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ORIGINAL AND ADAPTED TEXT: CHARACTERISTICS, SIMILARITIES, AND DIFFERENCES

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ORIGINAL AND ADAPTED TEXT:
CHARACTERISTICS, SIMILARITIES, AND DIFFERENCES

by
Karri Williams McCain

A Dissertation Submitted to the Faculty of the
DEPARTMENT OF READING
In Partial Fulfillment of the Requirements
For the Degree of
DOCTOR OF PHILOSOPHY
In the Graduate College
THE UNIVERSITY OF ARIZONA

1984
As members of the Final Examination Committee, we certify that we have read the dissertation prepared by Karri Williams McCain entitled Original and Adapted Text: Characteristics, Similarities, and Differences and recommend that it be accepted as fulfilling the dissertation requirement for the Degree of Doctor of Philosophy.

Final approval and acceptance of this dissertation is contingent upon the candidate's submission of the final copy of the dissertation to the Graduate College.

I hereby certify that I have read this dissertation prepared under my direction and recommend that it be accepted as fulfilling the dissertation requirement.

Dissertation Director

Date
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SIGNED: Kari Williams Molain
To my mother.
ACKNOWLEDGEMENTS

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This study examines the characteristics of original and adapted story versions and compares these characteristics in order to identify similarities and differences between original and adapted story versions.

The two original stories selected for study were "Charles" by Shirley Jackson and "Hearts and Hands" by O. Henry. One published adaptation of each was also selected for analysis. These adaptations were found in high interest-low vocabulary materials intended for use with less able readers.

Four systems of text analysis were applied to the story versions in order to analyze both story structure and story content. Narrative analysis, adapted from Omanson's system, was used to analyze the structure of story events. Propositional analysis, adapted from the system described by Turner and Greene, was used to examine the detailed semantic content within the stories. Cohesion analysis, adapted from the ideas developed by Halliday and Hassan, was used to examine connections within the texts. Surface feature analysis was used to analyze text features occurring in the surface structures of the stories.

Data consisted of the results of the application of the text analysis systems to the four story versions. Specifically, data included numbers and types of content units, i.e. central, supportive, and distracting content units; numbers and types of propositions, i.e. x
predication, modification, and connection propositions; numbers and types of cohesive elements, i.e. reference ties, lexical cohesion, ellipsis, substitution, and conjunction; and numbers and types of surface features, i.e. words, sentences, main clauses, subordinate clauses, nouns, verbs, adjectives, and adverbs.

The data were analyzed quantitatively and qualitatively. Results indicated that different original stories which are written at similar readability levels according to a formula, may contain similar compositions of semantic content and surface features but may vary considerably according to story structure and coherence. In addition, adapted story versions appear to maintain story integrity; however, they may differ from the original stories in richness of detail. It was also concluded that text analysis systems do offer appropriate and reliable procedures for comparing different stories and different versions of the same story.
CHAPTER 1

INTRODUCTION

The purpose of this chapter is to present the (1) background of the study, (2) statement of the problem, (3) significance of the study, (4) assumptions underlying the study, (5) limitations to the study, and (6) definition of terms.

Background of the Study

The reading process has long been a topic of study for education researchers and has more recently captured the attention of researchers in the fields of psychology and linguistics. While all comprehension theorists agree that the reading process involves a reader and a text, the theorists vary in opinion as to the degree of reader-text interaction (Golden, 1983; Rosenblatt, 1978). If the text itself is of primary importance, the reader's role is that of comprehending the author's intended meaning. If, on the other hand, the role of the text is downplayed, then the reader and what the reader brings to the reading task is of primary importance. It is also possible that the roles of the reader and the text are equal; that is, the reader tries to comprehend the author's intended meaning based on what the reader brings to the reading task.

In the field of education, it appears that research on the interaction of reader and text has focused primarily on the reader, while comparatively little attention has been paid to the text as an
entity in itself. However, the text is the primary input in the reading process; therefore, it is worthy of study in and of itself in much the same way that other forms of input, e.g., prior knowledge and oral language, have been considered worthy of study because of their roles in the reading process.

The major text-related research in education has been in the area of readability. Traditionally, this research has focused upon the development of readability formulas as indices of text difficulty. Readability formula developers have based their formulas on criteria such as word length and sentence length which the developers claim are correlated with text difficulty. Underlying this claim is the assumption that the higher the readability level according to a formula, the more difficult the text will be for readers to comprehend. Researchers have studied other topics which are not text related, e.g., prior knowledge, interest, motivation, which affect readers' comprehension of text; yet little attention has been given to determining other characteristics of text not accounted for by formulas which may also affect reading comprehension.

Recently, researchers have developed systems for analyzing the structure and content of text (Kintsch, 1974; Kendler and Johnson, 1977; Meyer, 1975). The assumption underlying the development of these systems is that text can be analyzed into the elements that make up the structure and content. This is no different an assumption than that made by developers of readability formulas that a formula can account for aspects of text that make it readable.
The systems of text analysis may offer greater potential than readability formulas for accounting for the less salient features of text which may affect reading comprehension. Rather than accounting for structural complexity at the word and sentence levels as formulas do, text analysis systems involve the analysis of larger units of discourse. Some of the systems examine the organization of a whole text (Thorndyke, 1977; Omanson, 1982), while others examine the semantic content (Kintsch and Keenan, 1973), and still others examine how the elements of text are unified (Halliday and Hasan, 1976). All of the systems account for more substantive features of text than the simplistic surface features accounted for by readability formulas. Although these systems of text analysis exist, their use has been limited primarily to research purposes such as comparison of reader protocols to the semantic content and organization of text. The systems have rarely been used as a means of examining text for its own sake to determine the specific properties inherent in text. The use of text analysis systems may provide needed insights into these specific characteristics of text.

Although relatively little is known about the specific characteristics of text which are associated with reading difficulty, some researchers assume that factors inherent in text itself can affect a reader's comprehension of that text. This assumption is particularly evident in the development of high interest-low vocabulary materials for less able readers. These materials consist of both original materials, which seem to be written according to principles guiding the development
of readability formulas, as well as adapted materials, which have been rewritten from original materials for the same purposes.

Even though adaptation denotes modification which in turn implies deletion or change of text features, very little is known about the specific characteristics of adapted text. If more were known about the characteristics of both adapted and original text, then perhaps researchers might be able to identify differences between text types and therefore determine those inherent features of text that may contribute to text difficulty. The discovery of those features would also lead to a greater understanding of the text features that influence reading comprehension.

The research on adapted text is minimal. Davison, Kantor, Hannah, Herman, Lutz, and Salzillo (1980) examined adapted materials that were used in SHA kits, a type of material often found in remedial reading classrooms. Davison et al. developed a taxonomy of changes that occur in the adaptation process. Analysis of the changes was made through a sentence by sentence comparison of the original and adapted versions of the text. The texts used were not complete selections of text.

Other research on adapted text includes studies by Mitchell, Bradley, and Ames (1982), Mitchell, Ames, and Bradley (in press) and Bradley, Ames, and Mitchell (in press). Readers' preference, prediction, recall, and comprehension of both original and adapted short stories were compared. Results of these studies indicate that readers do not necessarily perform differently with the adapted version than
with the original. The studies by Davison et al., Mitchell et al., and Bradley et al. have begun to introduce questions concerning the use of adapted text with less able readers. An investigation and comparison of features found in adapted text to those features found in original text may provide information relative to the characteristics of text that possibly affect the comprehensibility and therefore the readability of text.

Statement of the Problem

The major purpose of this study was to analyze in depth the features of both original and adapted versions of text. Attention was focused on characteristics of text that are modified as a result of the adaptation process. Specifically, the emphasis of the investigation was to compare original texts with their adapted versions, thereby identifying the elements of adapted text that are deleted from, added to, or otherwise changed from the original version.

More specifically, this descriptive study was designed to identify:

1. Text characteristics of original and adapted story versions according to numbers and types of story content units, numbers and types of propositions, numbers and types of cohesive elements, and numbers and types of surface features.

2. Instances which illustrate a high degree of fit, i.e. text similarities, between original and adapted story versions.
according to story content units, propositions, cohesive elements, and surface features.

3. Instances which illustrate a low degree of fit, i.e. text differences, between original and adapted story versions according to story content units, propositions, cohesive elements, and surface features.

Significance of the Study

Information generated from this study should prove useful for both reading research and instruction.

Contributions to the general research based knowledge of text include: increased understanding of properties of text in general, e.g. what makes up the structure and content of a comprehensible or readable text; increased understanding of differences in the characteristics of original and adapted text; identification of text characteristics assumed to make a text more readable based on the analysis of differences between original and adapted text; indications as to the appropriateness of using formulas to establish the readability of a text; and, indications as to the appropriateness of different systems of text analysis to determine text characteristics as well as to determine differences between two texts used in research studies.

Research data concerning the differences between original and adapted text also contribute to instructional decision making, especially those decisions related to the selection of materials for use with less able readers. Results of this study may also aid decisions related to helping readers process text in general. Specifically, the
data point to characteristics of text which if emphasized in instruction may aid in the comprehension of original text. The research data also provide information that may be useful to educators and publishers who wish to rewrite text.

Assumptions Underlying the Study

In proposing this study, the following assumptions have been made:

1. Characteristics of text can be identified.

2. In comparing original and adapted versions of a text, there are instances which illustrate a high degree of fit, i.e. similarities, between original and adapted versions of text.

3. In comparing original and adapted versions of a text, there are instances which illustrate a low degree of fit, i.e. differences, between original and adapted versions of text.

4. Text characteristics can be identified through the use of text analysis systems.

5. Instances which illustrate a high degree of fit can be identified through the use of text analysis systems and through a text-by-text comparison of text features.

6. Instances which illustrate a low degree of fit can be identified through the use of text analysis systems and through a text-by-text examination of text differences.
Limitations to the Study

This study has the following limitations:

1. The number of texts sampled was small thus limiting generalizability.

2. The genre of text examined was short story therefore limiting ability to generalize to other text types, e.g., expository text.

Definition of Terms

To clarify the use of terms to be used in this study, the following list is provided:

1. Text--any written passage or connected discourse.

2. Original text--a text as it was written by the author, without alterations as it appeared in its original published form.

3. Adapted text--a published version of an original story, not manipulated for research purposes; often intended for persons who are not fluent readers.

4. Readability--an index of reading difficulty of a text, often expressed as a grade level.

5. High interest-low vocabulary materials--materials especially created or rewritten for readers who read below grade level.

6. Less able readers--readers who read at least one year below grade level.
7. **Text analysis**—a system that attempts to represent the organization, semantic content, or cohesion of written discourse.

8. **Text characteristics**—features of text that make up its structure and content.

9. **High degree of fit**—similarities between an original text and its adapted version.

10. **Low degree of fit**—differences between an original text and its adapted version.
CHAPTER 2

REVIEW OF THE LITERATURE

The purpose of this study was to investigate the characteristics of text and specifically to examine similarities and differences between original and adapted story versions. Story versions were analyzed according to structure and content. Systems used for analysis included narrative analysis, propositional analysis, cohesion analysis, and surface feature analysis.

The published adaptations of the stories selected for use in the present study were found in high interest-low vocabulary materials; therefore, a review of literature was conducted concerning studies investigating the use of these types of materials. Similarly, since the story versions included versions adapted from original stories, an examination of research related to adapted text was especially pertinent to this study. During the process of adaptation, text features of original stories are sometimes manipulated so as to conform to readability formula criteria; thus, a review of literature related to readability, especially that concerning the relation of text features to comprehension, was conducted. Lastly, because systems were employed for the analyses of the stories, a review of literature concerning the use of text analysis systems was appropriate. Therefore, literature in the following areas will be reviewed in this chapter:
1. Studies investigating the appropriateness of high interest-low vocabulary materials for less able readers;
2. Studies describing characteristics of adapted text and studies investigating the effects of adapted text on comprehension and interest;
3. Studies concerning the relation of specific text features to comprehension and memory;
4. Studies describing the use of text analysis systems for analyzing text features which may be related to comprehension and memory.

High Interest-Low Vocabulary Materials

Literature related to high interest-low vocabulary materials was reviewed here because these materials often consist of original materials which are especially designed or materials which have been adapted or rewritten for use with less able readers. The "high interest" label indicates that the materials are related to topics which are considered to be of high interest for a given grade level. The designation "low vocabulary" generally indicates that the readability of the materials is lower than the interest level.

Mason (1981) has described the history of the use of high interest-low vocabulary materials. As early as the 1920's a need was acknowledged for these types of materials; however, the label "high interest-low vocabulary" was not adopted until the 1950's. The practice of using high interest-low vocabulary materials continues to be a prevalent one today as is evidenced by current bibliographies of such
materials (Agee, 1984; Graves, Boettcher, and Ryder, 1979; Spache, 1978).

While Mason describes the evolution of high interest-low vocabulary materials he does not report any research which provides evidence that the use of these materials actually improves reading comprehension. Studies have investigated the effect of interest on comprehension (Bernstein, 1955; Estes and Vaughn, 1973) but there appears to be little evidence of the combined effects of high interest and lowered readability levels. A search of the literature by the present investigator revealed only four studies which investigated the effects of the use of high interest-low vocabulary materials on reading comprehension. These studies are discussed below.

Schnell (1973) compared the effectiveness of two approaches for teaching reading skills to a group of semi-literate black adults. One approach involved the use of high interest-low vocabulary materials at appropriate reading levels, while the other approach involved the use of materials normally encountered in daily living, e.g. newspapers, forms, warranties. No attention was given to the readability of the daily living materials. Results indicated that both groups showed significant gains in reading, but the group with the daily reading materials showed more positive attitudes toward the program than did the group who read high interest-low vocabulary materials. The experimenter did not identify the specific materials used; therefore, it is possible that the high interest-low vocabulary materials may not have been motivating because of some factor such as cultural bias related to the materials.
themselves. Also, the experimenter did not report any control for a possible experimenter effect thus producing a possible threat to external validity.

Hettinger (1980) provides further support that the existence of high interest-low vocabulary materials may not be founded on an empirical basis. Hettinger investigated the effects of high interest-low vocabulary materials on achievement and attitude of junior high students. The subjects consisted of both deficient or less able readers and problem readers, who were able but performed inadequately. Results indicated that the deficient readers benefitted from high interest-low vocabulary materials, while the problem readers performed less well with the high interest-low vocabulary materials. Qualitative data revealed that deficient readers preferred grade level materials. Conclusions drawn from this study indicate that while comprehension may be improved through the use of high interest-low vocabulary materials, these materials have a negative affect on motivation to read at the junior high level.

A third study, Asher (1975), indicated that intermediate grade children's comprehension was not significantly greater for high interest-low vocabulary than for low interest-low vocabulary. The materials Asher used were manipulated for research purposes and may not have been representative of materials normally labeled as high interest-low vocabulary. For example, passages were written so as to be quite similar except for changes in the key words presented. There were few details supporting the topic and therefore little to entice children
even if the key word was a topic of interest to them. An interesting result of this study was that the children were asked to mark their preference for topics after reading as they had done prior to reading. Asher found that distinctions in preference were not as strong after reading the high interest-low vocabulary materials.

Asher offers two possible explanations for his results: (1) passages contained little information about the topic itself, and/or (2) "the process of controlling vocabulary may reduce all passages toward a common denominator of modest appeal." If the latter explanation is true, then the use of high interest-low vocabulary materials may be based on a false premise.

Finally, Alexander (1975) compared the effectiveness of high interest-low vocabulary materials to that of a basal reading program with intermediate grade children. High interest-low vocabulary materials did not significantly affect reading gains or attitude; however, children who used the high interest-low vocabulary materials went to the library more frequently. Although number of trips to the library does not necessarily reflect achievement or interest, it does indicate that those children may have been motivated to read more in terms of quantity.

Interestingly, basal readers often contain materials written to meet readability formula criteria in much the same way that high interest-low vocabulary materials are written. If both sets of materials are written at comparable levels and if interest affects comprehension, then it would be expected that children reading high
interest-low vocabulary materials would show higher gains than those reading basals. Since this was not the case, it may be that interest alone is not a significant enough factor to merit the use of high interest-low vocabulary materials for instructional purposes. On the other hand, as recreational materials for motivation their use appears merited with intermediate grade children.

In summary, a review of studies related to the use of high interest-low vocabulary materials revealed that their use may enhance comprehension at the junior high and adult levels but does not appear to significantly affect comprehension at the intermediate level. The converse is true when the effect of use of high interest-low vocabulary materials on motivation is studied. Intermediate level readers appear to be motivated to read through the use of these materials, while junior high and adult level readers do not appear to be motivated by high interest-low vocabulary materials. These conclusions are drawn from a small number of studies and therefore should be examined with caution.

**Adapted Text**

A specific type of text which is found in high interest-low vocabulary materials is adapted text. The term "adapted" implies that the text has been modified in some way from an original version in order to make the text more suitable for use with a certain population of readers, usually less able readers. Two types of studies related to adapted text will be reviewed here: (1) a descriptive study in which changes resulting from text adaptation are examined, and (2) studies which investigate the effects of text adaptation on comprehension and
interest. Studies which used texts rewritten specifically for research purposes are not included in this section because the researcher was interested in naturally occurring adapted text which is found within classroom situations.

The first study to be reviewed is a descriptive study of text differences between original and adapted text versions. Davison et al. (1980) examined versions of text which were found in materials intended for use with less able readers. Specifically, four texts were compared with their original versions in order to qualitatively examine changes that resulted from the adaptation process. The analysis consisted of a sentence by sentence comparison of both versions for the four text samples. This analysis resulted in the development of a taxonomy of changes which included the general categories of changes in sentence structure, changes in content, lexical changes, and changes in rhetorical devices.

