08	.13	.10	.85	.01	-.01	.09
52	Synonyms--Selection	.34	.32	.62	-.02	.15	.03	.10	.18
54a	Homonym Pairs--Selection	.33	.27	.40	.12	.23	.11	-.18	-.10
55	Homographs--Selection	.20	.12	.23	.01	.00	-.12	.00	.75
57a	Event Sequence	.39	.11	.45	.22	.22	.17	.12	-.03
58	Story Setting	.17	.10	.67	.22	.04	.08	.05	-.06
59	Story Detail--Recall or Descrip. Words	.54	.16	.54	.11	.08	.08	.09	.10
62	Cause or Effect	.45	.19	.50	.14	.06	.09	.14	.14
63	Inference	.26	.22	.47	.19	.22	.22	.07	.04
64	Conclusion--Formation	.41	.24	.63	.07	.04	.07	.10	.13
66	Predicting Future Action	.49	.19	.47	.15	.08	.17	.07	.08
67a	Main Idea--Summary, Title or Theme	.08	.17	.21	.80	.07	.04	.05	.14
68	Character Analysis--Feelings	.48	.32	.51	.07	.08	-.02	.12	.22
69	Character Analysis--Motive or Cause	.41	.19	.53	.06	.10	.17	.03	.08
70	Character Analysis--Desc. Words, Traits	.23	.26	.53	.02	.32	.14	.05	.17
72	Sensory Imagery	.60	.17	.31	.03	.03	.09	.15	.18
74	Figurative Expressions--Definition	.37	.26	.50	.10	.06	.12	-.02	.21
77a	Mood	.40	.22	.40	.35	.05	.12	.02	.01

Table 2 Continued

	Variable	Factor I	II	III	IV	V	VI	VII	VIII
78	Time Span & Period	.24	.15	.52	.15	-.01	.16	.18	.21
83a	Reality & Fantasy	.34	.35	.26	.24	.22	.05	.28	-.13

Table 3

Factor Loadings Grade for 2 Standard Group on PRI/CAT/SFTAA

	Variable	Factor I	II	III	IV	V	VI	VII	VIII
1	Vowel Sounds--matching like or variant	.38	.64	.10	.33	.10	.00	.01	.06
2	Consonant Sounds--Letters	.52	.38	.20	.10	.01	.13	-.16	.19
5	Consonant Substitution--Initial & Final	.15	.13	.04	.20	.00	-.01	.81	.09
7b	Syllables--Number	.13	.09	.06	.17	.04	.03	.09	.85
8	Rhyming Words Parts	.35	.65	.00	.13	.16	.14	.14	.06
9	Silent Letters	.47	.35	-.02	.41	.12	.00	.06	.14
10	Silent Vowels	.56	.16	.04	.38	.01	-.16	.11	-.01
11	Variant Vowel Sounds--Y	.15	.58	.14	.33	.22	-.09	.21	.17
12	Variant Vowel Sounds--R controlled	.12	.60	.07	.37	-.01	.18	.01	.01
14	Phonetic Parts--Variant Sounds	.10	.74	.11	.24	.06	.08	.04	-.01
17b	Inflected Words--Endings & Affixes	.52	.30	.07	.46	.10	-.03	-.06	.00
18	Possessives	.69	-.02	.12	.23	.10	.07	.10	.11
19	Adjectives--Pos., Comp., Super.	.53	.29	.05	.37	.12	.11	-.03	-.02
21	Pronouns	.65	.17	.09	.28	.13	-.01	.09	-.05
23	Contractions--Word Pairs/Verb Phrases	.47	.29	.12	.27	.25	.05	.17	.12
26	Word Structure--Endings, Spelling Change	.15	.16	.16	.14	.70	.17	.20	.03
27	Verb Tense	.55	.13	.22	.39	.14	.06	.01	.09
34	Defining Affixed Words	.34	.25	.19	.49	.08	-.06	-.05	.09
47	Phrase Defined in Context.	.12	.31	.31	.37	.16	-.27	-.10	.24
48	Word Defined in Context	.34	.24	.07	.56	.05	.02	-.10	.09

Table 3 Continued

	Variable	Factor I	II	III	IV	V	VI	VII	VIII
49	Word Defined in Isolation	.21	.31	.13	.60	.15	-.01	.07	.07
50	Multimeaning Words & Definitions	.07	.11	.76	.14	.33	-.06	.04	-.07
52	Synonyms--Selection	.35	.31	.16	.61	.14	-.03	.01	.10
54a	Homonym Pairs--Selection	.27	.27	.22	.44	-.01	.07	.12	-.18
55	Homographs--Selection	.25	.11	-.02	.22	.59	.05	-.20	.04
57a	Event Sequence	.34	.11	.21	.47	.09	.15	.20	.11
58	Story Setting	.16	.10	.15	.66	-.10	.24	.06	.06
59	Story Detail--Recall or Descrip. Words	.50	.16	.06	.58	.15	.07	.07	.10
62	Cause or Effect	.45	.19	.06	.50	.15	.12	.09	.14
63	Inference	.25	.23	.22	.48	.10	.14	.23	.03
64	Conclusion--Formation	.41	.24	.08	.63	.10	.07	.05	.11
66	Predicting Future Action	.43	.17	.08	.53	.12	.13	.15	.10
67a	Main Idea--Summary, Title or Theme	.07	.19	.12	.22	.22	.75	-.03	.03
68	Character Analysis--Feelings	.46	.31	.07	.53	.21	.05	-.05	.13
69	Character Analysis--Motive or Cause	.33	.18	.05	.61	.13	.03	.13	.06
70	Character Analysis--Desc. Words, Tratis	.20	.26	.30	.56	.20	-.03	.10	.05
72	Sensory Imagery	.57	.15	.03	.34	.19	.02	.07	.18
74	Figurative Expressions--Definition	.36	.25	.07	.52	.19	.09	.08	.00
77a	Mood	.35	.22	.01	.45	.12	.28	.15	.01
78	Time Span & Period	.25	.15	.03	.52	.15	.16	.12	.19
83a	Reality & Fantasy	.28	.36	.22	.29	.02	.16	.08	.26

Table 3 Continued

	Variable	Factor I	II	III	IV	V	VI	VII	VIII
91	CAT Reading Vocabulary	.72	.26	.21	.33	.02	.09	.09	.04
92	CAT Reading Comprehension	.61	.33	.16	.47	.12	.14	.09	-.01
93	SFTAA Language	.21	.10	.58	.28	-.21	.30	-.03	.20
94	SFTAA Nonlanguage	.45	.15	.52	.14	-.10	.22	.10	.12