While Davison et al. provide examples of each of these types of changes, they do not report data related to the numbers of instances of these changes. Therefore, it is difficult to judge whether these are patterns which occur within specific adaptations and across all adaptations. In addition, the investigators did not examine the texts for overall text structure and therefore may have overlooked changes in text structure which may affect text comprehensibility. Nevertheless, the general conclusion drawn from the study was that, for the most part, text adaptation is a conscientious process. Despite this general conclusion, the investigators found some changes such as sentence
splitting and lexical change which were motivated by readability formula criteria but which may have the converse effect of reducing actual comprehensibility of a passage. In conclusion, this study was seminal in that it was the first to systematically study changes between original and adapted text versions.

The second type of studies to be reviewed include those studies which have investigated the effects of text adaptation on reading comprehension and/or interest. A search of the literature revealed four studies within this category. Two were related to comprehension, and two were related to interest.

The first of the two comprehension studies was a study conducted by Smith (1982) in which she investigated the recall of skilled and unskilled readers for original and adapted text versions. Results indicated that less skilled ninth grade readers recalled adapted stories better than they did original stories. More specifically, the less skilled readers recalled significantly more clausal units related to story plot of the adapted version than for the original version, but they did not recall significantly more units related to theme, characterization, or story setting. A possible explanation for this finding is that less skilled readers may have had more practice with recall of content related to plot than that related to setting, characterization, or theme. A conclusion that may be drawn from this study is that, if recall of story plot is to receive the primary emphasis in instruction, then adapted text versions may be more appropriate than original versions for use with less skilled readers.
The second study related to comprehension of adapted text, Mitchell, Ames, and Bradley (in press), was designed to investigate the effects of original and adapted text versions on prediction, recall, and question response. The story "Charles", which was also selected for use in the present study, and its two published adaptations were used in the study. Findings indicated that the original story version positively influenced types of predictions and quantity and quality of recall but had no effect on question response. One possible explanation for results related to question response may be that the questions were biased because of the investigators' familiarity with all three story versions. The predictions and recalls were reader generated and therefore not influenced by knowledge of the content existing within the other story versions.

The first of the two studies related to interest was conducted by Mitchell, Bradley, and Ames (1982). This study was designed to investigate students' perceptions of difficulty and their preference for original and adapted text versions. Results related to preference indicated that students did not consistently prefer adapted versions over original versions; rather, they preferred the second story version read regardless of type. A possible explanation for this result is related to the type of short story used in the study. Both of the stories selected for use contained surprise endings. A second reading of this type of story may increase appreciation of the story itself and therefore influence reader preference. Results related to students' perceptions of difficulty indicated that both original stories were
rated as more difficult than their adaptations; however, a greater
difference in the ratings was found between original and adapted
versions when the original version was read first than when the
adaptation was read first. It may be that the reading of an adapted
version prepares the reader for the original version and has the effect
of making the original version appear less difficult. According to
readability levels, all story versions appear to have been appropriate
at the subjects' independent reading levels. This may have had an
effect on their preference ratings since neither original or adapted
versions would have been particularly challenging to them.

The second study related to interest also investigated the
effect of text adaptation on rated appeal and difficulty (Bradley, Ames,
Mitchell, in press). Three original stories and their published
adaptations were presented to Title I students who were then asked to
rank them according to difficulty and rate them according to appeal.
Results indicated that only one original was rated as significantly more
difficult than its adapted version. Also, only one adapted version was
rated significantly higher in appeal than its original version. It
appears then that no particular pattern exists related to rated
difficulty and appeal of original and adapted text.

In summary, four studies were reviewed which investigated the
effects of text adaptation on comprehension and interest. Evidence
from the two studies which studied comprehension is inconclusive
regarding the use of adapted text with less skilled readers. Evidence
from the two studies which studied reader preference is also
inconclusive, but implications are that original story versions are at least as appealing as their published adaptations.

**Text Features Correlated with Reading Comprehension**

An assumption underlying text adaptation is that changes in certain text features are designed to render a text more comprehensible and therefore more readable. These text features have been shown to be correlated with reading comprehension through the traditional readability research. Research related to this notion was reviewed. Also reviewed were studies which have attempted to re-evaluate the effects of those text features emphasized in the traditional readability research.

**Traditional Readability Research**

Research reviews through the years (Betts, 1949; Klare, 1974-75) have summarized readability research and pointed out variables that continue to be emphasized in readability formulas. Readability formulas were developed as a means of predicting the relative difficulty of a text. Typically, variables were added to regression equations in order to determine what proportion of variance they accounted for in a criterion variable. The criterion variable traditionally has been performance on a group of standardized reading comprehension test lessons. More recently researchers have used performance on classroom reading materials as the criterion variable.

The predictor variables appear to have evolved from elaborate lists of variables to simple lists containing two variables. For
example, Betts listed eight variables reported to significantly influence readability. Klare's review of readability formulas indicates that most of the common readability formulas include only two variables: a word variable and a syntactic variable.

An examination of correlational data provided by Klare indicates that the inclusion of only two variables in a readability formula leaves a fairly large portion of variance unaccounted for. The typical amount of variance accounted for by variables in any one formula is .50. Some researchers claim higher correlations and therefore higher portions of variance accounted for by the variables in their formulas (Klare, 1974-1975). Their results must be interpreted in relation to the criterion variables used, however. These researchers have used present classroom materials or CLOZE procedures as their criterion variables. Since both of these criteria have been developed through the application of previous readability formulas, there is a problem with circularity.

Because a portion of variance associated with the criterion variable remains unaccounted for, two questions related to readability research need to be addressed: (1) do readability formulas adequately predict the comprehensibility of a text?, and (2) are there other features of text which may affect text comprehension but which are not accounted for in readability formulas? The first question is addressed in the following section, while the section on text analysis systems presents literature relevant to the second question.
Criticisms of Traditional Readability Research

Studies which have investigated the relationship of readability level of text to text comprehension were reviewed. These studies can be divided into two groups: (1) studies which have investigated the effects on comprehension of texts which have been revised for the purpose of changing readability levels according to a formula, and (2) studies which have investigated the effects on comprehension of linguistic variables associated with readability formulas.

The first group of studies reviewed were those which investigated the effect of text revision on reading comprehension. In the first study, Schmidt (1978) revised a simple version of a biographical passage in order to make it more complex. Changes were made in sentence structure while vocabulary was held constant. The passages were then subjected to the readability formulas developed by Dale-Chall, Flesch, Fry, and Bormuth. Results indicated that none of the formulas discriminated between the readability levels of the two passages. These results must be viewed critically, however. Schmidt provides no evidence for the specific changes in sentence structure that were made. Proof is needed regarding the effect on comprehension of each change made. This would provide more support for the lack of discrimination by the readability formulas.

Palmer, Slater, and Graves (1980) investigated the effect of passage difficulty on written recall. Two original passages, written at college level and tenth grade level, were revised so that the readability levels, according to the Fry formula, were decreased to
eighth grade and fifth grade levels respectively. Revisions included simplifications of vocabulary and syntax, while the passages retained the same hierarchical structures. Results indicated that passage difficulty did not affect the written recall of ninth graders. This led to the conclusion that text difficulty is influenced by factors other than vocabulary and syntax. This conclusion should be interpreted with caution because the results were based on a small N and recall was measured by numbers of propositions recalled. It may be that differences existed in the recalls according to types of propositions recalled.

In a similar study, Duffy and Kabance (1982) investigated the effect of text revision on reading comprehension as measured by a standardized achievement test. Passages from one form of the standardized test were revised so that there were three revised versions. The first revision involved only vocabulary simplification, the second involved only sentence simplification, and the third involved both vocabulary and sentence simplification. Average readability levels according to the Fry formula were: original, 11.1 level; first version, 8.5 level; second version, 9.3 level; and third version, 6.0 level. Four experiments were conducted with these materials. Overall results indicated that the text revisions had no practical effects on comprehension regardless of the reading skill of the participants. Because of the large number of subjects, the probability of finding significance was increased. That no significant differences were found indicates that the design was a powerful one.
The final study related to the effect of text revision is one in which two stories were revised to improve their coherence (Beck, McKeown, Omanson, and Pople, 1984). The revisions of the stories had the effect of raising the readability levels according to the Fry formula. Revisions included making connections in text more explicit, supplying needed background knowledge, and organizing and clarifying text events and states. Results indicated that comprehension was enhanced by the revisions for both skilled and less skilled readers. These results need to be qualified since the readability levels of the stories were raised by only one grade level. One story was raised from third to fourth grade level, while the other story was raised from second to third grade level. Because of error associated with the formula itself, it is possible that the readability levels really did not change. Even so, the fact that readers performed better on the revised versions may provide more support for the claim that readability formulas do not account for some text features which do affect reading comprehension.

The second group of studies which challenge the use of readability formulas includes studies which have investigated linguistic variables which are accounted for by readability formulas. Within this category, three studies were found which are pertinent to the present study.

Pearson (1974-75) studied the effect of sentence complexity on comprehension. The study consisted of three experiments in which groups of sentences were presented to fourth grade subjects. The sentences
represented different surface forms of the same underlying deep structure. The subjects either answered a comprehension question or ranked the sentences according to clarity and simplicity. Overall results indicated that grammatical complexity may enhance rather than decrease comprehension, an effect opposite to that proposed by readability formula proponents. Because these results are based on sentences which are not supported by the context of a whole story or passage, the results should be examined with caution. It is possible that other text features may cue relationships between sentences when they occur within a longer text.

Irwin (1979) also investigated different surface structures which represent the same underlying meaning. Rather than using isolated sentences, she manipulated sentences within existing passages. Two versions of six different passages were manipulated so that one version contained explicit connectives while the other contained implicit connectives. All of the passages were written at fifth grade level according to the Fry formula. For fifth grade readers, Irwin found no differences between the comprehension of passages with explicit connectives and those with implicit connectives. These results were based on scores from forced-choice questions for which Irwin reports a low reliability. It is possible then that measurement error may have obscured real differences. If this is not the case, then the results offer further support that sentence length may not necessarily be related to comprehensibility and therefore readability of a text.
The third study, Lantaff (1978) investigated the effect of passage difficulty on recall. The passages were not manipulated for research purposes; rather, they were selected from science and social studies texts. Two passages of different readability levels were selected from each type of text. Results indicated that college students recalled equal amounts of propositions for both social studies passages, while they recalled significantly greater amounts of propositions for the easy science passage than for the hard science passage. Lantaff concluded that traditional readability formula variables alone did not account for differences in the comprehensibility of the passages. One of the assumptions Lantaff makes is that the subjects all had adequate prior knowledge for comprehension of both types of text. Because the subjects were education majors who have probably had more experience with the types of passages found in a social studies text than those found in a science text, it may be that lack of prior knowledge related to science rather than any differences in specific text features is the reason for differences in recall.

Conclusion

Studies related to text features associated with reading comprehension were reviewed. It appears that there is a growing body of evidence that readability formulas do not account for all of the text features which affect the comprehensibility of a text.
Text Analysis Systems

Because of increasing evidence related to the limitations of readability formulas, there has developed a need for more elaborate methods to analyze text. The systems which have been created can be grouped into categories according to the particular aspect of text which each addresses: text structure, specific semantic content, and connections within text.

Text Structure

Within the category of text structure, there have been three general types of systems proposed for the analysis of structures of whole stories. These systems are story grammars, event chains, and macrostructures.

Story grammars appear to have received the most attention in the literature. Among the most commonly cited studies related to story grammars are Mandler and Johnson (1977), Thorndyke (1977) and Stein and Glenn (1979). Story grammars have been developed primarily in the field of psychology and have been used to predict story elements which are most prevalent in story recall. The theory underlying the story grammars is that stories conform to certain rules similar to rules used to develop grammatical sentences. There are also transformational rules which allow for differences in surface structures of stories.

Mandler and Johnson (1977) investigated the appropriateness of applying a story grammar to stories through a developmental study of recall. Results indicated that both adults and first grade and fourth grade children are sensitive to story structure, while they differ
developmentally according to specific story elements recalled. A major criticism of this study is that the stories used were short, simple one-protagonist stories. Also, the stories were presented orally. Both of these factors prohibit the generalizability of the results to reading that occurs within the classroom.

Thorndyke (1977) also tested whether a story grammar facilitates recall. He too used simple narrative stories. Results indicated that adult subjects tend to recall structural characteristics, especially story plot, rather than specific content. These structural characteristics are equated with story grammar categories thus lending support to the hypothesis that intuitive knowledge of story grammar facilitates recall.

Stein and Glenn (1979) conducted research which attempted to validate the use of story grammars for analyzing story comprehension and memory. As with other story grammar studies, they used classical folktales in their study. First grade and fifth grade children were asked to listen to the stories rather than to read them. Results indicated that recall is related to saliency of story grammar categories; therefore, story grammars may aid in the explanation of children's organization of story information in memory. As with the previous studies, this study is also limited in generalizability.

Another category of studies which attempts to analyze text structure is event chain analysis. Work in this area has been carried out primarily by Nicholas and Trabasso (1980) and Warren, Nicholas, and Trabasso (1979). Proponents of event chain representation claim that
this system can be expanded to represent the actions of two or more protagonists, an advantage over the present story grammars. Event chains essentially represent what happens in a story. Event chain representations were developed in order to identify types of inferences needed in the comprehension of a text. While Warren, Nicholas, and Trabasso review research which lends support to their theory, they do not present results of investigations conducted specifically to test their theory.

Omanson (1982) included aspects of the event chain representation in his narrative analysis. The narrative analysis provides for the analysis of a story into content units which are subsequently classified as central, supportive, or distracting. These classifications are based on the relation of the content units according to the causal-purposeful flow of events. The basis for this type of analysis, as Omanson claims, is that stories are comprehended because the reader uses his knowledge of social actions rather than specific story structures as is proposed by story grammar theorists. Omanson provides evidence for his theory from investigations in which he reanalyzed recall data from previous research. Results indicated that central content is more likely to be recalled than noncentral and that supportive content enhances recall of central content. When these results were compared to story grammar categories, it was found that recall of categories correlated with the amount of central content contained within that category. It is possible then that story grammar and narrative analysis actually account for the same underlying
constructs. Because narrative analysis does appear to offer potential for use with more complex stories, it may be that results based on a narrative analysis are more generalizable to other types of stories.

Further support for Omanson's system is found in a study of redesigned comprehension lessons (Beck, Omanson, and McKeown, 1982). It was found that the comprehension of third graders was enhanced when questions were developed to emphasize central and supportive content. These results should be examined with caution, however, because story recall was measured according to central and noncentral content units, the same content units on which comprehension lesson questions were based. This circularity may have resulted in an inflation of recall scores.

The third type of story structure analysis is that related to the identification of story macrostructure (van Dijk, 1977; Kintsch and van Dijk, 1978). Similar to story grammar categories and central units in the narrative analysis, macrostructures are theorized to be the aspects of text which are stored during story comprehension. Kintsch and van Dijk studied the recalls of adult readers and found a consistency across summary statements. Rules were then developed by which summary statements could be derived. When these rules are applied to a list of micro-propositions, they result in a condensed list of macro-propositions. In a study in which adult subjects were asked for immediate and delayed recall, it was found that micro-propositions were forgotten at a rate four times faster than macro-propositions; therefore, support is given to the theory that text is processed and
stored in memory as a macrostructure. Because research on text macrostructure has been conducted with passages other than simple narrative stories, the analysis of macrostructure of text offers potential for future study of comprehension.

In summary, literature related to three general systems which analyze text structure was discussed. The system which presently appears to offer the most potential for use with narrative text is that developed by Omanson (1982). Other systems are less promising because their applications have been limited to simple stories or because of lack of detailed procedures necessary for replication.

Semantic Content

Literature related to the analysis of specific semantic content was reviewed. Two systems for analyzing specific content exist, both of which include the analysis of a text into its component propositions.

Frederiksen (1975) developed a detailed and abstract system for representing the semantic and logical content within a text. Procedures were also developed for matching recall data with the text representation. Frederiksen analyzed recalls of twelve kindergarten children in order to provide evidence that his network structure could be used for the representation of a text. Because of the small number of recalls and because the story used was necessarily brief, the generalizability and utility of the Frederiksen system is limited.

A second system of semantic content analysis was developed by Kintsch (1974). The Kintsch system involves an analysis of a text into a list of propositions which are connected by shared arguments. Kintsch
has conducted several studies which provide support for the use of his propositional analysis to represent text content. A study by Kintsch and Keenan (1973) provides the most supporting evidence that propositions are the basic unit of memory for text. The materials used in the study, however, were unconnected sentences rather than connected text. Subsequent studies used longer selections of text thereby increasing generalizability (Kintsch, Kozminsky, Streby, McKoon and Keenan, 1975; McKoon, 1977).

In conclusion, two well-developed systems for analyzing a text into its semantic content as represented by propositions, were reviewed. The system developed by Kintsch appears to have more of an empirical base than that developed by Frederiksen. Both systems need to be applied to longer selections of text in order to test the feasibility of their use with types of text normally found within classroom settings.

Connections within Text

Connections within text refers to structural connections as well as semantic connections. The propositional analysis system developed by Kintsch accounts for connection, through the repetition of concepts, i.e. semantic arguments, but does not specifically account for structural connections. The system which has received most attention in the literature for examining connections within text is cohesion analysis developed by Halliday and Hasan (1976).

Halliday and Hasan describe a system for examining cohesive ties which occur in text. They present a linguistic argument in favor of their system but do not present empirical support for such a system.
Studies do exist, however, which lend support to the use of cohesion for analyzing text characteristics which may affect reading comprehension.

Stone (1980) investigated the effect of intersentential relations on comprehension. More specifically, he studied the comprehension of passages which were connected through verb entailment, a cohesive tie similar to that labeled as lexical cohesion by Halliday and Hasan. Results indicated that readers do carry information across sentences in order to comprehend successive sentences. This lends support to the analysis of a text for proportions of lexical cohesion. A positive aspect of this study is that passages were sufficient in length so that generalizability to naturally occurring text is increased. A negative aspect is that the manipulations of the verbs resulted in verbs being used abnormally in the passages.

In a recent study, Roen (1984) investigated the effects of conjunctions and reference on reading rate and recall of college freshmen. Passages were manipulated so that passage versions included high, moderate, and low conditions of conjunctions and high and low conditions of reference. Text versions ranged in length from 745 - 921 words; therefore, they were representative of naturally occurring text. Results indicated that recall for the high conjunction conditions was significantly lower than the moderate or low conditions, and recall was not affected by any of the reference conditions. That there was a difference for the conjunction condition provides evidence that texts need to be analyzed for connections in order to determine possible effects on comprehension.
In conclusion, there appears to be at least minimal support for the analysis of connections within text. Roen's results especially indicate a need for further research in this area.

Conclusion

Literature related to text analysis systems was reviewed. Results from the various studies indicate that text features which are related to comprehension can be identified through text analysis systems.

Summary

Literature was reviewed in areas pertinent to the present study. The review of research related to high interest-low vocabulary materials and adapted text revealed little empirical evidence to support the use of these materials for instructional purposes. A review of the research related to text features correlated with text comprehension indicated that readability formulas do not appear to account for some text features which may affect text comprehension. Finally, the review of the literature related to text analysis systems indicated that these systems provide methods for identifying text features which appear to affect text comprehension and memory.
CHAPTER 3

DESIGN OF THE STUDY

The purpose of this chapter is to present the (1) description of the story sample, (2) description of the text analysis systems, (3) procedures for gathering data, (4) procedures for ascertaining reliability, (5) analysis of the data, and (6) summary.

Description of the Story Samples

The purpose of this study was to analyze both original and adapted story versions in order to identify characteristics of original and adapted stories, similarities between original stories and their adapted versions, and differences between original stories and their adapted versions. Specifically, the study was descriptive in nature and designed to identify:

1. Text characteristics of original and adapted story versions according to story structure and content.

2. Instances which illustrate a high degree of fit, i.e. text similarities, between original and adapted story versions according to story structure and content.

3. Instances which illustrate a low degree of fit, i.e. text differences, between original and adapted story versions according to story structure and content.

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The sample for the study consisted of original stories and their published adaptations. In order to identify characteristics of original stories and to increase generalizability of the study, at least two stories were needed for analysis. Because text analysis systems have not been applied previously to short stories of any length and because of the time required to apply the text analysis systems to the stories to be studied, it was decided that two original stories and their published adaptations would be selected.

In deciding which two original stories would be used in the study, the following criteria were established:

1. The original stories had to be of the type often found in anthologies used in junior high school English programs. This type of story was selected because adaptations of these stories are sometimes used with less able readers at similar age and interest levels.

2. Each story must have published adaptations which were included in high interest-low vocabulary materials intended for use with less able readers. Low vocabulary typically indicates a readability level for the adapted version which is lower than the original version. Selection of these types of adaptations would allow a comparison between original and adapted story versions in order to determine whether changes were made for the specific purpose of meeting readability formula criteria.
3. The stories had to have a similar story structure, i.e. one with a surprise ending. The surprise ending, or "twist", element was selected because stories included in high interest-low vocabulary materials often contain this element in order to maintain reading interest.

4. The stories must be similar in length and readability level. This decision was made so that any differences between stories could not be accounted for by differences in readability levels.

Based on the above criteria, the two original stories selected for analysis in this study were "Charles" (Jackson, 1949) and "Hearts and Hands" (Henry, 1969). In addition to meeting the criteria, these two stories had been used in earlier research (Mitchell, Bradley, Ames, 1982; Mitchell, Ames, Bradley, in press; and Bradley, Ames, Mitchell, in press); therefore, the use of these stories provided the present study with a link to an established research base.

The adapted versions of the two stories were found in high interest-low vocabulary materials which were designed for use with readers who are reading below grade level (Jackson, 1983; Henry, 1970). Two adaptations were found for each of the original stories. From these adaptations, one adaptation for each original was randomly selected for analysis. Only one adaptation for each story was selected because a cursory examination of the adaptations for each story revealed many similarities between them; therefore, for the purposes of this study as much information would be gained by the investigation of one adaptation.
for each story as would be gained by the investigation of two adaptations for each story. Table 1 provides more specific information about the story versions.

Table 1. Original and adapted story versions

<table>
<thead>
<tr>
<th>Story</th>
<th>Author/Source</th>
<th>Fry Level</th>
<th>Length in Words</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charles (CO)</td>
<td>Shirley Jackson</td>
<td>5</td>
<td>1598</td>
</tr>
<tr>
<td>Charles (CA)</td>
<td>Scholastic's Scope English Program</td>
<td>3</td>
<td>992</td>
</tr>
<tr>
<td>Hearts and Hands (HO)</td>
<td>O. Henry</td>
<td>6</td>
<td>865</td>
</tr>
<tr>
<td>Hearts and Hands (HA)</td>
<td>Scholastic's Action Series</td>
<td>2</td>
<td>643</td>
</tr>
</tbody>
</table>

*(Fry, 1977)*

"Charles" is a story about a boy named Laurie who is beginning kindergarten. Laurie comes home every day with stories about Charles, a little boy in the kindergarten who repeatedly gets into trouble. At the end of the story, the teacher tells Laurie's mother that there is no boy named Charles in the kindergarten. The author provides the reader with enough evidence in the story that Charles is really Laurie, the "twist" of this story.

"Hearts and Hands" is a story about two handcuffed men on a train. The men take seats opposite a pretty young woman. The woman recognizes one of the men, and the other man tells her that her friend is a marshal. After some conversation, the two men walk away, and two
other men who had been sitting nearby carry on a conversation in which the reader discovers that the woman's friend was actually the prisoner, and the other man was the marshal. The switching of the roles of the two men is the "twist" for this story. (Both original stories and their adapted versions are reproduced in Appendices A - D.)

Description of the Text Analysis Systems

The purpose of this study was to identify characteristics, similarities, and differences between original and adapted story versions. A text by virtue of its definition as discourse contains content. For this content to be connected, the text must have structure. Furthermore, research has shown that readers often use structure to aid story interpretation (Mandler and Johnson, 1977; Omanson, 1982). Therefore, any analysis of text must necessarily be concerned with both text structure and text content.

Within the general text structure, there exists a structure of the text as a whole and the structures of the segments making up the text. Similarly, within text content, there exists text content of the whole story, i.e. story events, specific content within those events, and connections between the content. Specific content is important to examine because this is the meaning base of the text which the reader must process in order to comprehend the text. Connections within content are also important to examine because they provide the semantic "glue" of a text. They have also been related to the amount of inferencing a reader may have to do in order to comprehend the concept (Irwin, 1980).
To adequately describe the characteristics of any text, all of these features of a text must be accounted for. A review of the literature revealed that no system exists which analyzes all of these features simultaneously. The task for the researcher then was to select systems which would economically and reliably account for these text features. Four such systems were subsequently selected, each of which is described below.

Content and Structure of Whole Story

The first story feature of interest was content and structure of the whole story. A search of the literature related to text analysis revealed three major types of systems for analyzing structure and content of whole stories: (1) story grammars, (2) macrostructures, and (3) event chains. In searching for a system for use with the stories to be analyzed in this study, it was necessary to find a system which had been applied to similar types of stories and for which fairly detailed procedures had been provided. Story grammars, such as those used in Mandler and Johnson (1977) and Thorndyke (1977), have been used primarily with short, simple one-protagonist fairy tales. Well-developed procedures for their use with longer stories have not been presented.

Macrostructures (van Dijk, 1977) of stories offers a way to examine higher level propositions occurring in a text. Typically, these are represented by generalizations and summaries of micro-level propositions in stories. While the notion of macrostructure appears to
have promise for use with longer stories, specific procedures for developing a macrostructure for a text have not been spelled out.

The third type of system for analyzing story structure is the analysis of event chains. Nicholas and Trabasso (1980) provide a description of event chains; however, they do not provide specific procedures for the development of event chains for stories. Omanson (1982) developed the notion of event chains into a more workable, detailed system which could be applied to different types of narrative stories, although his system has been used primarily with fables and short, simple stories.

Because of the limitations discussed above for story grammar and macrostructure analyses, the researcher decided to use Omanson's narrative analysis for analysis of whole story content and structure. That system appeared to offer the most potential for use with longer stories. Additionally, Omanson reported an overall interrater reliability coefficient of .91 for the narrative analysis.

The narrative analysis consists of four major steps. First, the story is divided into content units. A content unit consists of an event or state contained within a major clause in a sentence.

**EX:** 1. Laurie slid off his chair,
    2. took a cookie,
    3. and left.

The one sentence example contains three content units. After the story is divided into content units, these units are classified as focal, characterizing, or identifying. Focal units represent what happens in a
story, characterizing units represent what exists in a story, and identifying units introduce major characters. Focal units are then examined to establish relations between events.

These relations between events represented by focal units are used to classify story content units as central, supportive, or distracting units, the fourth and final step. The central units represent the causal-purposeful flow of events, i.e. the plot, in a story. The supportive units represent content which further explains or clarifies the central units. The distracting units represent story content which does not explain or clarify the central or supportive story content.

EX: Central 1. "Did you learn anything," his father asked.
Supportive 2. "I didn't learn nothing," he said.

After initial application of Omanson's procedures for narrative analysis, it became necessary to modify the system to account for aspects of the longer stories used in this study. Dialogue was only minimally addressed in Omanson's procedures, yet dialogue played a key role in the event structure in both "Charles" and "Hearts and Hands." Thus, the researcher provided additional directions within each step for analyzing dialogue. It was also necessary to add more specific
guidelines for classifying nondialogue statements as focal or characterizing. Specifically, the researcher added the concept of perfective and imperfective aspect (Comrie, 1979) to aid in classifying content units as focal. The modifications made to Omanson's narrative analysis appear to have further developed the system into one which can be applied to various types of narrative stories rather than short, simple one-protagonist stories traditionally analyzed in text research. (The specific procedures used for the narrative analysis are reproduced in Appendix E.)

Specific Content within Story

The second story feature of interest was specific semantic content occurring within story events. A search of the literature revealed that the primary method for analyzing semantic content has been propositional analysis. Different approaches to analyzing propositions exist, however. Systems have been developed by Frederiksen (1975) and Kintsch (1974). Procedures for the Kintsch system have been described by Turner and Greene (1977) and adapted and simplified by Bovair and Kieras (1981). Meyer (1975) has also examined content within text but has primarily emphasized expository text.

For the present study, the researcher first had to decide whether to use the system developed by Frederiksen or that developed by Kintsch. While the Frederiksen system is more comprehensive than that of Kintsch, it is also necessarily detailed and difficult to manage. In addition, procedures for the Kintsch system have been developed so as to be more explicit for determining propositions within text; therefore,
the Kintsch system was selected. Once the Kintsch system for propositional analysis was chosen, the decision remained as to which procedures, those in Turner and Greene or those in Bovair and Kieras, would be used. The experimenter applied both sets of procedures to a sample text. The procedures described in Turner and Greene were selected because they made finer distinctions than did Bovair and Kieras between types of propositions, and the researcher felt that these distinctions might prove important for the present study.

Propositional analysis consists of the analysis of sentences into their component propositions. For example, the sentence

John threw the ball.

would become

(PRED: THROW, A: JOHN, O: BALL)

in which THROW represents a predicate relation and JOHN and BALL represent the arguments which hold the case relationships Agent and Object, respectively, to the predicate.

A proposition is made up of a relation and its arguments. There are three major categories of relations for propositions: predication, modification, and connection. As the researcher applied the procedures provided in Turner and Greene, these three major categories of relations were preserved. Relations within these categories were modified, however, to meet the needs of the present study. These modifications are discussed below as part of the general discussion of specific types of relations within the major categories.
Predication propositions represent the major concepts represented by the text. Modification propositions represent information which qualifies in some way those major concepts. Connection propositions represent how the major concepts are connected within the text. Within the category of predication, there are the relations of PREDICATE, DIALOGUE, QUESTION, REFERENCE, LEXICAL, ELLIPSIS, and SUBSTITUTION. Below are examples of each type of relation within predication.

**PREDICATE**

1. Sally went to town.
   
   (PRED: GO, A: SALLY, G: TOWN)

**DIALOGUE**

2. "The teacher spanked a boy," said Laurie.
   
   (DIAL: SAID, A: LAURIE, O: (PRED: SPANK, A: TEACHER, O: BOY))

**QUESTION**

3. "Who did she spank?"
   
   (QUEST, (PRED: SPANK, A: SHE, O: WHO))

**REFERENCE**

4. She spanked Charles.
   
   P1 (REF, TEACHER, SHE)
   P1 (PRED: SPANK, A: P1, O: CHARLES)

**LEXICAL**

5. Charles was bad.
   
   P1 (LEX, S.4, CHARLES)
   P2 (QUALITY OF, P1, BAD)
ELLIPSIS 6. He was?
P1 (REF, CHARLES, HE)
P2 (ELLIP, S.5, WAS-)
P3 (PRED: P2, A: P1)
P4 (QUEST, P3)

SUBSTITUTION 7. Do you think it will rain?
8. I think so.
(SUB, THINK IT WILL RAIN, SO)

The researcher added the labels PREDICATE, DIALOGUE, QUESTION, LEXICAL, ELLIPSIS, and SUBSTITUTION to the Turner and Greene procedures. PREDICATE relations represent those concepts related to action and state. These relations were included in the original procedures but were not specifically labeled as PREDICATE. The researcher added the label in order to facilitate gathering data related to types of propositions. DIALOGUE and QUESTION were added as relations to the procedures. While these relations are more closely related to syntactic content rather than semantic content, the researcher felt that it was important to distinguish between statements made by the narrator and statements made by other characters, as represented by DIALOGUE. It also seemed necessary to account for the semantic difference between a statement and a question, because a statement represents an assertion while a question does not.

In addition to the addition of the PREDICATE label, and DIALOGUE and QUESTION relations, the researcher made changes in the relations which connect content within the text through reference or repetition of
concepts. Specifically, the relation of REFERENCE was broadened to include pronouns, demonstratives, and comparatives. The LEXICAL relation was added to account for the repetition of concepts through reiteration and synonymy. Similarly, ELLIPSIS and SUBSTITUTION were added as relations to indicate repetition of concepts through the surface structure of sentences.

The second major category of propositions, modification, contains the relations QUALIFY, QUALITY OF, NUMBER OF, EXTENT OF, POSSESS, PART OF, NEGATIVE, TIME, and LOCATION. Examples of these types of propositions are provided below. The full list of propositions for each sentence is not listed here.

<table>
<thead>
<tr>
<th>Relation</th>
<th>Sentence</th>
<th>Propositions</th>
</tr>
</thead>
<tbody>
<tr>
<td>QUALIFY</td>
<td>Laurie grinned enormously.</td>
<td>(QUALIFY, GRIN, ENORMOUSLY)</td>
</tr>
<tr>
<td>QUALITY OF</td>
<td>The young woman smiled.</td>
<td>(QUALITY OF WOMAN, YOUNG)</td>
</tr>
<tr>
<td>NUMBER OF</td>
<td>Two men got on the train.</td>
<td>(NUMBER OF, MEN, TWO)</td>
</tr>
<tr>
<td>EXTENT OF</td>
<td>John ran a long distance.</td>
<td>(EXTENT OF, DISTANCE, LONG)</td>
</tr>
<tr>
<td>POSSESS</td>
<td>He spilled his sister's milk.</td>
<td>P1 (POSSESS, SISTER, HIS)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>P2 (POSSESS, MILK, P1)</td>
</tr>
<tr>
<td>PART OF</td>
<td>She looked at his hand.</td>
<td>(PART OF, HIS, HAND)</td>
</tr>
</tbody>
</table>
NEGATIVE 7. He didn't recognize her.
P1 (PRED: RECOGNIZE, A: HE, O: HER)
P2 (NEG, P1)
TIME and 8. He stood in the corner during story-time.
LOCATION P1 (PRED: STAND, A: HE)
P2 (LOC, P1, CORNER)
P3 (TIME, P2, STORY-TIME)

The researcher added the relations of TIME and LOCATION to this category as quasi-modification relations. Both relations were formerly within the category of connection. Because the researcher considered this information to be more related to qualification of concepts than to connection, the relations were removed from the connection category.

The third major category of propositions is connection. The researcher decreased the levels of distinction made within this category to two types of connection rather than the eight types found in Turner and Greene. The motivation for this change was concern for consistency and generalizability of the procedures across texts and raters because of the vague boundaries between specific types of connection and because the researcher was more interested in analyzing intersentential versus intrasentential connection than in examining more specific types of connection in either of these categories. Therefore, the two specific types of connection propositions used in this study were CONJUNCTION and COORDINATION. CONJUNCTION relations represent connection propositions occurring across sentences, while COORDINATION relations represent
connection occurring within sentences. For example:

CONJUNCTION 1. She looked at them quickly.
2. Then she looked again.
   (CONJ: THEN, S.1, S.2)

COORDINATION 3. He held out his hand and smiled.
   P1 (PRED: HELD-OUT, A: HE, O: HAND)
   P2 (PRED: SMILE, *A: HE)
   P3 (COORD: AND, P1, P2)

(The specific procedures used for the propositional analysis are included in Appendix F.)

Connections between Content within Stories

The third story feature of interest was connections between story content. A search of the literature revealed three systems for analyzing connections within text: referential coherence (Kintsch and van Dijk, 1978), linguistic cohesion (Halliday and Hasan, 1976), and implicit connectives (Irwin, 1980). Each system focuses on intersentential connections between concepts within a text. Referential coherence refers to the overlapping of semantic arguments within the lists of propositions of a text. Linguistic cohesion analysis involves an analysis of cohesive ties within a text. Finally, implicit connectives focuses on connections within text whether or not they are made explicit.