Table 4

Factor Loadings for Grade 2 Black Group on PRI Only

		Factor								
	Variable	I	II	III	IV	V	VI	VII	VIII	IX
1	Vowel Sounds--matching like or variant	.17	.60	.02	-.02	.07	.07	.13	.31	-.07
2	Consonant Sounds--Letters	.23	.25	.11	.08	.50	.09	.24	.26	-.17
5	Consonant Substitution--Initial & Final	.19	.21	.40	-.10	.44	-.14	.26	.08	.06
7b	Syllables--Number	.21	.15	.07	.19	.61	-.28	-.08	.01	.08
8	Rhyming Word Parts	.08	.58	-.10	.04	.44	-.03	-.09	.06	.16
9	Silent Letters	.21	.28	.10	-.08	.55	.13	.19	.24	-.05
10	Silent Vowels	.20	.19	-.03	-.15	.52	.27	.24	.21	.01
11	Variant Vowel Sounds--Y	.19	.56	.06	.10	.21	.03	.05	.15	.10
12	Variant Vowel Sounds--R controlled	.14	.62	-.05	.09	.04	.04	.09	-.09	.17
14	Phonetic Parts--Variant Sounds	-.01	.69	.32	.01	.07	.01	-.08	.09	.02
17b	Inflected Words--Endings & Affixes	.43	.17	.12	.00	.19	.05	.41	.10	.20
18	Possessive	.28	-.01	-.04	.05	.57	.28	.06	.21	.19
19	Adjectives--Pos., Comp., Super.	.31	.15	-.07	-.03	.02	.06	.44	.25	.30
21	Pronouns	.52	.09	-.07	-.01	.36	.02	.16	.09	.36
23	Contractions--Word Pairs/Verb Phrases	.30	.26	.23	.01	.18	.03	.23	.10	.42
26	Word Structure--Endings, Spelling Change	.38	.32	.37	.00	.16	.04	.22	.01	-.06
27	Verb Tense	.24	.04	.15	.06	.27	.00	.29	.47	-.04
34	Defining Affixed Words	.15	.15	.19	.05	.19	-.03	.13	.52	.17
47	Phrase Defined in Context	.15	.14	.29	.01	.01	.09	.11	.12	.63
48	Word Defined in Context	.57	.32	.01	-.07	-.03	.15	.32	-.01	-.15

Table 4 Continued

	Variable	Factor I	II	III	IV	V	VI	VII	VIII	IX
49	Word Defined in Isolation	.22	.19	.43	.01	.08	.19	.08	.29	.11
50	Multimeaning Words & Definitions	.13	-.01	.70	.05	-.05	.09	.12	.10	.18
52	Synonyms--Selection	.45	.31	.20	-.16	.06	.07	.24	.35	.05
54a	Homonym Parts--Selection	.14	-.03	.23	.08	.15	-.02	.65	.08	.10
55	Homographs--Selection	.09	.15	.04	.88	.03	.03	.05	.08	.00
57a	Event Sequence	.55	.06	.08	.14	.27	.07	.15	.23	.02
58	Story Setting	.48	.08	.31	-.08	.32	.22	-.15	-.08	.12
59	Story Detail--Recall or Descrip. Words	.58	.02	.01	-.10	.26	.12	.09	.21	.26
62	Cause or Effect	.53	.12	.11	-.02	.23	-.02	.09	.27	.16
63	Inference	.48	.14	.21	.15	.23	.07	.06	.20	.01
64	Conculsion--Formation	.46	.16	.14	-.05	.18	.10	.10	.46	.10
66	Predicting Future Action	.51	.09	.06	.13	.23	.12	.18	.15	.02
67a	Main Idea--Summary, Title or Theme	.15	.06	.14	.02	.05	.78	-.01	.09	.06
68	Character Analysis--Feelings	.69	.14	.17	.01	.09	.04	.16	.20	.05
69	Character Analysis--Motive or Cause	.65	.16	.05	.01	.10	.01	.07	.12	.22
70	Character Analysis--Desc. Words, Traits	.45	.15	.18	-.16	-.02	-.19	-.18	.36	.12
72	Sensory Imagery	.64	.12	.09	.07	.07	.14	.08	.25	.12
74	Figurative Expressions--Definition	.43	.04	.00	.08	.04	.04	.08	.51	.00
77a	Mood	.27	.06	.02	.06	.19	.28	-.06	.58	.10
78	Time Span & Period	.53	-.11	.28	.19	.18	.00	-.04	.09	.23
83a	Reality & Fantasy	.30	.14	.27	.07	.11	.28	-.15	.13	.07

Table 5

Factor Loading for Grade 2 Black Group on PRI/CAT/SFTAA

	Variable	Factor I	II	III	IV	V	VI	VII
1	Vowel Sounds--matching like or variant	.24	.57	.11	.07	.05	.17	-.25
2	Consonant Sounds--Letters	.14	.29	.53	.26	.17	.18	-.08
5	Consonant Substitution--Initial & Final	.12	.27	.37	.08	.49	-.03	.10
7b	Syllables--Number	.10	.27	.49	.27	.07	-.18	.31
8	Rhyming Word Parts	.09	.66	.33	-.01	-.05	.00	.14
9	Silent Letters	.13	.36	.50	.09	.20	.27	.02
10	Silent Vowels	.13	.25	.55	-.07	.15	.33	-.02
11	Variant Vowel Sounds--Y	.21	.58	.16	.11	.12	.09	.01
12	Variant Vowel Sounds--R controlled	.15	.60	.03	-.02	.08	-.06	-.02
14	Phonetic Parts--Variant Sounds	.02	.69	-.06	.09	.19	.10	.05
17b	Inflected Words--Endings & Affixes	.40	.18	.27	.01	.41	.03	-.08
18	Possessives	.24	.07	.62	-.01	.07	.27	.14
19	Adjectives--Pos., Comp., Super.	.40	.13	.24	-.15	.30	.02	-.33
21	Pronouns	.51	.14	.44	-.10	.18	-.02	.12
23	Contractions--Word Parts/Verb Phrases	.34	.29	.21	-.09	.45	.01	.04
26	Word Structure--Endings, Spelling Change	.28	.31	.09	.21	.40	.12	.11
27	Verb Tense	.27	.07	.39	.21	.26	.16	-.27
34	Defining Affixed Words	.25	.20	.23	.12	.28	.20	-.21
47	Phrase Defined in Context	.23	.17	.00	-.19	.51	.12	.09
48	Word Defined in Context	.50	.23	.11	.07	.14	.08	-.12