Because the researcher wanted to use a system which could be used again with consistent results, the implicit connectives system was eliminated because of the nature of judgment required for the implied
connections within a text. Referential coherence is subsumed under
linguistic cohesion analysis through the identification of lexical
cohesion. The researcher decided therefore to use the system of
linguistic cohesion analysis, hereafter cohesion analysis, to analyze
connections between content within stories.

Cohesion analysis involves the identification of cohesive
elements, or ties, within a text. Specific types of ties include
reference, lexical cohesion, ellipsis, substitution, and conjunction.
Reference ties include pronouns, demonstratives, and comparatives. In
the following example, he represents a reference tie:

EX: 1. Laurie sat down.
2. He grinned.

Lexical cohesion refers to instances of reiteration or synonymy of
concepts. In the following example, Charles in the second sentence
represents a lexical cohesion tie:

EX: 1. The teacher spanked Charles.
2. Charles had been bad.

Ellipsis ties occur when the material deleted can be recovered by
looking at the surface structure of the preceding text. An example of
ellipsis follows in the second sentence:

EX: 1. I suppose he got spanked.
2. He sure did.

Substitution is similar to ellipsis except that a word is used to mark
the material which was deleted. For example, same in the second
sentence below is an example of substitution:
Finally, conjunction refers to connectives which link sentences to one another. An example of conjunction is found in the second sentence below:

EX: 1. The teacher said for nobody to play with Charles.
2. But everybody did.

Because of redundancies between the cohesion analysis and propositional analysis, the researcher modified the cohesion analysis so that the cohesive ties could be recovered directly from the list of propositions constructed during the propositional analysis. For example, REFERENCE, LEXICAL, ELLIPSIS, SUBSTITUTION, and CONJUNCTION propositions, if representing intersentential as opposed to intrasentential connections in the text, would be the propositions from which information for the cohesion analysis would be obtained. Specifically, the proposition would contain information related to the type of tie, the item representing the tie, and the presupposed item.

EX: 1. Laurie sat down.
2. He grinned.

(REF, LAURIE, HE)

The proposition indicates that the type of tie is reference, the item is he, and the presupposed item is Laurie.

Other changes made in the application of the Halliday and Hasan system include the deletion of distinctions within categories of cohesive ties and deletion of the category of lexical collocation as a
means of determining lexical cohesion. The first change was made because the researcher was interested in only general types of cohesive ties occurring in the text, e.g., reference versus lexical cohesion. For the present study, specific types of reference were not of concern. The second change, deletion of lexical collocation, was made because of the lack of specific guidelines for identifying instances of lexical collocation. Lexical collocation represents some relation in meaning between concepts; for example, love and hate would be collocates because they are related through the relationship of antonymy. Hasan (1984) later deleted this category from the initial system because of the difficulty in "operationalizing this category." (The specific procedures for the cohesion analysis are reproduced in Appendix G.)

Surface Structure within Story

The last feature of interest for analysis was surface structure existing within the story. While surface features have received attention in readability research (Klare, 1974-75; Pearson, 1974-75), no formal systems of analysis exist for analyzing surface features. For the most part, surface features are salient and therefore easily recoverable from the text. Thus, no elaborate systems are needed to guide a researcher in the identification of surface features.

Because no formal system existed, the researcher decided to analyze the stories according to numbers of sentences, main clauses, subordinate clauses, and numbers and types of lexical items. Sentences, main clauses, and subordinate clauses were selected for analysis because they have received attention in the readability literature. Lexical
items were selected in order to examine one word concepts as presented in the surface structure to the reader. While propositional analysis accounts for concepts within text, the analysis does not necessarily account for how the concepts are presented to the reader. Specific lexical items chosen for study were nouns, verbs, adjectives, and adverbs because these content words make up more than 99% of all words listed in the dictionary (Hodges and Whitten, 1977). Pronouns and connectives were not included because they were analyzed in the other systems of analysis.

The researcher developed specific procedures for the identification of the surface features mentioned above. Sentences were identified according to their physical boundaries because this is the way they are traditionally identified for readability research. Main clauses were defined as those identified as content units in the narrative analysis. This decision was made to avoid a duplication in tasks. Subordinate clauses were defined as containing verb forms other than the main verb as identified in the main clause. The following sentence contains an example of a subordinate clause (underlined):

EX: There sat a pretty young woman dressed in elegant taste.

Lexical items were identified according to traditional parts of speech definitions. For example, nouns represent concepts of persons, places, things, and ideas and take endings such as -s, -es, or 's. (The specific procedures for the surface feature analysis are included in Appendix H.)
Procedures for Gathering Data

The sample, as described above, consisted of four story versions: "Charles" - Original (hereafter CO), "Charles" - Adapted (hereafter CA), "Hearts and Hands" - Original (hereafter HO), and "Hearts and Hands" - Adapted (hereafter HA). The systems of text analysis selected were narrative analysis, propositional analysis, cohesion analysis, and surface feature analysis. Each system was applied to each of the four story versions.

The order for the text analysis systems to be applied was partially dictated by the nature of the systems themselves. Narrative analysis was applied first because it analyzed the story as a whole. In addition, the other analyses built upon the content units established by the first step of the narrative analysis. It was necessary to apply propositional analysis prior to the cohesion analysis because the cohesive elements were recovered from the list of propositions. Because the ordering of propositional analysis and surface feature analysis made no difference, the order for those two analyses was randomly assigned. The result was that the surface feature analysis became the second analysis, propositional analysis the third, and cohesion analysis the fourth.

Ordering of stories for each analysis was designed so that no story was the first to be analyzed by more than one system. Also, the ordering was designed so that two versions of the same story were not analyzed adjacent to each other for any one analysis. This decision was
made to insure that the analysis of one story version would not influence the same analysis of the other version of that story.

Once order was established for the analyses and for stories, the first story to be analyzed for the first analysis was randomly selected. The order for the other stories then followed a specific design. The order for the analyses is listed in Table 2.

Table 2. Order for analyses of story versions

<table>
<thead>
<tr>
<th>Narrative Analysis</th>
<th>Surface Feature Analysis</th>
<th>Propositional Analysis</th>
<th>Cohesion Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. CO</td>
<td>HA</td>
<td>CA</td>
<td>HO</td>
</tr>
<tr>
<td>2. HA</td>
<td>CA</td>
<td>HO</td>
<td>CO</td>
</tr>
<tr>
<td>3. CA</td>
<td>HO</td>
<td>CO</td>
<td>HA</td>
</tr>
<tr>
<td>4. HO</td>
<td>CO</td>
<td>HA</td>
<td>CA</td>
</tr>
</tbody>
</table>

Each text analysis system was applied to the story versions in the order indicated. After the last story version was analyzed for each system, the researcher re-examined the other versions to check for consistency because more experience with a system increased the investigator's accuracy in applying the procedures. Additionally, checking earlier analyses was a necessary practice because as the researcher worked through the stories, some procedures had to be modified. These new procedures then had to be incorporated into previous analyses.
The approximate lengths of time for each system of analysis are provided here in order to aid decision-making for their use in future research and practice. The use of the systems was quite time consuming particularly for the first story version to which each was applied. Once procedures had been more clearly defined after application to the first story version, the analyses of the other three versions proceeded at a faster rate. Approximately twelve to sixteen hours per story version was spent for propositional analysis after procedures were properly developed. Once the procedures were well-developed, the narrative analysis required approximately four to five hours per story version. The surface feature analysis required approximately three to four hours per story version. Finally, cohesion analysis, because part of it had been incorporated into the propositional analysis, required approximately one to two hours per story version. Those hours do not include the time spent tabulating numbers and types of the different story elements.

Once the analyses were complete, data were collected from the results of each analysis. Specifically, the narrative analysis yielded data related to the numbers of central, supportive, and distracting units for each story version.

Propositional analysis yielded data related to numbers of predication, modification, and connection propositions for each story version. Specific types of propositions within each major category were also tabulated. Within predication, PREDICATE, DIALOGUE, QUESTION, REFERENCE, LEXICAL, and ELLIPSIS propositions were tabulated. Because
of so few instances of SUBSTITUTION, this category was collapsed into the ELLIPSIS category. Within modification, QUALIFY, QUALITY OF, NUMBER OF, POSSESS, NEGATIVE, TIME and LOCATION propositions were tabulated. Numbers of EXTENT OF and PART OF propositions were collapsed into NUMBER OF and POSSESS propositions respectively because of few recorded instances of these types of propositions. Finally, within connection, COORDINATION and CONJUNCTION propositions were tabulated.

The cohesion analysis yielded data related to numbers and types of cohesive ties. Specifically, instances of reference, lexical cohesion, ellipsis, and substitution were tabulated for each story version.

Finally, the surface feature analysis yielded data related to numbers and types of surface features. Specifically, total numbers of sentences, total numbers of main clauses, numbers of main clauses per sentence, total numbers of subordinate clauses, numbers of subordinate clauses per main clause, and numbers of subordinate clauses per sentence were tabulated for each story version. Similarly, numbers of nouns, verbs, adjectives, and adverbs were tabulated for each story version.

**Procedures for Ascertaining Reliability**

In order to insure that the analyses used would yield consistent results if used again, a rater was used to establish the reliability of three of the text analysis systems. The reliability of the cohesion analysis was not established because the cohesive ties were directly recoverable from the results of the propositional analysis. The rater holds an Ed.D. in reading and had no previous depth of knowledge
regarding the systems used. Neither did he have a special knowledge of linguistics other than that normally acquired because of the natural relationship between reading and linguistics. The same rater was used for all three systems of analysis because he was interested in learning about the systems and could afford the time to apply three different systems of analysis.

A reliability index for each system was calculated in the form of a percentage agreement for each system of analysis. Percentages were calculated according to the following formula (Lewin, 1947):

\[
\frac{\text{number of agreements}}{\text{number of agreements} + \text{number of disagreements}}
\]

Specific procedures for ascertaining reliability of each system are detailed below.

Narrative Analysis

The rater was provided with the procedures for narrative analysis which are found in Appendix E. The procedures listed the steps for analyzing a story into content units, categorizing units, labeling relations between units, and classifying units as central, supportive, or distracting units. In addition to the procedures, the rater was provided with a sample passage for practice with the narrative analysis procedures.

After practicing with the sample passage, the rater met with the researcher for a brief training session. Any needed clarifications of procedures were then incorporated into the procedures. The story
version C0 was randomly selected for ascertaining reliability of the narrative analysis. After the training session, the rater applied Step 1, the division of the story into content units, to C0. Agreement between the researcher and the rater for Step 1 was .91. Because the other steps in the narrative analysis depend upon the accuracy of Step 1, the researcher met with the rater to resolve differences. Resolution of differences led to .99 agreement for Step 1 and to further clarifications of the procedures.

The rater then applied Steps 2-4 of the narrative analysis. Because Step 4, the classification of units at central, supportive, or distracting, is of primary concern to this study, agreement for Step 4 was the only other reliability measure to be calculated. Agreement between the researcher and rater for Step 4 was .84.

Propositional Analysis

During a brief training session, the researcher provided the rater with the procedures for propositional analysis which are found in Appendix F. During the session, the rater practiced analyzing sentences into their component propositions. After the training session, the rater applied the procedures to a sample passage which had been designed to contain almost all of the different types of propositions. The rater then checked his list of propositions for the sample passage against those constructed by the researcher.

When he felt confident in his use of the procedures, the rater then applied them to the first 150 words of story version HA, the story version which had been randomly assigned to establish reliability of the
propositional analysis. The first 150 words were selected because of
the detailed nature of the analysis and because it was decided that the
150 words contained an adequate sample of types of propositions.
Agreement between the researcher and rater for propositional analysis
was .79.

Surface Feature Analysis

The rater was provided with procedures for surface feature
analysis which are found in Appendix H. The first 150 words of story
version H0 was randomly assigned in order to establish the reliability
of the surface feature analysis. Because the procedures followed
traditional definitions of surface features, no training session was
held. Agreement between the researcher and rater for numbers of words,
sentences, and main clauses was 1.00 for each. Agreement for number of
subordinate clauses was .90. Finally, agreement between the researcher
and rater for the identification of nouns was .96, verbs .72, adjectives
.81, and adverbs .67. The low agreement for adverbs may have resulted
from the low number of adverbs existing within the sample.

Analysis of the Text Data

The major data consisted of the results from the four text
analyses. Specifically, results from the narrative analysis included
numbers and types of story content units for each story version.
Results from the propositional analysis included numbers and types of
propositions occurring in each story version. Results from the cohesion
analysis included numbers and types of cohesive ties occurring in each
story version. Results from the surface feature analysis included numbers of sentences, main clauses, and subordinate clauses and numbers and types of lexical items per story version.

Data were analyzed both quantitatively and qualitatively. Quantitative analyses included subjection of the data to a chi square statistical analysis (Klugh, 1974) where appropriate. Specifically, the results from each of the four systems were compared across all four story versions. The analysis of the data was also qualitative according to the following guidelines:

First, text characteristics of original and adapted story versions were analyzed descriptively. Text features were listed and tabulated as described in the section on procedures. Specifically, the numbers and types of story content units, numbers and types of propositions, numbers and types of cohesive ties, and numbers and types of surface features were examined.

Next, instances which illustrate a high degree of fit, i.e. text similarities, between original and adapted story versions were identified through the examination of text characteristics appearing in the original versions which remained substantially unchanged in the adapted versions. For all analyses the criterion for judging the deletion rate in text was established according to percentage of total words deleted from each original version. Because 38% of the original version of "Charles" (CO) was deleted and 26% of the original version of "Hearts and Hands" (HO) was deleted in the process of adaptation, deletion expectancy rates of types of characteristics were established
accordingly. For example, for surface feature analysis, if there were 100 adverbs in CO, then a deletion rate of 38% would mean a total of no more than 38 adverbs would be expected to be deleted in the adapted version (CA), if similar deletion patterns were followed for all features. A deletion of 38 adverbs or less in the adapted version would indicate a high degree of fit for surface features according to adverbs. Areas which were established as showing a high degree of fit between story versions were then compared across the adaptations for both stories in order to identify any patterns of change which may be attributable to the process of adaptation in general.

Finally, instances which illustrate a low degree of fit, i.e. text differences, between original and adapted story versions were identified by examining characteristics which have been changed in the adapted versions. Changes were evaluated according to the same standards described above. Deletion rates of more than 38% for "Charles" and more than 26% for "Hearts and Hands" were considered greater than expected based on the deletion rate of total words from the original versions. For example, for the 100 adverbs referred to earlier, if more than 38% were deleted in the adapted version then adverbs would be considered an area of low degree of fit. Differences found between original and adapted story versions were compared across adaptations in order to identify any patterns of deletions and other changes that may have resulted from the process of adaptation.
Two original stories, "Charles" and "Hearts and Hands", and one published adaptation of each were selected for analysis. Four systems of text analysis were selected in order to analyze both story structure and content. Specific systems selected were narrative analysis, propositional analysis, cohesion analysis, and surface feature analysis.

The text analysis systems were applied to the four story versions. Data were collected related to numbers and types of story content units, propositions, cohesive ties, and surface features. Reliability of the text analysis systems was established.

The data were analyzed to identify text characteristics of original and adapted story versions and similarities and differences between original and adapted story versions.
The purpose of this chapter is to present the results of the study. The findings and discussions are presented under the following headings: (1) results of narrative analysis, (2) results of propositional analysis, (3) results of cohesion analysis, (4) results of surface feature analysis, (5) integration of findings, and (6) discussion of text analysis systems.

Results of Narrative Analysis

The narrative analysis was applied to the four story versions in order to analyze the structure of story events. This narrative analysis yielded data related to numbers and types of story content units. Table 3 summarizes the frequencies and deletion rates of types of story content units across story versions. The frequencies were also used to calculate the proportion of total units of each type of content unit for each story version. These results are summarized in Table 4.
Table 3. Frequency and deletion rate of content units by category and story version

<table>
<thead>
<tr>
<th>Content Unit Category</th>
<th>CO</th>
<th>CA</th>
<th>Deletion Rate</th>
<th>HO</th>
<th>HA</th>
<th>Deletion Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Units</td>
<td>87</td>
<td>72</td>
<td>.17</td>
<td>25</td>
<td>23</td>
<td>.08</td>
</tr>
<tr>
<td>Supportive Units</td>
<td>102</td>
<td>62</td>
<td>.39</td>
<td>48</td>
<td>41</td>
<td>.15</td>
</tr>
<tr>
<td>Distracting Units</td>
<td>10</td>
<td>5</td>
<td>.50</td>
<td>13</td>
<td>8</td>
<td>.38</td>
</tr>
<tr>
<td>Total Units</td>
<td>199</td>
<td>139</td>
<td>.30</td>
<td>86</td>
<td>72</td>
<td>.16</td>
</tr>
</tbody>
</table>

Table 4. Proportion of total content units by category and story version

<table>
<thead>
<tr>
<th>Content Unit Category</th>
<th>CO</th>
<th>CA</th>
<th>HO</th>
<th>HA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Units</td>
<td>.44</td>
<td>.52</td>
<td>.29</td>
<td>.32</td>
</tr>
<tr>
<td>Supportive Units</td>
<td>.51</td>
<td>.45</td>
<td>.56</td>
<td>.57</td>
</tr>
<tr>
<td>Distracting Units</td>
<td>.05</td>
<td>.03</td>
<td>.15</td>
<td>.11</td>
</tr>
</tbody>
</table>

The criteria, as described in Chapter 3, for judging whether a deletion rate was greater or less than expected were established as 38% for the adapted version of "Charles" (hereafter CA) and 26% for the adapted version of "Hearts and Hands" (hereafter HA). As indicated in Table 3, deletion rates for central units for both adapted versions was
less than the established criteria. The deletion rate for supportive units in HA did not exceed the criterion, while the deletion rate for the supportive units in CA exceeded the criterion by 1%. This change is so minimal that it can be said that the deletion rate of supportive units for CA meets the expected criteria. The deletion rate of distracting units for both adapted versions exceeded the criteria.