Table 5 Continued

	Variable	Factor I	II	III	IV	V	VI	VII
49	Word Defined in Isolation	.25	.16	.14	.09	.38	.28	-.05
50	Multimeaning Words & Definitions	.14	-.04	-.08	.13	.63	.15	.09
52	Synonyms--Selection	.50	.30	.12	.01	.32	.24	-.16
54a	Homonym Pairs--Selection	.11	-.02	.24	.09	.57	-.06	-.23
55	Homographs--Selection	.06	.15	.02	.70	.03	-.04	-.05
57a	Event Sequence	.49	.09	.31	.25	.17	.18	.05
58	Story Setting	.36	.12	.18	.03	.24	.25	.48
59	Story Detail--Recall or Descrip. Words	.59	.06	.30	-.09	.17	.19	.14
62	Cause or Effect	.56	.15	.30	.06	.20	.07	.04
63	Inference	.41	.15	.25	.29	.21	.18	.09
64	Conclusion--Formation	.51	.17	.26	.09	.21	.30	.12
66	Predicting Future Action	.44	.10	.27	.20	.18	.16	.05
67a	Main Idea--Summary, Title or Theme	.11	.02	.07	-.07	.11	.69	.10
68	Character Analysis--Feelings	.65	.13	.16	.17	.26	.14	.04
69	Character Analysis--Motive or Cause	.66	.17	.15	.03	.16	.03	.11
70	Character Analysis--Desc. Words, Traits	.53	.13	.05	.02	.08	.05	.00
72	Sensory Imagery	.63	.11	.13	.15	.18	.24	.04
74	Figurative Expressions--Definition	.49	.05	.15	.20	.05	.26	.22
77a	Mood	.35	.11	.24	.11	.03	.51	-.13
78	Time Span & Period	.38	.12	.18	.45	.12	.12	.19
83a	Reality & Fantasy	.24	.11	.15	.14	.32	.31	.01

Table 5 Continued

	Variable	Factor I	II	III	IV	V	VI	VII
91	CAT Reading Vocabulary	.47	.00	.68	-.02	.03	-.02	-.02
92	CAT Reading Comprehension	.64	.02	.45	-.04	.03	-.11	-.07
93	SFTAA Language	.38	.02	.51	.09	.13	.09	-.07
94	SFTAA Nonlanguage	.31	.02	.69	.06	.06	.05	-.10

Table 6

Factor Loadings for Grade 3 Black Group on PRI Only

	Variable	Factor I	II	III	IV	V	VI	VII
1	Vowel Sounds--matching like or variant	.24	.66	.21	-.01	.15	.03	.09
2	Consonant Sounds--Letters	.15	.24	.43	.11	.20	.15	.48
5	Consonant Substitution--Initial & Final	.25	.06	.39	-.10	.18	.39	-.18
7b	Syllables--Number	.07	.08	.19	-.04	.38	.61	.02
8	Rhyming Word Parts	.26	.62	.13	-.09	.32	.02	-.02
9	Silent Letters	.34	.24	.39	-.01	.35	.11	.15
10	Silent Vowels	.21	.20	.57	.19	.01	.03	.26
11	Variant Vowel Sounds--Y	.04	.62	.28	.19	.07	.08	.21
12	Variant Vowel Sounds--R controlled	.28	.67	.04	.01	-.07	.01	.06
14	Phonetic Parts--Variant Sounds	.14	.73	-.02	.07	.15	.11	-.02
17b	Inflected Words--Endings & Affixes	.46	.16	.48	-.03	.22	.08	.15
18	Possessives	.41	.05	.59	-.05	.08	.05	-.07
19	Adjectives--Pos., Comp., Super	.50	.15	.40	.02	.20	.06	.06
21	Pronouns	.46	.13	.55	-.10	.18	.06	-.04
23	Contractions--Word Pairs/Verb Phrases	.43	.10	.40	.08	.31	.16	.07
26	Word Structure--Endings, Spelling Change	.33	.15	.21	.01	.56	.14	.15
27	Verb Tense	.30	.10	.48	.26	.25	.11	.20
34	Defining Affixed Words	.42	.18	.32	.10	.23	.03	.30
47	Phrase Defined in Context	.27	.07	.05	-.05	.11	.02	.73
48	Word Defined in Context	.58	.23	.21	-.04	.06	.09	.22

Table 6 Continued

	Variable	Factor I	II	III	IV	V	VI	VII
49	Word Defined in Isolation	.50	.11	.16	.14	.26	.06	.18
50	Multimeaning Words & Definitions	.22	.15	.08	.02	.65	-.01	.10
52	Synonyms--Selection	.62	.19	.20	.00	.29	.15	.21
54a	Homonym Pairs--Selection	.32	.03	.19	.06	.48	.17	.05
55	Homographs--Selection	.29	.13	.02	.18	-.09	.69	.16
57a	Event Sequence	.51	.10	.33	.11	.13	-.05	-.01
58	Story Setting	.44	.05	.18	.27	.35	-.30	.08
59	Story Detail--Recall or Descrip. Words	.63	.11	.30	.02	.26	.14	.08
62	Cause or Effect	.62	.08	.29	.11	.09	.10	.10
63	Inference	.63	.14	.12	-.11	.24	.12	.09
64	Conclusion--Formation	.69	.15	.11	.10	.22	.10	.11
66	Predicting Future Action	.59	.18	.22	.03	.22	.04	.04
67a	Main Idea--Summary, Title or Theme	.11	.06	.04	.86	.06	.05	.00
68	Character Analysis--Feelings	.67	.16	.16	.04	.31	.03	.11
69	Character Analysis--Motive or Cause	.69	.17	.20	-.01	.15	.10	.04
70	Character Analysis--Desc. Words, Traits	.56	.13	-.04	.04	.31	.08	.25
72	Sensory Imagery	.66	.17	.16	-.01	.10	.17	.05
74	Figurative Expressions--Definition	.56	.14	.24	.09	-.01	.05	.10
77a	Mood	.59	.12	.17	.27	.08	.15	-.04
78	Time Span & Period	.56	.14	.13	.07	.11	-.02	.08
83a	Reality & Fantasy	.36	.21	.12	.21	.39	-.01	-.07

Table 7

Factor Loadings for Grade 3 Black Group on PRI/CAT/SFTAA

	Variable	Factor I	II	III	IV	V	VI
1	Vowel Sounds--matching like or variant	.25	.66	.22	-.04	.13	.06
2	Consonant Sounds--Letters	.16	.30	.50	.16	.18	.22
5	Consonant Substitution--Initial & Final	.28	.05	.24	-.19	.05	.48
7b	Syllables--Number	.07	.09	.13	-.03	.26	-.68
8	Rhyming Word Parts	.26	.62	.10	-.12	.26	.10
9	Silent Letters	.33	.26	.36	-.04	.36	.21
10	Silent Vowels	.20	.21	.61	.11	.07	.06
11	Variant Vowel Sounds--Y	.07	.65	.32	.20	-.03	.11
12	Variant Vowel Sounds--R controlled	.24	.65	.06	.00	.05	-.04
14	Phonetic Parts--Variant Sounds	.13	.72	-.02	.06	.13	.11
17b	Inflected Words--Endings & Affixes	.47	.18	.44	-.08	.20	.17
18	Possessives	.41	.02	.54	-.20	.10	.10
19	Adjectives--Pos., Comp., Super.	.54	.17	.32	-.05	.14	.16
21	Pronouns	.47	.12	.48	-.21	.13	.16
23	Contractions--Word Pairs/Verb Phrases	.45	.12	.37	.04	.21	.26
26	Word Structure--Endings, Spelling Change	.33	.20	.17	.03	.47	.29
27	Verb Tense	.33	.13	.49	.21	.17	.20
34	Defining Affixed Words	.41	.22	.37	.13	.25	.09
47	Phrase Defined in Context	.21	.15	.24	.12	.27	-.02
48	Word Defined in Context	.59	.26	.21	-.01	.05	.11

Table 7 Continued

	Variable	Factor I	II	III	IV	V	VI
49	Word Defined in Isolation	.50	.13	.20	.16	.25	.11
50	Multimeaning Words & Definitions	.15	.15	.18	.00	.67	.07
52	Synonyms--Selection	.62	.21	.22	.04	.28	.21
54a	Homonym Pairs--Selection	.34	.06	.23	.06	.31	.27
55	Homographs--Selection	.27	.12	.05	.25	-.07	.59
57a	Event Sequence	.49	.09	.32	.03	.19	-.01
58	Story Setting	.45	.07	.22	.20	.34	-.20
59	Story Detail--Recall or Descrip. Words	.63	.12	.30	.01	.24	.20
62	Cause or Effect	.62	.09	.31	.11	.08	.12
63	Inference	.63	.16	.08	-.08	.22	.17
64	Conclusion--Formation	.67	.15	.12	.10	.29	.12
66	Predicting Future Action	.56	.17	.19	.00	.29	.09
67a	Main Idea--Summary, Title or Theme	.12	.04	.12	.80	.05	.03
68	Character Analysis--Feelings	.67	.18	.17	.05	.30	.09
69	Character Analysis--Motive or Cause	.69	.18	.15	-.02	.18	.15
70	Character Analysis--Desc. Words, Traits	.51	.15	.05	.10	.41	.09
72	Sensory Imagery	.64	.17	.13	-.01	.15	.17
74	Figurative Expressions--Definition	.59	.15	.25	.08	-.04	.06
77a	Mood	.58	.11	.17	.22	.10	.14
78	Time Span & Period	.54	.14	.19	.07	.13	-.02
83a	Reality & Fantasy	.34	.19	.13	.13	.40	.04

Table 7 Continued

	Variable	Factor I	II	III	IV	V	VI
.91	CAT Reading Vocabulary	.50	.09	.60	-.06	.23	.09
92	CAT Reading Comprehension	.65	.10	.41	.03	.27	.15
93	SFTAA Language	.34	.00	.21	-.12	.71	.11
94	SFTAA Nonlanguage	.22	.00	.58	.20	.31	.03

Table 8

Similarity Coefficients Between Factors for PRN/CAT/SFTAA

Standard Grade 2 Factor	Black Grade 2 Factor I	II	III	IV	V	VI
I	.987	.000	.000	.000	.000	.000
II	-.061	.799	.000	.000	.000	.000
III	.074	-.395	.393	.000	.000	.000
IV	.026	.055	.082	.346	.000	.000
V	.007	.004	.375	.520	.089	.000
VI	-.017	-.141	-.121	-.105	.488	.091

Standard Grade 2 Factor	Black Grade 3 Factor I	II	III	IV	V	VI
I	.993	.000	.000	.000	.000	.000
II	-.041	.898	.000	.000	.000	.000
III	.043	-.183	.782	.000	.000	.000
IV	.003	-.112	-.104	.538	.000	.000
V	.041	-.130	.216	.345	.290	.000
VI	-.025	-.003	-.126	.144	.099	.435

Black Grade 3 Factor	Black Grade 2 Factor I	II	III	IV	V	VI
I	.993	.000	.000	.000	.000	.000
II	-.004	.922	.000	.000	.000	.000
III	.044	-.038	.762	.000	.000	.000
IV	.018	-.152	-.293	.658	.000	.000
V	-.005	-.050	-.016	.217	.386	.000
VI	.011	.108	-.153	.008	.242	.509

Table 9

Similarity Coefficients Between Factors for PRI Only

Standard Grade 2 Factor	Black Grade 2 Factor I	II	III	IV	V	VI
I	.988	.000	.000	.000	.000	-.007
II	-.058	.897	.000	.000	.000	-.004
III	.061	-.224	.584	.000	.000	.003
IV	-.006	-.009	.418	.124	.000	.000
V	-.022	-.070	-.092	.469	.032	.000
VI	.058	.136	-.286	-.305	.446	.166

Standard Grade 2 Factor	Black Grade 3 Factor I	II	III	IV	V	VI
I	.994	.000	.000	.000	.000	.000
II	-.041	.911	.000	.000	.000	.000
III	.039	-.227	.682	.000	.000	.000
IV	.033	-.043	.269	.232	.000	.000
V	-.020	-.047	-.040	-.176	.549	.000
VI	.032	-.002	-.302	.204	-.286	.576

Black Grade 3 Factor	Black Grade 2 Factor I	II	III	IV	V	VI
I	.993	.000	.000	.000	.000	.000
II	-.001	.921	.000	.000	.000	.000
III	.020	.128	.826	.000	.000	.000
IV	.042	-.102	-.046	.701	.000	.000
V	-.021	-.016	.088	.022	.569	.000
VI	-.024	.075	-.192	.000	.119	.581