While an examination of the deletion rates of content units provides information pertaining to types of deletion occurring in adaptations, it is also useful to examine the proportion of total content units of the various types of content units occurring in each story version. As Table 4 indicates, central units make up approximately one-half of the story content units of CA and CO, while they make up approximately one-third of the content of HA and HO. Supportive units appear to make up approximately one-half of the story content for all story versions. Distracting units represent a minimal proportion of the content for both CA and CO, while they represent approximately 15% and 11% of the content of HO and HA respectively.

A statistical analysis of the basic data in Tables 3 and 4 yielded a chi square value of 23.25 which with 6 degrees of freedom was found to be significant at the .01 level. Subsequent post-hoc chi square analyses revealed that the two original story versions differed in terms of proportions of central and distracting units. CO was found to have a significantly higher proportion of central units and a significantly lower proportion of distracting units in comparison to HO.
No significant differences were found for the proportion of various units between the two original and two adapted versions.

Discussion of Narrative Analysis Findings

Comparison of Original Story Versions. The narrative analysis allowed a comparison of types of story content across the two original stories. A comparison of proportions of types of content units across CO and HO indicated that stories vary according to which type of content represents the greater proportion of the story content. For CO, content is almost evenly divided between central and supportive units with supportive units representing only a slightly higher proportion of the total content. HO, on the other hand, contains a much greater proportion of supportive units than central units. The reason for this difference between stories in proportions appears to be because HO contains more distracting units. Rather than there being fewer supportive units to allow for the greater proportion of distracting units, there are fewer central units.

It would seem that the greater the number of distracting units that a story contains the greater will be the amount of attention the reader would spend away from the central story line. If this is true, then a story with fewer distracting units may be easier to comprehend, i.e. more readable, than one which has a greater number of distracting units; therefore, it is possible that a factor which affects the readability of text is the number of distracting units within that text. Because HO and CO are written at similar readability levels yet have
differing proportions of distracting units, further research is merited in which these stories are read by appropriate level readers.

**Comparison of Adapted Story Versions to Original Story Versions.**

The quantitative analysis of content units indicates that similar proportions of types of content units occur between the original and adapted story versions. Specifically, CA and CO contain similar proportions of all three types of content units. Although CA contains slightly more central units than supportive and CO contains slightly more supportive than central, the difference is not exceptional. The deletion rate for all three types of content units in CA is also not exceptional. That the deletion rate of the central units is lower than the established criteria is to be expected because the central units represent the causal-purposeful flow of events. If the adapted version is to retain the basic story plot, relatively few of these central units could be deleted. The deletion rate of supportive units of CA is close enough to the criteria to be within an acceptable range. The deletion rate of the distracting units, greater than the established criterion, is also to be expected. Distracting units by definition provide the least information relevant to the central story line; therefore, it is logical that they would be deleted from an original version at a greater rate than either the central or supportive units. It appears then that although the deletion rates differ for the three types of units, their relative proportions to the total story content units are maintained in the adapted versions.
While it appears that CA does not differ from CO more than expected from a quantitative viewpoint, a qualitative analysis of deleted content proved to be more informative. Especially of concern are the specific central content units which were deleted from CO. Of the 15 central units deleted, 6 of these could have provided the reader with more evidence that Laurie is Charles. One of these is the content unit in which Laurie plays a joke on his father. This is accompanied by six supporting units which were also deleted in CA. These units present more evidence that Laurie is a mischievous little boy similar to Charles. The other 5 units reflect to the temporary reformation of Charles into a good boy. These 5 units are accompanied by 17 supportive units which were also deleted. These units depicting Charles as good are important to the interpretation that Laurie is Charles because the teacher reports to Laurie's mother that she thinks Laurie will be all right. The evidence for that belief lies in the reported reformation period of Charles. In addition to the supportive units discussed above, 4 other supportive units were deleted which also could have provided the reader with evidence which leads to the interpretation that Laurie is Charles. Three of these concern Laurie and his father: "spoke insolently to father," "regarded father coldly," and "left while father still saying 'See here, young man'." The fourth one -- regarding the teacher's saying not to take the name of the Lord in vain -- provides evidence when taken in conjunction with the mother's interjection of "'Good Heavens,' I said, mindful of the Lord's name." In summary, while CA retains the same proportions of types of content units as CO, a
qualitative analysis indicated that certain deleted content units may have contributed to story interpretation if they had been retained in CA.

HO and HA were similarly compared. A quantitative analysis of content units in HO and HA indicated that HA also retained similar proportions of types of content units to those found in HO. The only slight difference is that HA contains a greater proportion of central units and lower proportion of distracting units than HO. The deletion rate for the types of content units in HA follows the same pattern as those in CA. The deletion rate for central units is lower than that for supportive units, and the deletion rate for supportive units is lower than that for distracting units. A lower deletion rate for supportive units occurs in HA than in CA. The deletion rate in HA does not exceed the criterion, while that in CA is right at the criterion. Furthermore, the deletion rate for distracting units in HA exceeded the criterion to a slightly higher degree than did the rate for distracting units in CA. Therefore, HA retained a higher proportion of supportive units than did CA. The retention of this type of material may aid comprehension. According to Beck, Omanson, and McKeown (1982), stories with large amounts of supportive noncentral content enhance recall of central content more than stories with smaller proportions of supportive content. If this is true, then HA (and HO) may be more comprehensible and therefore more readable than CA (and CO).

As with the examination of specific content units deleted from CO, a similar qualitative analysis of content units in HO was
undertaken. This analysis revealed that central units deleted from HO did not contain information that would have affected story interpretation. In most cases, the information found in the deleted units was condensed into other content units in HA. For example, the following central content unit in HA was represented by two separate units in HO:

HA: They took seats facing a pretty young woman.

HO: In one coach there sat a very pretty young woman... Here the linked couple seated themselves.

The supportive content units which were deleted from HO provided more information about the young woman's past relationship with Easton than information which would enable a reader to recognize more readily that Easton was really the prisoner. In summary, the deletions of central and supportive units from HO would not seem to affect a reader's interpretation of the story; therefore, these differences, according to content units, between HO and HA appear to be harmless differences.

In conclusion, the quantitative analysis of the narrative analysis data indicated that the adapted story versions did not differ from their originals according to proportions of types of story content units. The qualitative analysis indicated that deletion of content units from CO may affect reader interpretation, while content units deleted from HO do not seem to detract from interpretation of HA.

Results of Propositional Analysis

Propositional analysis was applied to the four story versions in order to examine the detailed semantic content within the stories. This
analysis yielded data related to numbers and types of propositions occurring in the story versions. Table 5 summarizes the frequencies and deletion rates of types of propositions occurring in the story versions. These frequencies were also used to calculate proportions of total propositions of each type of proposition for each story version. The results of these calculations are summarized in Table 6.

Table 5. Frequency and deletion rate of propositions by type and story version

<table>
<thead>
<tr>
<th>Type of Proposition</th>
<th>CO</th>
<th>CA</th>
<th>Deletion Rate</th>
<th>HO</th>
<th>HA</th>
<th>Deletion Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Predication</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PREDICATE</td>
<td>233</td>
<td>161</td>
<td>.31</td>
<td>123</td>
<td>102</td>
<td>.17</td>
</tr>
<tr>
<td>DIALOGUE</td>
<td>110</td>
<td>61</td>
<td>.26</td>
<td>48</td>
<td>46</td>
<td>.04*</td>
</tr>
<tr>
<td>QUESTION</td>
<td>29</td>
<td>24</td>
<td>.17</td>
<td>9</td>
<td>6</td>
<td>.33</td>
</tr>
<tr>
<td>REFERENCE</td>
<td>282</td>
<td>194</td>
<td>.31</td>
<td>146</td>
<td>121</td>
<td>.17</td>
</tr>
<tr>
<td>LEXICAL</td>
<td>220</td>
<td>150</td>
<td>.32</td>
<td>73</td>
<td>51</td>
<td>.30</td>
</tr>
<tr>
<td>ELLIPSIS</td>
<td>22</td>
<td>16</td>
<td>.27</td>
<td>15</td>
<td>10</td>
<td>.33</td>
</tr>
<tr>
<td><strong>Modification</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>QUALIFY</td>
<td>95</td>
<td>45</td>
<td>.53</td>
<td>52</td>
<td>30</td>
<td>.42</td>
</tr>
<tr>
<td>QUALITY OF NUMBER OF</td>
<td>68</td>
<td>37</td>
<td>.46</td>
<td>72</td>
<td>38</td>
<td>.47</td>
</tr>
<tr>
<td>POSSESS</td>
<td>24</td>
<td>14</td>
<td>.42</td>
<td>15</td>
<td>10</td>
<td>.33</td>
</tr>
<tr>
<td>NEGATIVE</td>
<td>89</td>
<td>47</td>
<td>.47</td>
<td>36</td>
<td>14</td>
<td>.61</td>
</tr>
<tr>
<td>TIME</td>
<td>12</td>
<td>12</td>
<td>.00</td>
<td>12</td>
<td>14</td>
<td>.17*</td>
</tr>
<tr>
<td>LOCATION</td>
<td>44</td>
<td>26</td>
<td>.41</td>
<td>9</td>
<td>6</td>
<td>.33</td>
</tr>
<tr>
<td><strong>Connection</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONJUNCTION</td>
<td>14</td>
<td>10</td>
<td>.29</td>
<td>7</td>
<td>14</td>
<td>1.00*</td>
</tr>
<tr>
<td>COORDINATION</td>
<td>102</td>
<td>43</td>
<td>.58</td>
<td>51</td>
<td>29</td>
<td>.43</td>
</tr>
<tr>
<td><strong>Total Propositions</strong></td>
<td>1360</td>
<td>870</td>
<td>.36</td>
<td>676</td>
<td>501</td>
<td>.26</td>
</tr>
</tbody>
</table>

+ indicates a rate of increase
Table 6. Proportion of total propositions by type of proposition and story version

<table>
<thead>
<tr>
<th>Type of Proposition</th>
<th>CO</th>
<th>CA</th>
<th>HO</th>
<th>HA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Predication</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PREDICATE</td>
<td>.17</td>
<td>.19</td>
<td>.16</td>
<td>.20</td>
</tr>
<tr>
<td>DIALOGUE</td>
<td>.08</td>
<td>.09</td>
<td>.07</td>
<td>.10</td>
</tr>
<tr>
<td>QUESTION</td>
<td>.02</td>
<td>.03</td>
<td>.01</td>
<td>.01</td>
</tr>
<tr>
<td>REFERENCE</td>
<td>.21</td>
<td>.22</td>
<td>.22</td>
<td>.24</td>
</tr>
<tr>
<td>LEXICAL</td>
<td>.16</td>
<td>.17</td>
<td>.11</td>
<td>.10</td>
</tr>
<tr>
<td>ELLIPSIS</td>
<td>.02</td>
<td>.02</td>
<td>.02</td>
<td>.02</td>
</tr>
<tr>
<td>Modification</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>QUALIFY</td>
<td>.07</td>
<td>.05</td>
<td>.08</td>
<td>.06</td>
</tr>
<tr>
<td>QUALITY OF</td>
<td>.05</td>
<td>.04</td>
<td>.11</td>
<td>.06</td>
</tr>
<tr>
<td>NUMBER OF</td>
<td>.02</td>
<td>.02</td>
<td>.02</td>
<td>.02</td>
</tr>
<tr>
<td>POSSESS</td>
<td>.07</td>
<td>.05</td>
<td>.05</td>
<td>.03</td>
</tr>
<tr>
<td>NEGATIVE</td>
<td>.01</td>
<td>.01</td>
<td>.02</td>
<td>.03</td>
</tr>
<tr>
<td>TIME</td>
<td>.03</td>
<td>.03</td>
<td>.01</td>
<td>.01</td>
</tr>
<tr>
<td>LOCATION</td>
<td>.01</td>
<td>.01</td>
<td>.01</td>
<td>.02</td>
</tr>
<tr>
<td>Connection</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>CONJUNCTION</td>
<td>.01</td>
<td>.01</td>
<td>.01</td>
<td>.03</td>
</tr>
<tr>
<td>COORDINATION</td>
<td>.08</td>
<td>.05</td>
<td>.08</td>
<td>.06</td>
</tr>
</tbody>
</table>

The criteria for deletion rate, .38 for CA and .26 for HA, were applied to the deletion rates presented in Table 5. The criteria were first applied to the three general types of propositions. An examination of predication propositions indicated that they were deleted at a lower rate than the established criteria. Deletion rates of modification propositions exceeded the established criteria for both stories. The deletion rate for modification propositions in HA exceeded
the established criterion to a greater degree than did the deletion rate of the modification propositions in CA. Deletion rate of connection propositions exceeded the established criterion for CA but met the criterion for HA. The deletion rate of total propositions for both stories was approximately the same as the established criteria. Because propositions represent the semantic content underlying the surface structure in text as represented by words, the similarity in deletion rates of total propositions and total words gives more support to the criteria being established at .38 for CA and .26 for HA.

Deletion rates within the three major categories of propositions were also examined and compared to the established criteria. Within predication, none of the deletion rates of the specific types of propositions occurring in CA exceeded the criterion. For HA, the deletion rates of QUESTION, LEXICAL, and ELLIPSIS propositions exceeded the expected rate of deletion. Within modification for both stories, all specific types of propositions except NEGATIVE and LOCATION propositions exceed the established criteria. Finally, within connection, the deletion rate for CONJUNCTION propositions did not exceed the criterion for CA; however, CONJUNCTION propositions in HA showed a 100% increase over those occurring in the original. For both CA and HA, the deletion rate for COORDINATION propositions exceeded the established criteria.

In addition to deletion rates of propositions, proportions of total propositions per story version were also examined. A statistical analysis of the basic data in Tables 5 and 6 yielded a chi square value
of 23.42 which with 6 degrees of freedom was significant at the .01 level. Subsequent post-hoc chi square analyses revealed that the two original stories did not differ in terms of proportions of types of propositions.

Statistically significant differences were found in terms of the proportion of types of propositions when adapted versions were compared to original stories. Both CA and HA had significantly higher proportions of predication propositions than their original versions. Additionally, HA was found to have a significantly lower proportion of modification propositions than HO.

Discussion of Propositional Analysis Findings

Comparison of Original Story Versions. A comparison across the two original story versions revealed a similar pattern in the occurrence of types of propositions. For both stories, predication propositions make up approximately two-thirds of the total propositions, and modification propositions make up approximately one-fourth of the total propositions. Connection propositions make up approximately one-tenth of the total propositions. An examination of the specific types of propositions of which a text is composed pointed out areas which may increase the comprehensibility of a given text. In CO, for example, 16% of the total propositions are LEXICAL, propositions which indicate the repetition of a previously mentioned concept. If a text contains a larger proportion, significant or not, of LEXICAL propositions, that text would have less new content being introduced. If a reader's schema for a concept is already activated then it would be easier to process
those the concepts which have been previously introduced. It follows, then, that a text having a greater proportion of LEXICAL propositions will be more comprehensible than a text with a smaller proportion of LEXICAL propositions.

Another type of proposition worthy of discussion is REFERENCE. For both CO and HO, REFERENCE propositions represent the largest proportion of propositions occurring in the texts. REFERENCE propositions represent concepts which rely on information presented elsewhere in text for their interpretation. This interpretation requires inferencing on the part of a reader (Pearson and Johnson, 1978). For example:

So, that is what you are doing out here.

contains four REFERENCE Propositions. The reader must use both the preceding and succeeding text to interpret the meaning of that, you, doing, and here. If texts have a large proportion of REFERENCE propositions, it becomes very important for a reader to have the necessary skills for recovering referents in the text. It seems possible that the greater the number of REFERENCE propositions occurring in text, although this is an indication of the cohesiveness of a text, the greater the need for more processing on the part of the reader than a text with fewer REFERENCE propositions. If this is true, then the proportion of REFERENCE propositions occurring in text may be another factor affecting the readability of a text.

In addition to types of propositions occurring in text, the propositional analysis revealed information related to the complexity of
concepts contained within sentences. Complexity of concepts was determined by examining the number of propositions embedded within other propositions. More specifically, sentences containing more than one PREDICATE proposition per main clause were considered to be more complex than sentences containing only one PREDICATE proposition per main clause. An examination of the two original story versions revealed that sentences in CO contained PREDICATE propositions per main clause ranging between 1 and 8 with 45 of 139 sentences, or 32%, containing more than 1 PREDICATE proposition per main clause. HO contained sentences with PREDICATE propositions per main clause ranging between 1 and 5 with 25 of 73 sentences, or 33%, containing more than 1 PREDICATE proposition. The degree of complexity of content expressed within a sentence as measured by number of PREDICATE propositions per main clause is another factor which may affect the readability of a text. For example:

EX: S.77 On Friday Charles stayed after school again and so did all the other children.  
S.87 "When you've got a Charles to deal with, this may mean he's only plotting."

Both sentences contain 14 words. S.77 contains two main clauses with one PREDICATE proposition per clause, while S.87 contains one main clause with four PREDICATE propositions per clause. A readability formula such as the Fry formula would consider the two sentences as equal in complexity because they contain the same number of words. Incidentally, S.87 contains fewer syllables; therefore, again according
to readability formula criteria, it would be considered the easier sentence.

In summary, the propositional analysis revealed that original versions of the stories have similar patterns of general types of propositions, certain specific types of propositions occur more frequently than others, and sentences similar in length vary according to complexity of content as measured by the number of PREDICATE propositions per clause.

Comparison of Adapted Story Versions to Original Story Versions. A comparison of original story versions to adapted story versions according to deletion rates of types of propositions revealed that both of the adapted versions exceeded the deletion rate criteria for modification propositions. Additionally, both maintained a higher proportion of predication propositions to total propositions than their original versions. This indicates that the adapted versions are retaining major concepts as represented by the predication propositions but have had information deleted which qualifies in some way those major concepts. Especially interesting are the deletion rates of QUALIFY and QUALITY OF propositions. These deletion rates exceed the established criteria and also have the effect of changing the proportions of these propositions to total propositions. For both adapted versions the proportions are decreased. These changes in proportions have the effect of decreasing details which support the predication propositions. For example, the following sentences have the same PREDICATE proposition:
CO: He shrugged elaborately.

CA: He shrugged.

The difference in the lists of propositions for the two sentences is the exclusion of a QUALIFY proposition for the second sentence. This type of modification information provides the reader with characterization information, information which may later enable the reader of the original version to better reconcile the fact that Laurie is really Charles.

Another type of proposition which is deleted at a greater than expected rate for CA is connection propositions. Within this category, only COORDINATION propositions for both CA and HA are deleted at a greater rate than expected. The reason for the high deletion rate of COORDINATION propositions is that sentences in the adapted versions are not as long as sentences in the original versions. The longer sentences in the original versions require more COORDINATION propositions because they contain more content which needs to be connected within the sentence. Another difference between the original and adapted versions is the increase of CONJUNCTION propositions for HA from HO. HA contains twice as many CONJUNCTION propositions as HO. This occurrence could have the effect of the adapted version's being a more connected text than the original.

Complexity of content within sentences was examined for the adapted versions in the same way as described above for the two original versions. CA contained PREDICATE propositions per main clause ranging between 1 and 4 with 33 of 115 sentences, or 29%, containing more than 1
PREDICATE proposition per main clause. HA contained PREDICATE propositions per main clause ranging between 1 and 4 with 22 of 66 sentences, or 33%, containing more than 1 PREDICATE proposition per main clause. Both adapted versions contain proportions of sentences containing more than one PREDICATE proposition per main clause which are similar to proportions in their respective original versions. The only difference in content complexity, as measured by the embedding of PREDICATE propositions, between adapted and original story versions is that the sentences in CO contain up to 8 embeddings per main clause, while sentences in CA contain up to 4 embeddings per main clause. A closer examination revealed that only 2 sentences in CO contained more than 4 PREDICATE propositions embedded in a main clause; therefore, content complexity appears to be similar between original and adapted story versions.

In summary, propositional analysis has revealed that the adapted story versions retain similar distributions of proportions of predication, modification, and connection propositions. An examination of deletion rates in conjunction with an examination of proportions of total propositions indicates that adapted versions retain more predication propositions, one adapted version deletes more modification, and the other adapted version deletes more conjunction propositions. Finally, adapted and original story versions appear to be similar in content complexity within sentences.
Results of Cohesion Analysis

Cohesion analysis was applied to the four story versions in order to examine connections within the stories. This analysis yielded data related to numbers and types of cohesive ties. Table 6 summarizes the frequencies and deletion rates of types of cohesive ties across story versions. The data in Table 7 was used to calculate proportions of total words of each type of tie for each story version. The results of these calculations are presented in Table 8. Total words were used as the basis for proportions because most cohesive ties consist of single words.

Table 7. Frequency and deletion rate of cohesive ties by type and story version

<table>
<thead>
<tr>
<th>Type of Tie</th>
<th>CO</th>
<th>CA</th>
<th>Deletion Rate</th>
<th>HO</th>
<th>HA</th>
<th>Deletion Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reference</td>
<td>130</td>
<td>102</td>
<td>.22</td>
<td>93</td>
<td>92</td>
<td>.01</td>
</tr>
<tr>
<td>Lexical Cohesion</td>
<td>205</td>
<td>146</td>
<td>.29</td>
<td>70</td>
<td>51</td>
<td>.27</td>
</tr>
<tr>
<td>Ellipsis</td>
<td>17</td>
<td>12</td>
<td>.29</td>
<td>6</td>
<td>8</td>
<td>.33⁺</td>
</tr>
<tr>
<td>Substitution</td>
<td>0</td>
<td>0</td>
<td>.00</td>
<td>2</td>
<td>1</td>
<td>.50</td>
</tr>
<tr>
<td>Conjunction</td>
<td>10</td>
<td>8</td>
<td>.20</td>
<td>6</td>
<td>14</td>
<td>1.33⁺</td>
</tr>
<tr>
<td>Total Ties</td>
<td>362</td>
<td>268</td>
<td>.26</td>
<td>177</td>
<td>166</td>
<td>.06</td>
</tr>
</tbody>
</table>

+ indicates rate of increase
Table 8. Proportion of total words of cohesive ties by type and story version

<table>
<thead>
<tr>
<th>Type of Tie</th>
<th>CO</th>
<th>CA</th>
<th>HO</th>
<th>HA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reference</td>
<td>.08</td>
<td>.10</td>
<td>.11</td>
<td>.14</td>
</tr>
<tr>
<td>Lexical Cohesion</td>
<td>.13</td>
<td>.15</td>
<td>.08</td>
<td>.08</td>
</tr>
<tr>
<td>Ellipsis</td>
<td>.01</td>
<td>.01</td>
<td>.01</td>
<td>.01</td>
</tr>
<tr>
<td>Substitution</td>
<td>.00</td>
<td>.00</td>
<td>&lt;.01</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Conjunction</td>
<td>.01</td>
<td>.01</td>
<td>.01</td>
<td>.02</td>
</tr>
<tr>
<td><strong>Total Ties</strong></td>
<td>.23</td>
<td>.27</td>
<td>.20</td>
<td>.26</td>
</tr>
</tbody>
</table>

Results of deletion rate calculations indicate that none of the deletion rates for types of cohesive ties for CA exceeded the established criterion. For HA, the deletion rate for lexical cohesion was close enough to the criterion to be considered as an expected deletion rate. The deletion rate for substitution ties in HA exceeded the established criterion, but this deletion rate is based on a frequency of 2 and therefore cannot be considered an exceptional deletion rate. Deletion rates for ellipsis and conjunction showed that these two types of ties were increased in HA. Ellipsis was increased by 33%, while conjunction was increased 133%. Again, because these results are based on small N's the data should be interpreted with caution.

Analyses of the data in Tables 7 and 8 yielded certain statistically significant differences. The first basic chi square
analysis concerned the proportion of cohesive ties to the total number of words in a story. The basic chi square value was found to be 13.59 which with 3 degrees of freedom was found to be significant at the .01 level. Subsequent statistical analyses indicated that there were no significant differences between the two original stories, but both adaptations were found to have a significantly higher proportion of cohesive ties than the original stories on which they were based.

The second basic chi square analysis test involved a comparison of the proportion of various types of cohesive ties across versions. The analysis yielded a chi square of 47.41 which with 9 degrees of freedom was significant at the .01 level. Subsequent post-hoc analyses revealed that HO had proportionally more reference ties and proportionally less lexical ties than CO. No statistically significant differences were found in the proportional distribution of cohesive ties between adapted versions and original stories.

Discussion of Cohesion Analysis Findings

Comparison of Original Story Versions. A comparison of the cohesive ties in the two original stories revealed that both CO and HO contained similar proportions of total cohesive ties. An examination of specific types of ties indicated that HO contained proportionally more reference ties and proportionally less lexical ties than CO. Reference and lexical cohesion represented the larger proportions of ties existing in both original stories. Lexical cohesion represents those concepts which are repeated through reiteration or synonyms; therefore interpretation of the concept is explicit.
A close examination of the two original stories revealed that 102 out of 139 sentences, or 73%, in CO contained instances of lexical cohesion. Forty-two out of 73 sentences, or 58% in HO contained instances of lexical cohesion. Reference ties represent implicit ties with concepts previously mentioned in text. A close examination of reference ties in the two original stories revealed that CO contained 100 out of 139 sentences, or 72%, which had at least one reference tie, while HO contained 60 out of 73 sentences, or 82%, which had at least one reference tie.

These results indicate that CO has a larger percentage of sentences with lexical ties than HO, and HO has a larger percentage of sentences with reference ties than CO. Because reference ties require at least one additional processing step in order to determine a referent than does a lexical tie, it would seem that stories with more instances of lexical ties than reference ties would be easier to comprehend, therefore more readable, than stories with fewer lexical ties than reference ties.

It is also interesting to note the small proportions of ellipsis, substitution, and conjunction ties occurring in the two original stories. Especially interesting is the small number of instances of conjunction. Intersentential connectives have received some attention in the literature (Pearson, 1974-75; Davison and Kantor, 1982). For the two original stories used in this study, it seems that research attention may have been unduly exaggerated. If a text is made up of so few conjunctions, then it may be that connections within a text
-- especially a narrative short story -- may be inferred through one's own experiences with a natural chain of events. Therefore, it is possible that conjunctions manifested in the surface structure of a text may not be as important for narrative fiction as for narrative non-fiction and expository prose.

In summary, the two original stories appeared to contain similar proportions of cohesive ties when compared to total words. A comparison of proportions of ties according to total words and according to number of sentences, revealed varying proportions of types of cohesive ties.

Comparison of Adapted Story Versions to Original Story Versions. A comparison of original and adapted story versions revealed that both CA and HA contained higher proportions of total ties than their respective originals. The fact that the proportions are higher indicates that, even though content has been deleted in the adapted versions, cohesion, as manifested in the number of ties, has been preserved.

A further examination of numbers of sentences containing cohesive ties revealed results similar to those found for the two original stories. Seventy-three percent of the sentences in CO contained instances of lexical cohesion as compared to 70% for CA. Fifty-eight percent of the sentences in HO contained instances of lexical cohesion as compared to 50% in HA. The 8% difference between HO and HA for sentences containing lexical cohesion indicates a difference in lexical cohesion and therefore a possible difference between original and adapted story versions. Instances of reference across sentences
were also recorded. Seventy-two percent of sentences in CO contained reference ties as compared to 65% for CA, while 82% of sentences in HO contained reference ties as compared to 86% for HA.

These results indicate that CA contains fewer reference ties than CO across sentences while HA contains more reference ties than HO across sentences. However small these differences are, they do indicate that reference ties according to numbers of sentences containing ties is an area of low degree of fit for both adapted versions. Taking the results of instances across sentences for both lexical cohesion and reference, it would appear that for CA, the lack of change in lexical cohesion and the decrease in reference for the original version would indicate a somewhat less cohesive text. For HA, the decrease in lexical cohesion and increase in reference ties does not necessarily indicate a change in cohesiveness; however, because of the change in nature of cohesive ties (i.e. fewer lexical, more reference) it would seem that HA is less easy to process, i.e. less readable, than HO.

Another interesting difference between HA and HO is the increase in the number of instances of ellipsis and conjunction ties as indicated by a plus (+) in Table 7. While these categories make up such small proportions of the total text, it is interesting to look at specific instances where conjunctions have been added to the text. The reason there are more conjunctions in HA is that the same words occur in HO but as coordinating conjunctions which connect clauses within sentences. These coordinating conjunctions are not counted as cohesive ties because they are intrasentential connectives rather than
intersentential. This finding is converse to that found in Davison et al. (1980) in which it was found that longer sentences split into smaller ones tended to delete the connectives.

In summary, changes in adapted versions, according to numbers of cohesive ties, do not appear to be important in terms of the possible changes in interpretation of the texts. On the other hand, changes according to ties across sentences may indicate changes in the readability of adaptations because of changes the reader may have to make in processing the text.

Results of Surface Feature Analysis

Surface feature analysis was applied to the four story versions in order to examine features existing in the surface structures of the stories. This analysis yielded data related to numbers of words, sentences, clauses, and types of lexical items. Table 9 summarizes frequency data and deletion rates for these categories. The frequency data in Table 9 was used to calculate proportions of total words of lexical items. These results are summarized in Table 10.
Table 9. Frequency and deletion rate of surface features by type and story version

<table>
<thead>
<tr>
<th>Story Version</th>
<th>Type of Surface Feature</th>
<th>CO</th>
<th>CA</th>
<th>Deletion Rate</th>
<th>HO</th>
<th>HA</th>
<th>Deletion Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Words</td>
<td>1598</td>
<td>992</td>
<td>.38</td>
<td>865</td>
<td>643</td>
<td>.26</td>
</tr>
<tr>
<td></td>
<td>Sentences</td>
<td>139</td>
<td>115</td>
<td>.17</td>
<td>73</td>
<td>66</td>
<td>.10</td>
</tr>
<tr>
<td></td>
<td>Main Clauses</td>
<td>197</td>
<td>141</td>
<td>.28</td>
<td>89</td>
<td>74</td>
<td>.17</td>
</tr>
<tr>
<td></td>
<td>Subordinate Clauses</td>
<td>145</td>
<td>81</td>
<td>.44</td>
<td>59</td>
<td>59</td>
<td>.00</td>
</tr>
<tr>
<td></td>
<td>Nouns</td>
<td>357</td>
<td>218</td>
<td>.39</td>
<td>168</td>
<td>99</td>
<td>.41</td>
</tr>
<tr>
<td></td>
<td>Verbs</td>
<td>327</td>
<td>216</td>
<td>.34</td>
<td>138</td>
<td>122</td>
<td>.12</td>
</tr>
<tr>
<td></td>
<td>Adjectives</td>
<td>79</td>
<td>43</td>
<td>.46</td>
<td>88</td>
<td>51</td>
<td>.42</td>
</tr>
<tr>
<td></td>
<td>Adverbs</td>
<td>92</td>
<td>48</td>
<td>.52</td>
<td>35</td>
<td>30</td>
<td>.14</td>
</tr>
</tbody>
</table>

Table 10. Proportion of total words of lexical items by type and story version

<table>
<thead>
<tr>
<th>Story Version</th>
<th>Type of Lexical Item</th>
<th>CO</th>
<th>CA</th>
<th>HO</th>
<th>HA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nouns</td>
<td>.22</td>
<td>.22</td>
<td>.19</td>
<td>.15</td>
</tr>
<tr>
<td></td>
<td>Verbs</td>
<td>.20</td>
<td>.22</td>
<td>.16</td>
<td>.19</td>
</tr>
<tr>
<td></td>
<td>Adjectives</td>
<td>.05</td>
<td>.04</td>
<td>.10</td>
<td>.08</td>
</tr>
<tr>
<td></td>
<td>Adverbs</td>
<td>.06</td>
<td>.05</td>
<td>.04</td>
<td>.05</td>
</tr>
</tbody>
</table>
Again using the criteria of .38 for CO and .26 for HO, an
examination of deletion rates of surface features revealed that fewer
sentences were deleted than expected for both stories. Similarly, fewer
main clauses were deleted than expected. The deletion rate for
subordinate clauses exceeded the criterion for CA but showed no change
for HA.

An examination of deletion rates for lexical items revealed that
for CA, adjectives and adverbs were deleted at a rate higher than the
established criterion. For HA, nouns and adjectives were deleted at a
rate higher than the established criterion.

Analyses of the data in Table 10 revealed certain statistically
significant differences. The basic chi square analysis compared lexical
items across story versions. The resulting chi square value was
computed to be 55.06 which with 9 degrees of freedom was significant at
the .01 level. Subsequent post-hoc analyses revealed significant
differences between the two original stories with respect to the
proportions of types of lexical items. It was found that CO did have a
proportionally higher number of verbs and a proportionally lower number
of adjectives than HO. No statistically significant differences for
lexical items were found when adaptations were compared to original
stories.

Discussion of Surface Feature Analysis Findings

Comparison of Original Story Versions. A comparison across
stories revealed that, although the stories are written at different
readability levels, CO and HO are similar in sentence complexity as
measured by average number of clauses per sentence. A comparison of proportions of types of lexical items indicated that CO clearly contains a division between the noun-verb category and the adjective-adverb category. If these categories were collapsed so that nouns and verbs represented the category of major concepts and adjectives and adverbs represented the category of qualification of the major concepts then the proportions would be .44 for major concepts and .11 for qualification. A similar application to HO would yield .35 for major concepts and .14 for qualification. Research with more stories may indicate other variabilities in proportions of lexical items.

Lexical items were also analyzed qualitatively and compared across original story versions. A comparison of nouns across CO and HO revealed that the proportion of abstract nouns in HO was .20 as compared to .14 for CO. One reason for the lower proportion in CO was the numerous repetitions of names which represent concrete nouns. This information in conjunction with results from propositional analysis indicates that CO contains more repetition of names, while HO contains more pronominalization of the names. As discussed under results of cohesion analysis, because reference requires an extra processing step than does lexical cohesion, CO may be a more readable story according to this factor.

In summary, while the original story versions are similar in sentence complexity, they differ in proportions of types of lexical items.
Comparison of Adapted Story Versions to Original Story Versions.

A comparison between original and adapted story versions revealed that both CA and HA deleted fewer sentences than expected according to deletion of words. There are two possible explanations for greater deletion rates for words than for sentences. First, fewer whole sentences are deleted indicating that more single words are deleted from individual sentences. The second explanation is that at the same time words are being deleted, the longer sentences are also being changed to two or more shorter ones.

A closer look at data for each story revealed that both explanations may hold true. An example of how both explanations work together follows:

HO: The young woman's glance fell upon them with a distant, swift disinterest; then, with a lovely smile brightening her countenance and a tender pink tingeing her rounded cheeks, she held out a little, gray-gloved hand.

HA: At first, the woman took a quick look at the men. Then she looked again and smiled.

In this example, single words in the original version are deleted from the main clauses; at the same time, the one long sentence was split into two shorter sentences in the adaptation.

Similarly, the splitting of sentences also explains the high deletion rate of subordinate clauses for CA. For example:
CO: S.48:C1: Charles yelled so in school

C2: they sent a boy in from first grade to tell the teacher she had to make Charles keep quiet,

C3: and so Charles had to stay after school.

CA: S.42:C1: Charles yelled so much

C2: that the teacher came in from first grade.

S.43:C1: She said our teacher had to keep Charles quiet.

S.44:C1: And so Charles had to stay after school.