Table 10

Correlations Between Predicted and Obtained CAT Scores, PRI Predicting CAT

Group	Weights Used	CAT Reading Vocabulary	CAT Reading Comprehension	CAT Total Reading
Standard, Grade 2	Standard Grade 2	.80	.78	.83
Black, Grade 2	Standard Grade 2	.61	.66	.68
Black, Grade 2	Black Grade 2	.67	.65	.71
Standard, Grade 2	Black Grade 2	.74	.76	.78
Black, Grade 3	Black Grade 3	.77	.83	.83
Black, Grade 2	Black Grade 3	.81	.82	.86
Black, Grade 2	Black Grade 3	.63	.68	.70
Black, Grade 3	Standard Grade 2	.76	.76	.81
Black, Grade 3	Black Grade 2	.71	.70	.78

Table 11

Correlations Between Obtained and Predicted PRI Scores, CAT Predicting PRI: Grade 2, Standard

Variable	Multiple Correlation	Cross Validation Grade 2 Standard	Grade 2 Black	Grade 3 Black
1 Vowel Sounds--matching like or variant	.63	.62	.62	.62
2 Consonant Sounds--Letters	.57	.55	.55	.53
5 Consonant Substitution--Initial & Final	.31	.32	.31	.33
7b Syllables--Number	.25	.30	.30	.28
8 Rhyming Word Parts	.52	.48	.48	.48
9 Silent Letters	.65	.63	.63	.63
10 Silent Vowels	.61	.63	.62	.63
11 Variant Vowel Sounds--Y	.51	.42	.42	.43
12 Variant Vowel Sounds--R controlled	.46	.32	.32	.33
14 Phonetic Parts--Variant Sounds	.46	.42	.32	.43
17b Inflected Words--Endings & Affixes	.66	.62	.61	.62
18 Possessives	.61	.65	.63	.65
19 Adjectives--Pos., Comp., Super.	.62	.61	.62	.62
21 Pronouns	.65	.64	.64	.64
23 Contractions--Word Pairs/Verb Phrases	.61	.56	.56	.56
26 Word Structure--Endings, Spelling Change	.42	.43	.41	.43
27 Verb Tense	.65	.60	.60	.59
34 Defining Affixed Words	.58	.54	.55	.55
47 Phrase Defined in Context	.40	.39	.36	.38
48 Word Defined in Context	.58	.57	.57	.57
49 Word Defined in Isolation	.58	.52	.52	.52
50 Multimeaning Words & Definitions	.27	.31	.31	.31
52 Synonyms--Selection	.68	.73	.73	.73
4a Homonym Pairs--Selection	.50	.44	.45	.43

Table 11 Continued

Variable	Multiple Correlation	Cross Validation Grade 2 Standard	Grade 2 Black	Grade 3 Black
55 Homographs--Selection	.35	.39	.39	.39
57a Event Sequence	.51	.53	.53	.53
58 Story Setting	.48	.49	.49	.49
59 Story Detail--Recall or Descrip. Words	.67	.67	.66	.68
62 Cause or Effect	.62	.62	.62	.61
63 Inference	.58	.53	.51	.53
64 Conclusion--Formation	.67	.66	.66	.66
66 Predicting Future Action	.63	.63	.61	.63
67a Main Idea--Summary, Title or Theme	.39	.31	.31	.31
68 Character Analysis--Feelings	.68	.70	.70	.68
69 Character Analysis--Motive or Cause	.57	.61	.62	.61
70 Character Analysis--Desc. Words, Traits	.55	.59	.59	.59
72 Sensory Imagery	.61	.65	.65	.65
74 Figurative Expressions--Definition	.60	.63	.63	.63
77a Mood	.59	.61	.60	.61
78 Time Span & Period	.55	.55	.55	.55
83a Reality & Fantasy	.48	.43	.43	.43

Table 12

Correlations Between Obtained and Predicted

PRI Scores, CAT Predicting PRI: Grade 2, Black

	Variable	Multiple Correlation	Cross Validation Grade 2 Black	Cross Validation Grade 2 Standard
1	Vowel Sounds--matching like or variant	.28	.20	.20
2	Consonant Sounds--Letters	.39	.36	.37
5	Consonant Substitution--Initial & Final	.34	.28	.29
7b	Syllables--Number	.29	.32	.32
8	Rhyming Word Parts	.22	.21	.21
9	Silent Letters	.36	.31	.33
10	Silent Vowels	.42	.40	.41
11	Variant Vowel Sounds--Y	.23	.22	.21
12	Variant Vowel Sounds--R controlled	.13	.12	.12
14	Phonetic Parts--Variant Sounds	.10	-.02	-.01
17b	Inflected Words--Endings & Affixes	.39	.42	.41
18	Possessives	.55	.53	.53
19	Adjectives--Pos., Comp., Super.	.37	.38	.37
21	Pronouns	.54	.55	.55
23	Contractions--Word Pairs/Verb Phrases	.37	.38	.38
26	Word Structure--Endings, Spelling Change	.21	.18	.17
27	Verb Tense	.43	.40	.40
34	Defining Affixed Words	.33	.25	.25
47	Phrase Defined in Context	.16	.20	.19
48	Word Defined in Context	.35	.33	.31
49	Word Defined in Isolation	.32	.37	.37
50	Multimeaning Words & Definitions	.16	.13	.11
52	Synonyms--Selection	.41	.35	.35
54a	Homonym Pairs--Selection	.23	.18	.18

Table 12 Continued

Variable	Multiple Correlation	Cross Validation Grade 3 Black	Cross Validation Grade 3 Standard
55 Homographs--Selection	.08	.05	.04
57a Event Sequence	.46	.47	.47
58 Story Setting	.32	.30	.21
59 Story Detail--Recall or Descrip. Words	.52	.52	.52
62 Cause or Effect	.52	.56	.56
63 Inference	.38	.45	.45
64 Conclusion--Formation	.47	.47	.47
66 Predicting Future Action	.42	.35	.34
67a Main Idea--Summary, Title or Theme	.16	.18	.18
68 Character Analysis--Feelings	.46	.44	.44
69 Character Analysis--Motive or Cause	.52	.42	.42
70 Character Analysis--Desc. Words, Traits	.30	.33	.33
72 Sensory Imagery	.42	.39	.38
74 Figurative Expressions--Definition	.36	.47	.46
77a Mood	.37	.37	.33
78 Time Span & Period	.33	.33	.33
83a Reality & Fantasy	.27	.22	.22