The one sentence consisting of 3 main clauses with the second clause (C2) containing 3 subordinate clauses was split into 2 1/2 sentences consisting of 4 main clauses with S.43:C1 containing 1 subordinate clause. This change has the effect of lessening the sentence complexity, yet connectedness between ideas is maintained through the use of she and and so.

A qualitative analysis of lexical items deleted and changed in the adapted versions revealed three patterns. First, an adverb or adjective was simply deleted with no substitution.

EX: CO: ...and Laurie whispered joyfully.

CA: ...and whispered into my husband's ear.

HO: "My dear, Miss Fairchild," said Easton calmly.
   "I had to do something."

HA: "Miss Fairchild, I had to do something," Easton said.

In both examples, the deleted item provides information which could later aid the reader in reconciling the "twist" in each story.
Joyfully indicates that Laurie enjoyed telling the evil word; while calmly, by its very inclusion, indicates that the reader should have expected the speaker to act in a manner different from calmly thus hinting at the true situation that Easton is the prisoner.

The second pattern of change is for a deleted word to be substituted by a single higher frequency word.

EX: HO HA

attractive --> pretty
recognize --> know
engaged --> busy
acquainted --> know
CO CA
remarked --> talked
simultaneously --> together
suppose --> think
awfully --> really

While these substitutions may have been made in order to make the text more readable, they also have the effect of decreasing clarity which in turn may affect text interpretation. For example, in HA know is substituted for both recognize and acquainted, two words with different connotations related to the degree of knowing. Because absolute synonymy does not exist, any substitution made will result in the sacrificing of some finer distinction in meaning.

The third pattern of change is the substitution of a group of words for a deleted word or words.
EX:  

<table>
<thead>
<tr>
<th>Original</th>
<th>HO</th>
<th>HA</th>
</tr>
</thead>
<tbody>
<tr>
<td>(money)</td>
<td>taking wings</td>
<td>going through fingers</td>
</tr>
<tr>
<td>butterfly days</td>
<td>--&gt; days of good times and no work</td>
<td></td>
</tr>
</tbody>
</table>

CO  

<table>
<thead>
<tr>
<th>Original</th>
<th>HO</th>
<th>HA</th>
</tr>
</thead>
<tbody>
<tr>
<td>deprived</td>
<td>--&gt; could not use</td>
<td></td>
</tr>
<tr>
<td>passionately</td>
<td>--&gt; very much</td>
<td></td>
</tr>
<tr>
<td>adjusting</td>
<td>--&gt; getting used to</td>
<td></td>
</tr>
</tbody>
</table>

While these substitutions seem to represent the original ideas to a better degree than the single word substitutions, the changes result in a loss of more colorful language.

In summary, changes in the adaptations according to sentence structure appear not to affect story connectedness, while changes in lexical items may result in a decrease of clarity of story details.

Integration of Findings and Discussion

Comparison of Original Story Versions

The results from the four systems of analysis indicated that HO as compared to CO contained less central and more distracting story content, more reference ties, fewer lexical cohesion ties, a lower proportion of verbs, and a higher proportion of adjectives. If these factors are related to the readability of a story, it would be predicted that the advantages of less central content would be offset by more distracting content. The greater number of reference ties and the lower number of lexical cohesion ties in HO would seem to make HO a less
readable story than CO. The relation of verbs or adjectives to the readability of text has not received much attention in the literature; however, the deep structure model (Pearson, 1974-1975) would predict adjectives to take longer to process than verbs because adjectives represent embeddings within sentences. If this theory represents psychological reality, then the greater number of adjectives may also affect the readability of HO. Thus, while HO and CO are quite similar in readability according to the Fry formula, there may be features within the text which contribute to the readability but which are not accounted for by the formula.

Comparison of Adapted Story Versions to Original Story Versions

Comparisons between original stories and their adapted versions revealed similarities in story content units, propositions, cohesive elements, and surface features. Specifically, the adapted versions were not changed from the original in proportions of central and supportive story content units, proportions of connection propositions for one adapted version and proportions of modification propositions for the other, content complexity within sentences, cohesive ties, and proportions of lexical items. In general, story integrity and connectedness were maintained in both adapted story versions.

Results from all four systems of analysis indicated that adapted versions differed from their original versions in several ways. Both adapted versions deleted distracting story content, a change which does not affect story integrity. Another pattern occurring in both adapted
versions were changes in lexical items which resulted in a loss of richness in detail. The other differences were unique to the individual adapted versions. Adapted versions of more stories need to be analyzed to determine if the differences discovered in this study are common to the adaptation process.

**Discussion of Text Analysis Systems**

The following section will discuss each text analysis system according to its appropriateness for the present study and its feasibility for use in future research and in classroom settings.

**Narrative Analysis**

A modified version of Omanson's system of narrative analysis was used in order to analyze story structure as represented by the chain of story events. The division of the text into content units; classification of units as focal, characterizing or identifying; and classification of content units as central, supportive, or distracting are clearcut steps and provided a system for identifying content which is central to the story plot. The intermediate step in which relations between story content units are identified was somewhat nebulous. The researcher believes that once the units have been identified as focal, etc., these units can be "holistically" identified as central, supportive, or distracting, an easier and equally reliable a process as tediously working through the identification of relations. Nevertheless, the ultimate classification of content units as central, supportive, or distracting allowed the researcher to compare types of
story content units across story versions. None of the other systems used in this study allowed for this type of content analysis.

The present system was not particularly time consuming to use and with the modification of the relation identification step could become even less so. Therefore, narrative analysis, in its modified form, offers a noncumbersome, systematic method for analyzing story content. The system could prove useful in future research to compare proportions of types of content across different stories and between story versions. Another use is the scoring of recall data in order to measure type of content recalled and to measure whether differing proportions of types of content affect story recall. In this way, narrative analysis could be used to compare readabilities of stories.

Similarly, narrative analysis is not so detailed an analysis as to preclude its use within classroom situations. Teachers may also be able to use the results to measure story recall. In addition, the results could be used in the development of questions for comprehension lessons. Finally, a rough narrative analysis system could be taught to intermediate and secondary level readers so that they could learn to analyze stories into central and noncentral content.

Propositional Analysis

Propositional analysis was used in order to analyze the detailed semantic content within sentences in addition to relationships existing between concepts occurring in different sentences. The system involved the analysis of sentences into all possible embedded concepts. Relations and arguments of the concepts were identified and written as
propositions. The relations were then used to examine and compare the numbers and types of propositions occurring in the different story versions. The analysis was a detailed one and necessarily time consuming. The researcher would not change any part of this analysis until research is conducted which employs more stories. It is possible that, after further study, some relations could be collapsed into larger categories.

Because of the detailed nature of propositional analysis, it is suggested that it be used primarily as a research tool. It can be used to compare different stories which are being used in a research study in order to insure that the stories are similar in composition of types of semantic content, i.e. similar proportions of predication, modification, and connection propositions. Propositional analysis can continue to be used, as in the past, as a way to measure reader recall against a text base, or list of propositions. Propositional analysis also offers another method to be employed in readability research. If numbers and types of embeddings affect readability of a text, this system offers a way to analyze those embeddings.

Although propositional analysis is time consuming, it can be employed in some aspect within the classroom setting. While it is not being suggested that teachers spend valuable planning time analyzing stories and recalls into propositions, teachers may become more aware of content complexity within sentences and longer texts by learning how to analyze sentences into propositions. This type of training and accompanying practice would take only a few hours of time.
In summary, propositional analysis has been proved and will continue as an invaluable research tool. As researchers continue to attempt to systematize it so that results are more replicable, the analysis may become more manageable and less time consuming and therefore may have more application within the classroom setting.

Cohesion Analysis

Cohesion analysis was used to examine the semantic connections within the stories and was a corollary analysis to the propositional analysis. Cohesive ties were identified as relations in the propositional analysis, and the cohesion analysis served to recover those cohesive ties systematically from the list of propositions. Because interrater reliability for the propositional analysis had been established, more confidence could be placed in the cohesion analysis as a clear list of instructions for recovery of the data. This integration of the two systems of analysis avoided redundancies in data collection. In the past, cohesion data have been included in propositional analysis but not as specifically defined or to the degree that they have been in the present study. While propositional analysis identifies all instances of text ties, intersentential and intrasentential, cohesion analysis is only concerned with intersentential ties. The identification of these ties allows for comparisons of cohesion among different stories and between story versions.

Cohesion analysis offers many possibilities for future research. If there exists a hierarchy among cohesive ties as suggested by Freebody and Anderson (1983) then the effect of these ties on reading
comprehension needs to be studied. Cohesion analysis necessarily would become the tool for identifying the cohesive ties. Also identifiable through this system is the distance between a presupposing item and its presupposed referent. Perhaps distance and type of tie influence reading comprehension.

In addition to its use in research, cohesion analysis may have practical applications as well. For example, teachers' awareness of specific cohesive ties may aid them in identifying problem texts and may also aid them in teaching composition.

In summary, cohesion analysis offers a system for examining semantic connections within a text. Implications for research are many, and future research may point to more creative classroom applications of cohesion analysis.

Surface Feature Analysis

Although not a formal system of text analysis, surface feature analysis was employed to look at text features which occur in the surface structure of a text and which had not been accounted for by the other systems of analysis. While narrative analysis did use main clauses in the division of the story into content units, that analysis itself was not concerned with numbers of main clauses. No other system examined subordinate clauses, although propositional analysis came close by allowing examination of PREDICATE embeddings. Similarly, lexical items were not specifically identified through the other analyses although there was a degree of overlap with propositional analysis.
The surface feature analysis provided a basis for comparison of deep structure with surface structure. It is easier to interpret the results from the other analyses if they are examined in relation to the surface features. Therefore, surface feature analysis was a necessary complement to the other systems and has a place only as that complement in future research.

Conclusion

All of the text analysis systems discussed above offer possibilities for text and comprehension research. They offer systematic methods for examining text factors which may affect comprehensibility and therefore readability of text. Once these factors are identified, instructional strategies can be developed to help readers deal more effectively with those factors as they are encountered. If readers can learn to deal effectively with those factors as they naturally exist in original text, then perhaps text adaptations will become obsolete, and colorful language and richness of detail will no longer be sacrificed for lowered readability levels as measured by formulas.
CHAPTER 5

CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

This chapter presents a summary of (1) the problem, (2) related research, (3) design and procedures, and (4) findings of the study. Conclusions, implications, and recommendations for further research are also presented.

The Problem

The purpose of this study was to analyze in depth the features of both original and adapted story versions. Attention was focused on text characteristics and similarities and differences between original and adapted story versions. More specifically, the study was designed to identify:

1. Text characteristics of original and adapted story versions according to numbers and types of story content units, numbers and types of propositions, numbers and types of cohesive elements, and numbers and types of surface features.

2. Instances which illustrate a high degree of fit, i.e. text similarities, between original and adapted story versions according to story content units, propositions, cohesive elements, and surface features.
3. Instances which illustrate a low degree of fit, i.e. text differences, between original and adapted story versions according to story content units, propositions, cohesive elements, and surface features.

**Related Research**

Literature relevant to the study was identified and reviewed. Studies in the following areas were pertinent:

1. Comprehension studies involving the use of high interest-low vocabulary materials with less able readers.
2. Studies concerning the features of adapted text and comprehension and interest studies related to the use of adapted stories.
3. Studies related to the effects of specific text features on reading comprehension.
4. Studies which have described the use of text analysis systems for analyzing text features related to text comprehension and memory.

**Design and Procedures**

Two original stories and one adapted version of each were selected for analysis. The original stories are typical of short stories included in junior high school anthologies, while their adaptations are typical of stories found in high interest-low vocabulary materials intended for use with less able readers. Both stories have a
surprise ending, are similar in length, and are written at approximately the same readability levels.

Four systems of text analysis were selected in order to analyze both story structure and story content. The four systems of text analysis were applied to all four story versions. Narrative analysis was used to analyze the structure of story events. Specifically, the narrative analysis yielded data related to numbers of central, supportive, and distracting content units.

Propositional analysis was used to examine the detailed semantic content within the stories. Data obtained through the propositional analysis included numbers of predication, modification, and connection propositions and numbers of specific types of propositions within these three categories.

Cohesion analysis was selected to examine connections within the texts. Specifically, the cohesion analysis yielded data related to numbers and types of cohesive elements. The cohesive elements included reference ties, lexical cohesion, ellipsis, substitution, and conjunction.

Finally, surface feature analysis was used to analyze text features occurring in the surface structures of the stories. Specifically, data included numbers of words, sentences, main clauses, and subordinate clauses. Additional data was obtained related to numbers of nouns, verbs, adjectives, and adverbs.
Findings of the Study

The results of the data analysis related to text characteristics of original and adapted story versions and similarities and differences between original and adapted story versions are presented in this section. Specifically, according to each system of analysis, results were as follows:

Narrative Analysis

1. Original story versions differ according to proportions of central and distracting story content units.
2. Adapted story versions do not differ from their original story versions according to proportions of central, supportive, and distracting story content units.
3. Adapted story versions deleted more distracting content units than expected.
4. One adapted version differed qualitatively from its original according to deletion of central and supportive content units.

Propositional Analysis

1. Original story versions contain similar patterns of proportions of predication, modification, and connection propositions.
2. Original story versions contain similar numbers of predication propositions per sentence.
3. Adapted versions differ from their original version according to predication propositions.

4. One adapted version differed from its original with respect to connection propositions, while the other adapted version differed from its original with respect to modification propositions.

5. Original and adapted versions contain similar numbers of predication propositions per sentence.

Cohesion Analysis
1. Original stories differ according to proportions of types of cohesive ties.

2. Original stories differ according to numbers of sentences containing types of ties.

3. Adapted versions differ from their original versions according to proportions of total cohesive ties.

4. Adapted versions do not differ from their original versions according to proportions of types of cohesive ties.

5. Adapted versions differ from their original versions according to numbers of sentences containing instances of reference and lexical ties.

Surface Feature Analysis
1. Original stories are similar in sentence complexity.

2. Original stories differ according to proportions of types of lexical items.
3. One adapted version differed from its original version according to sentence structure as measured by the deletion rate of subordinate clauses.

4. Adapted versions do not differ quantitatively but do differ qualitatively from their original versions according to lexical items.

Conclusions

The following conclusions are based on the quantitative and qualitative analyses of the data. The conclusions are limited to original and adapted story versions similar to those used in this study.

1. Different original stories, which are written at similar readability levels according to a formula, may contain similar compositions of semantic content and may share certain similarities in surface features but may vary considerably according to story structure and coherence.

2. Adapted story versions may have both similarities and important differences in story structures from the original stories on which they are based.

3. Story integrity, as indicated by the flow of events, may be maintained in adaptations of original stories.

4. Adapted story versions may be quite different in terms of semantic content, particularly richness of detail, from the original stories on which they are based.
5. Text analysis systems offer appropriate and reliable procedures for comparing different stories and different versions of the same story.

**Implications**

Results of this study have implications for readability assessment, adaptation of text, teacher use of text analysis systems, and research use of text analysis systems. These areas are discussed below.

The assessment of readability traditionally has included only surface variables occurring in text. If varying proportions of central, supportive, and distracting content units affect story comprehension, then these features should also be taken into account when judging the readability of a text. Also, if varying proportions of cohesive ties affect text processing, these features too must be accounted for.

In addition to theorists and practitioners interested in readability assessment, adaptors of text may benefit from the results of this study. If the differences pointed out between the original and adapted story versions are found to affect story interpretation or interest, adaptors may need to be conscientious of the results of changes made during the adaptation process. It may be necessary for adaptors to apply systems of text analysis to their revised stories in order to insure that certain changes have not affected some other features of the text.

Teachers may benefit from the results of this study in two ways. First, they may become more aware of characteristics of adapted story
versions which may affect story interpretation and interest. Second, teachers may consider learning some of the text analysis systems so that they can make more informed decisions pertaining to story selection, story instruction, and comprehension assessment. A specific example, relevant to story instruction, is the use of narrative analysis to revise basal reading lessons as described in Beck, Omanson, and McKeown (1982).

Finally, results of this study have implications regarding the use of text analysis systems for research purposes. Because procedures can be developed so that texts can be reliably analyzed, the systems may prove useful for further research in readability and story comprehension. Specifically, future studies which employ text analysis systems may provide more information related to text characteristics in general.

**Recommendations for Further Research**

Results from the present study indicate that further research in the following areas is merited:

1. Replications of this study with other original stories to determine similarities and differences in proportions of central, supportive, and distracting story content units.

2. Replications of this study with other original and adapted story versions to examine changes in adapted versions according to proportions of central, supportive, and distracting story content units.
3. Replications of this study with other original stories and other genres to determine if there are similar distributions of predication, modification, and connection propositions across narrative stories and other text types.

4. Replications of this study with other original and adapted story versions to determine if similar patterns exist for the deletion of modification propositions.

5. Investigations of the effects on reading comprehension of varying proportions of types of story content.

6. Investigations of the effects on reading comprehension of revising questioning to emphasize central content.

7. Investigations of the effects on interpretation of adapted story versions of story content deleted from original stories.

8. Investigations of the effects on reading comprehension of varying proportions of concept repetition and concept reference.

9. Investigations of the effects on reading comprehension of content complexity as measured by embeddings of different types of propositions.

10. Investigations of the effects on reading comprehension and interest of deletion of modification propositions.

11. Investigations of the effects on reading comprehension and interest of varying proportions of nouns, verbs, adjectives, and adverbs.
The day my son Laurie started kindergarten he renounced corduroy overalls with bibs and began wearing blue jeans with a belt; I watched him go off the first morning with the older girl next door, seeing clearly that an era of my life was ended, my sweet-voiced nursery-school tot replaced by a long-trousered, swaggering character who forgot to stop at the corner and wave good-bye to me.

He came home the same way, the front door slamming open, his cap on the floor, and the voice suddenly become raucous shouting, "Isn't anybody here?"