Table 13

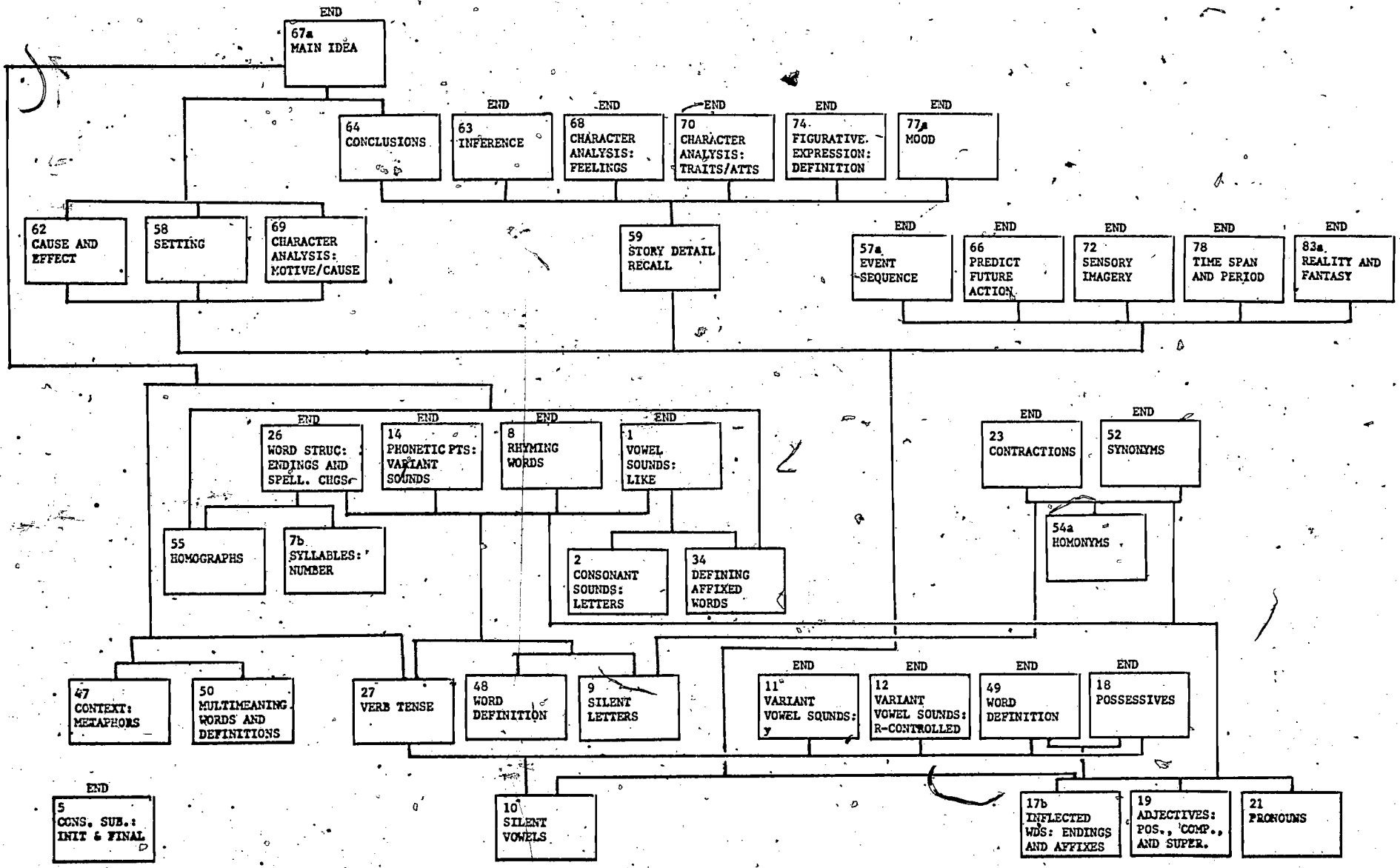
Correlations Between Obtained and Predicted

PRI Scores, CAT Predicting PRI: Grade 3, Black

	Variable	Multiple Correlation	Cross Validation Grade 3 Black	Cross Validation Grade 3 Standard
1	Vowel Sounds--matching like or variant	.39	.41	.41
2	Consonant Sounds--Letters	.46	.48	.44
5	Consonant Substitution--Initial & Final	.37	.30	.29
7b	Syllables--Number	.29	.28	.25
8	Rhyming Word Parts	.32	.30	.30
9	Silent Letters	.52	.5β	.51
10	Silent Vowels	.45	.48	.47
11	Variant Vowel Sounds--Y	.30	.23	.23
12	Variant Vowel Sounds--R controlled	.26	.17	.15
14	Phonetic Parts--Variant Sounds	.22	.19	.09
17b	Inflected Words--Endings & Affixes	.58	.60	.60
18	Possessives	.55	.58	.57
19	Adjectives--Pos., Comp., Super.	.56	.58	.59
21	Pronouns	.61	.63	.63
23	Contractions--Word Pairs/Verb Phrases	.56	.55	.55
26	Word Structure--Endings, Spelling Change	.49	.36	.36
27	Verb Tense	.50	.29	.49
34	Defining Affixed Words	.48	.51	.51
47	Phrase Defined in Context	.34	.26	.24
48	Word Defined in Context	.55	.54	.54
49	Word Defined in Isolation	.50	.49	.49
50	Multimeaning Words & Definitions	.39	.28	.28
52	Synonyms--Selection	.64	.57	.57
4a	Homonym Pairs--Selection	.46	.40	.42

Table 13 Continued

	Variable	Multiple Correlation	Cross Validation Grade 3 Black	Cross Validation Grade 3 Standard
55	Homographs--Selection	.31	.30	.29
57a	Event Sequence	.47	.49	.49
58	Story Setting	.47	.50	.50
59	Story Detail--Recall or Descrip. Words	.64	.61	.60
62	Cause or Effect	.58	.55	.56
63	Inference	.53	.41	.41
64	Conclusion--Formation	.62	.57	.57
66	Predicting Future Action	.51	.50	.49
67a	Main Idea--Summary, Title or Theme	.18	.11	.12
68	Character Analysis--Feelings	.63	.63	.63
69	Character Analysis--Motive or Cause	.59	.51	.51
70	Character Analysis--Desc. Words, Traits	.52	.46	.46
72	Sensory Imagery	.52	.47	.47
74	Figurative Expressions--Definition	.51	.47	.47
77a	Mood	.50	.48	.47
78	Time Span & Period	.47	.50	.50
83a	Reality & Fantasy	.44	.44	.44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END
63 INFERENCE
END
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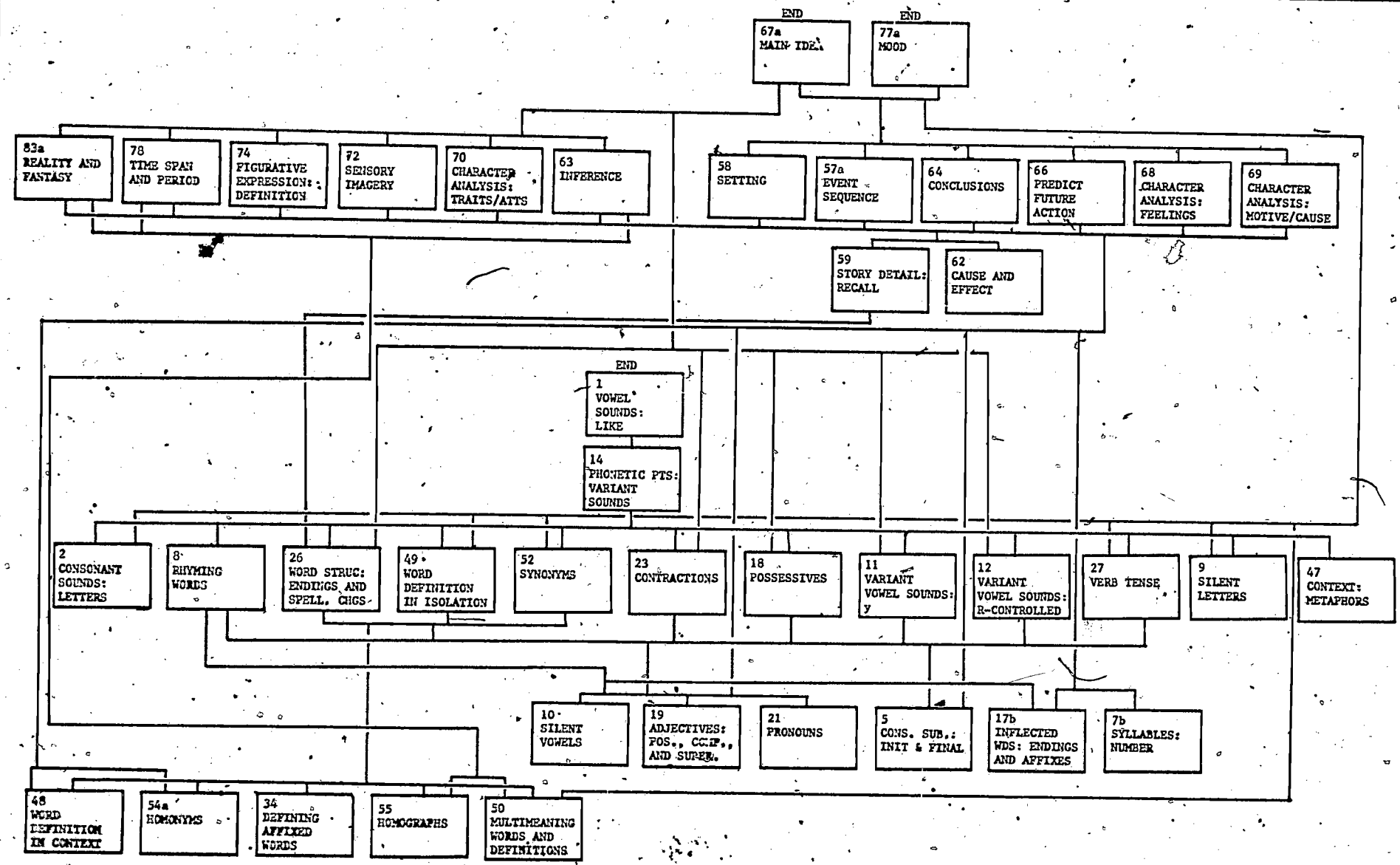
END
70 CHARACTER ANALYSIS: TRAITS/ATTS
END
74 FIGURATIVE EXPRESSION: DEFINITION
END
77a MOOD
62 CAUSE AND EFFECT
58 SETTING
69 CHARACTER ANALYSIS: MOTIVE/CAUSE
59 STORY DETAIL RECALL
END
57a EVENT SEQUENCE
END
66 PREDICT FUTURE ACTION
END
72 SENSORY IMAGERY
END
78 TIME SPAN AND PERIOD
END
83a REALITY AND FANTASY
END
26 WORD STRUC: ENDINGS AND SPELL. CHGS
END
14 PHONETIC PTS: VARIANT SOUNDS
END
8 RHYMING WORDS
END
1 VOWEL SOUNDS: LIKE
END
23 CONTRACTIONS
END
52 SYNONYMS
55 HOMOGRAPHS
7b SYLLABLES: NUMBER
2 CONSONANT SOUNDS: LETTERS
34 DEFINING AFFIXED WORDS
54a HOMONYMS
47 CONTEXT: METAPHORS
50 MULTIMEANING WORDS AND DEFINITIONS
27 VERB TENSE
48 WORD DEFINITION
9 SILENT LETTERS
END
11 VARIANT VOWEL SOUNDS: y
END
12 VARIANT VOWEL SOUNDS: R-CONTROLLED
END
49 WORD DEFINITION
END
18 POSSESSIVES
END
5 CONS. SUB.: INIT & FINAL
10 SILENT VOWELS
17b INFLECTED WDS: ENDINGS AND AFFIXES
19 ADJECTIVES: POS., COMP., AND SUPER.
21 PRONOUNS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END
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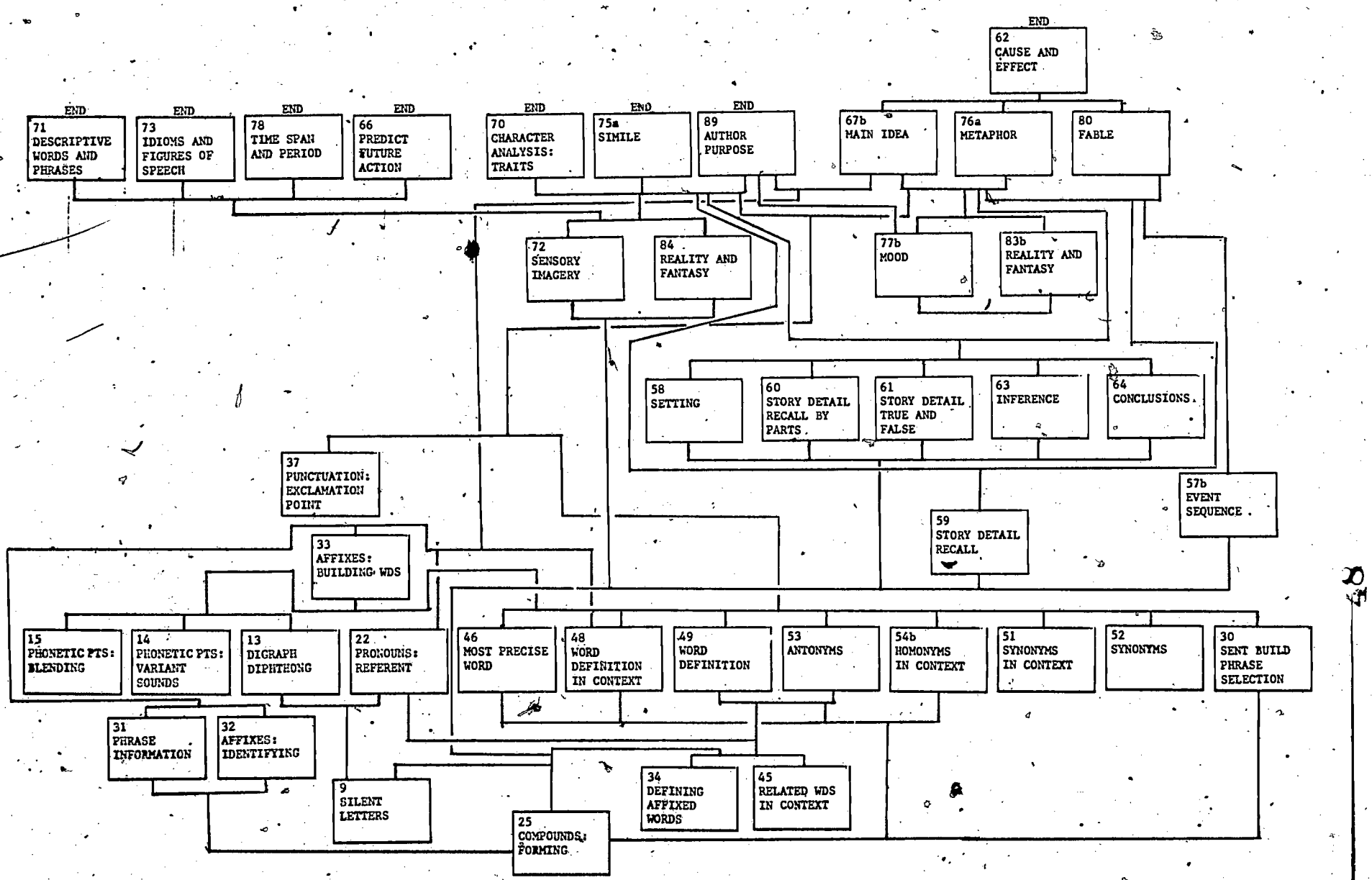
72 SENSORY IMAGERY
70 CHARACTER ANALYSIS: TRAITS/ATTS
63 INFERENCE
58 SETTING
57a EVENT SEQUENCE
64 CONCLUSIONS
66 PREDICT FUTURE ACTION
68 CHARACTER ANALYSIS: FEELINGS
69 CHARACTER ANALYSIS: MOTIVE/CAUSE
59 STORY DETAIL: RECALL
62 CAUSE AND EFFECT
END
1 VOWEL SOUNDS: LIKE
14 PHONETIC PTS: VARIANT SOUNDS
2 CONSONANT SOUNDS: LETTERS
8 RHYMING WORDS
26 WORD STRUC: ENDINGS AND SPELL. CHGS
49 WORD DEFINITION IN ISOLATION
52 SYNONYMS
23 CONTRACTIONS
18 POSSESSIVES
11 VARIANT VOWEL SOUNDS: y
12 VARIANT VOWEL SOUNDS: R-CONTROLLED
27 VERB TENSE
9 SILENT LETTERS
47 CONTEXT: METAPHORS
10 SILENT VOWELS
19 ADJECTIVES: POS., COMP., AND SUPER.
21 PRONOUNS
5 CONS. SUB.: INIT & FINAL
17b INFLECTED WDS: ENDINGS AND AFFIXES
7b SYLLABLES: NUMBER
48 WORD DEFINITION IN CONTEXT
54a HOMONYMS
34 DEFINING AFFIXED WORDS
55 HOMOGRAPHS
50 MULTIMEANING WORDS AND DEFINITIONS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END
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END
70 CHARACTER ANALYSIS: TRAITS
END
75a SIMILE
END
89 AUTHOR PURPOSE
67b MAIN IDEA
76a METAPHOR
80 FABLE
72 SENSORY IMAGERY
84 REALITY AND FANTASY
77b MOOD
83b REALITY AND FANTASY
58 SETTING
60 STORY DETAIL RECALL BY PARTS
61 STORY DETAIL TRUE AND FALSE
63 INFERENCE
64 CONCLUSIONS
37 PUNCTUATION: EXCLAMATION POINT
57b EVENT SEQUENCE
59 STORY DETAIL RECALL
33 AFFIXES: BUILDING WDS
15 PHONETIC PTS: BLENDING
14 PHONETIC PTS: VARIANT SOUNDS
13 DIGRAPH DIPHTHONG
22 PRONOUNS: REFERENT
46 MOST PRECISE WORD
48 WORD DEFINITION IN CONTEXT
49 WORD DEFINITION
53 ANTONYMS
54b HOMONYMS IN CONTEXT
51 SYNONYMS IN CONTEXT
52 SYNONYMS
30 SENT BUILD PHRASE SELECTION
31 PHRASE INFORMATION
32 AFFIXES: IDENTIFYING
9 SILENT LETTERS
34 DEFINING AFFIXED WORDS
45 RELATED WDS IN CONTEXT
25 COMPOUNDS: FORMING

Figure Captions

Figure 1. The empirical structure of objectives for the Prescriptive Reading Inventory, Level B, standard sample.

Figure 2. The empirical structure of objectives for the Prescriptive Reading Inventory, Level B, black sample.

Figure 3. The empirical structure of objectives for the Prescriptive Reading Inventory, Level C, standard sample.