At lunch he spoke insolently to his father, spilled his baby sister's milk, and remarked that his teacher said we were not to take the name of the Lord in vain.

"How was school today?" I asked, elaborately casual.

"All right," he said.

"Did you learn anything?" his father asked.

Laurie regarded his father coldly. "I didn't learn nothing," he said.

"Anything," I said. "Didn't learn anything."
"The teacher spanked a boy, though," Laurie said, addressing his bread and butter. "For being fresh," he added, with his mouth full.

"What did he do?" I asked. "Who was it?"

Laurie thought. "It was Charles," he said. "He was fresh. The teacher spanked him and made him stand in a corner. He was awfully fresh."

"What did he do?" I asked again, but Laurie slid off his chair, took a cookie, and left, while his father was still saying, "See here young man."

The next day Laurie remarked at lunch, as soon as he sat down, "Well, Charles was bad again today." He grinned enormously and said, "Today Charles hit the teacher."

"Good heavens," I said, mindful of the Lord's name, "I suppose he got spanked again?"

"He sure did," Laurie said. "Look up," he said to his father.

"What?" his father said, looking up.

"Look down," Laurie said. "Look at my thumb. Gee, you're dumb." He began to laugh insanely.

"Why did Charles hit the teacher?" I asked quickly.

"Because she tried to make him color with red crayons," Laurie said. "Charles wanted to color with green crayons so he hit the teacher and she spanked him and said nobody play with Charles but everybody did."

The third day - it was Wednesday of the first week - Charles bounced a see-saw onto the head of a little girl and made her bleed, and
the teacher made him stay inside all during recess. Thursday, Charles had to stand in a corner during story-time because he kept pounding his feet on the floor. Friday, Charles was deprived of blackboard privileges because he threw chalk.

On Saturday, I remarked to my husband, "Do you think kindergarten is too unsettling for Laurie? All this toughness, and bad grammar, and this Charles boy sounds like such a bad influence."

"It'll be all right," my husband said reassuringly. "Bound to be people like Charles in the world. Might as well meet them now as later."

On Monday Laurie came home late, full of news. "Charles," he shouted as he came up the hill; I was waiting anxiously on the front steps. "Charles," Laurie yelled all the way up the hill, "Charles was bad again."

"Come right in," I said, as soon as he came close enough. "Lunch is waiting."

"You know what Charles did?" he demanded, following me through the door. "Charles yelled so in school they sent a boy in from first grade to tell the teacher she had to make Charles keep quiet, and so Charles had to stay after school. And so all the children stayed to watch him."

"What did he do?" I asked.

"He just sat there," Laurie said, climbing into his chair at the table.

"Hi, Pop, y'old dust mop."
"Charles had to stay after school today," I told my husband. "Everyone stayed with him."

"What does this Charles look like?" my husband asked Laurie. "What's his other name?"

"He's bigger than me," Laurie said. "And he doesn't have any rubbers and he doesn't ever wear a jacket."

Monday night was the first Parent-Teachers meeting, and only the fact that the baby had a cold kept me from going; I wanted passionately to meet Charles's mother. On Tuesday Laurie remarked suddenly, "Our teacher had a friend come to see her in school today."

"Charles's mother?" my husband and I asked simultaneously.

"Naah," Laurie said scornfully. "It was a man who came and made us do exercises, we had to touch our toes. Look." He climbed down from his chair and squatted down and touched his toes. "Like this," he said. He got solemnly back into his chair and said, picking up the fork, "Charles didn't even do exercises."

"That's fine," I said heartily. "Didn't Charles want to do exercises?"

"Naah," Laurie said. "Charles was so fresh to the teacher's friend he wasn't let do exercises."

"Fresh again?" I said.

"He kicked the teacher's friend," Laurie said. "The teacher's friend told Charles to touch his toes like I just did and Charles kicked him."
"What are they going to do about Charles, do you suppose?"

Laurie's father asked him.

Laurie shrugged elaborately. "Throw him out of school, I guess," he said.

Wednesday and Thursday were routine; Charles yelled during story hour and hit a boy in the stomach and made him cry. On Friday Charles stayed after school again and so did all the other children.

With the third week of kindergarten Charles was an institution in our family; the baby was being a Charles when she cried all afternoon; Laurie did a Charles when he filled his wagon full of mud and pulled it through the kitchen; even my husband, when he caught his elbow in the telephone cord and pulled telephone, ashtray, and a bowl of flowers off the table, said, after the first minute, "Looks like Charles."

During the third and fourth weeks it looked like a reformation in Charles; Laurie reported grimly at lunch on Thursday of the third week, "Charles was so good today the teacher gave him an apple."

"What?" I said, and my husband added warily, "You mean Charles?"

"Charles," Laurie said. "He passed out the crayons and he picked up the books afterward and the teacher said he was her helper."

"What happened?" I asked incredulously.

"He was her helper, that's all," Laurie said, and shrugged.

"Can this be true, about Charles?" I asked my husband that night. "Can something like this happen?"
"Wait and see," my husband said cynically. "When you've got a Charles to deal with, this may mean he's only plotting."

He seemed to be wrong. For over a week Charles was the teacher's helper; each day he handed things out and he picked things up; no one had to stay after school.

"The P.T.A. meeting's next week again," I told my husband one evening. "I'm going to find Charles's mother there."

"Ask her what happened to Charles," my husband said. "I'd like to know."

"I'd like to know myself," I said.

On Friday of that week things were back to normal.

"You know what Charles did today?" Laurie demanded at the lunch table, in a voice slightly awed. "He told a little girl to say a word and she said it and the teacher washed her mouth out with soap and Charles laughed."

"What word?" his father asked unwisely, and Laurie said, "I'll have to whisper it to you, it's so bad." He got down off his chair and went around to his father. His father bent his head down and Laurie whispered joyfully. His father's eyes widened.

"Did Charles tell the little girl to say that?" he asked respectfully.

"She said it twice," Laurie said. "Charles told her to say it twice."

"What happened to Charles?" my husband asked.

"Nothing," Laurie said. "He was passing out the crayons."
Monday morning Charles abandoned the little girl and said the evil word himself three or four times, getting his mouth washed out with soap each time. He also threw chalk.

My husband came to the door with me that evening as I set out for the P.T.A. meeting. "Invite her over for a cup of tea after the meeting," he said. "I want to get a look at her."

"If only she's there," I said prayerfully.

"She'll be there," my husband said. "I don't see how they could hold a P.T.A. meeting without Charles's mother."

At the meeting I sat restlessly, scanning each comfortable matronly face, trying to determine which one hid the secret of Charles. None of them looked to me haggard enough. No one stood up in the meeting and apologized for the way her son had been acting. No one mentioned Charles.

After the meeting I identified and sought out Laurie's kindergarten teacher. She had a plate with a cup of tea and a piece of chocolate cake; I had a plate with a cup of tea and a piece of marshmallow cake. We maneuvered up to one another cautiously, and smiled.

"I've been so anxious to meet you," I said. "I'm Laurie's mother."

"We're all so interested in Laurie."

"Well, he certainly likes kindergarten," I said. "He talks about it all the time."
"We had a little trouble adjusting, the first week or so," she said primly, "but now he's a fine little helper. With occasional lapses, of course."

"Laurie usually adjusts very quickly," I said. "I suppose this time it's Charles's influence."

"Charles?"

"Yes," I said laughing, "you must have your hands full in that kindergarten, with Charles."

"Charles?" she said. "We don't have any Charles in the kindergarten."
APPENDIX B

CHARLES
(Adapted Story (CA))

The day my son Laurie started kindergarten, he gave up his little-boy clothes and began wearing blue jeans with a belt. I watched him go off that first morning with the older girl next door, looking as though he were going off to a fight.

He came home the same way at lunchtime. "Isn't anybody here?" he yelled. At the table, he knocked over his little sister's milk.

"How was school today?" I asked.

"Did you learn anything?"

"I didn't learn nothing," he said.

"Anything," I said. "Didn't learn anything."

"But the teacher spanked a boy," Laurie said, "for being fresh."

"What did he do?" I asked. "Who was it?"

Laurie thought. "It was Charles," he said. "The teacher spanked him and made him stand in the corner. He was really fresh."

"What did he do?" I asked. But Laurie slid off his chair, took a cookie, and left.

The next day, Laurie remarked at lunch, "Charles was bad again today." He grinned. "Today Charles hit the teacher," he said.

"Good heavens," I said. "I suppose he got spanked again?"
"He sure did," Laurie said.

"Why did Charles hit the teacher?" I asked.

"Because she tried to make him color with red crayons. Charles wanted to color with green crayons, so he hit the teacher. She spanked him and said nobody play with Charles, but everybody did."

The third day, Charles bounced a seesaw onto the head of a little girl and made her bleed. The teacher made him stay inside during recess.

On Thursday, Charles had to stand in a corner, because he was pounding his feet on the floor during story time. Friday, Charles could not use the blackboard because he threw chalk.

On Saturday, I talked to my husband about it. "Do you think kindergarten is too disturbing for Laurie?" I asked him. "This Charles boy sounds like a bad influence."

"It will be all right," my husband said. "There are bound to be people like Charles in the world. He might as well meet them now as later."

On Monday, Laurie came home late. "Charles," he shouted, as he ran up to the house. "Charles was bad again!"

I let him in and helped him take off his coat.

"You know what Charles did?" he demanded. "Charles yelled so much that the teacher came in from first grade. She said our teacher had to keep Charles quiet. And so Charles had to stay after school, and all the children stayed to watch him."

"What did he do?" I asked.
"He just sat there," Laurie said, noticing his father. "Hi, Pop, you old dust mop."

"What does this Charles look like?" my husband asked. "What's his last name?"

"He's bigger than me," Laurie said. "And he doesn't wear a jacket."

I could hardly wait for the first Parent-Teachers meeting. I wanted very much to meet Charles's mother. The meeting was still a week away.

On Tuesday, Laurie said, "Our teacher had a friend come to see her in school today."

My husband and I said together, "Was it Charles's mother?"

"Naah," Laurie said. "It was a man who came and made us do exercises, like this." He jumped off his chair and touched his toes. Then he sat down again. "Charles didn't even do exercises."

"Didn't he want to?" I asked.

"Naah," Laurie said. "Charles was so fresh to the teacher's friend, they wouldn't let him do exercises."

"Fresh again?" I said.

"He kicked the teacher's friend," Laurie said. "The teacher's friend told Charles to touch his toes, and Charles kicked him."

"What do you think they'll do about Charles?" my husband asked.

"I don't know," Laurie said. "Throw him out of school, I guess."
Wednesday and Thursday were routine. Charles yelled during story time and hit a boy in the stomach and made him cry. On Friday, Charles stayed after school again, and so did all the other children.

On Monday of the third week, Laurie came home with another report. "You know what Charles did today?" he demanded. "He told a girl to say a word, and she said it. The teacher washed her mouth out with soap, and Charles laughed."

"What word?" his father said.

"It's so bad, I'll have to whisper it to you," Laurie said, and whispered into my husband's ear.

"Charles told the little girl to say that?" he said, his eyes widening.

"She said it twice," Laurie said. "Charles told her to say it twice."

"What happened to Charles?" my husband asked.

"Nothing," Laurie said. "He was passing out the crayons."

The next day, Charles said the evil word himself three or four times, and got his mouth washed out with soap each time. He also threw chalk.

My husband came to the door that night as I was leaving for the Parent-Teachers meeting. "Invite her over after the meeting," he said. "I want to get a look at the mother of that kid."

"I hope she's there," I said.

"She'll be there," my husband said. "How could they hold a Parent-Teachers meeting without Charles's mother?"
At the meeting I looked over the faces of all the other mothers. None of them looked unhappy enough to be the mother of Charles. No one stood up and apologized for the way her son had been acting. No one mentioned Charles.

After the meeting I found Laurie's teacher.

"I've been so anxious to meet you," I said. "I'm Laurie's mother."

"Oh, yes," she said. "We're all so interested in Laurie."

"He certainly likes kindergarten," I said. "He talks about it all the time."

"He's had some trouble getting used to school," she said, "but I think he'll be all right."

"Laurie usually adjusts quickly," I said. "I suppose his trouble might be from Charles's influence."

"Charles?" the teacher said.

"Yes," I said, laughing. "You must have your hands full with Charles."

"Charles?" she said. "We don't have any Charles in the kindergarten in our school."
At Denver there was an influx of passengers into the coaches on the eastbound B & M express. In one coach there sat a very pretty young woman dressed in elegant taste and surrounded by all the luxurious comforts of an experienced traveler. Among the newcomers were two young men, one of handsome presence with a bold, frank countenance and manner; the other a ruffled, glum-faced person, heavily built and roughly dressed. The two were handcuffed together.

As they passed down the aisle of the coach the only vacant seat offered was a reversed one facing the attractive young woman. Here the linked couple seated themselves. The young woman's glance fell upon them with a distant, swift disinterest; then with a lovely smile brightening her countenance and a tender pink tingeing her rounded cheeks, she held out a little gray-gloved hand. When she spoke, her voice, full, sweet and deliberate, proclaimed that its owner was accustomed to speak and be heard.

"Well, Mr. Easton, if you will make me speak first, I suppose I must. Don't you ever recognize old friends when you meet them in the West?"
The younger man roused himself sharply at the sound of her voice, seemed to struggle with a slight embarrassment which he threw off instantly, and then clasped her fingers with his left hand.

"It's Miss Fairchild," he said with a smile. "I'll ask you to excuse the other hand; it's otherwise engaged just at present."

He slightly raised his right hand, bound at the wrist by the shining "bracelet" to the left one of his companion. The glad look in the girl's eyes slowly changed to a bewildered horror. The glow faded from her cheeks. Her lips parted in a vague, relaxing distress. Easton, with a little laugh, as if amused, was about to speak again when the other forestalled him. The glum-faced man had been watching the girl's countenance with veiled glances from his keen, shrewd eyes.

"You'll excuse me for speaking, miss, but I see you're acquainted with the marshal here. If you'll ask him to speak a word for me when we get to the pen he'll do it, and it'll make things easier for me there. He's taking me to Leavenworth prison. It's seven years for counterfeiting."

"Oh!" said the girl, with a deep breath and returning color. "So that is what you are doing out here? A Marshal!"

"My dear Miss Fairchild," said Easton calmly. "I had to do something. Money has a way of taking wings unto itself, and you know it takes money to keep step with our crowd in Washington. I saw this opening in the West, and -- well, a marshalship isn't quite as high a position as that of ambassador, but --"
"The ambassador," said the girl warmly, "doesn't call any more. He needn't ever have done so. You ought to know that. And so now you are one of those dashing Western heroes, and you ride and shoot and go into all kinds of dangers. That's different from the Washington life. You have been missed from the old crowd."

The girl's eyes, fascinated, went back, widening a little, to rest upon the glittering handcuffs.

"Don't you worry about them, miss," said the other man. "All marshals handcuff themselves to their prisoners to keep them from getting away. Mr. Easton knows his business."

"Will we see you again soon in Washington?" asked the girl.

"Not soon, I think," said Easton. "My butterfly days are over, I fear."

"I love the West," said the girl, irrelevantly. Her eyes were shining softly. She looked away out the car window. She began to speak truly and simply, without the gloss of style and manner: "Momma and I spent the summer in Denver. She went home a week ago because father was slightly ill. I could live and be happy in the West. I think the air here agrees with me. Money isn't everything. But people always misunderstand things and remain stupid--"

"Say, Mr. Marshal," growled the glum-faced man. "This isn't quite fair. I'm needing a drink, and haven't had a smoke all day. Take me in the smoker now, won't you? I'm half dead for a pipe."

The bound travelers rose to their feet, Easton with the same slow smile on his face.
"I can't deny a petition for tobacco," he said lightly. "It's the one friend of the unfortunate. Good-bye, Miss Fairchild. Duty calls, you know." He held out his hand for a farewell.

"It's too bad you are not going East," she said, reclothing herself with manner and style. "But you must go on to Leavenworth, I suppose?"

"Yes," said Easton. "I must go on to Leavenworth."

The two men sidled down the aisle into the smoker.

Two passengers in a seat nearby had heard most of the conversation. Said one of them: "That Marshal's a good sort of chap. Some of these Western fellows are all right."

"Pretty young to hold an office like that, isn't he?" asked the other.

"Young!" exclaimed the first speaker. "Why -- Oh! didn't you catch on? Say -- did you ever know an officer to handcuff a prisoner to his right hand?"
HEARTS AND HANDS

(Adapted Story (HA))

Two men got on the train at Denver. One dressed well and looked young. The other had a sad face and looked as if he might be a cowboy. The two were handcuffed together.

They took seats, facing a pretty young woman. At first, the woman took a quick look at them. Then she looked again and smiled.

"Well, Mr. Easton. I suppose I must speak first," she said. "Don't you know old friends when you meet them in the West?"

The young man seemed to know her. He looked at her, trying to think of something to say. Then he smiled and took hold of her fingers with his left hand.

"It is good to see you, Miss Fairchild," he said, looking down at his other hand. "I would use my other hand. But as you can see, it is busy right now."

The glad look in the young woman's eyes changed. Her lips parted, as if she was about to speak again. But no words came.

"I hope you do not mind my speaking, miss," the man with the sad face said. "But I see that you know the marshal here. I wonder if you would ask him to say a word for me when we get to Leavenworth prison."
It might make things better for me there. I am going there for seven years."

"So that is what you are doing out here," the young woman said. "A marshal!"

"Miss Fairchild, I had to do something," Easton said. "Money just seemed to go right through my fingers. So I saw this opening in the West and took it. Being a marshal is not quite as high as that fellow who used to call on you, but ..."

"He has not called in a long time," the young woman said. "I never even wanted him to call. You should know that. All of us missed you. And now you ride and shoot and take chances with your life. Are you afraid?"

He said that he was not afraid, as the young woman's eyes moved back down to the two hands tied together.

"Do not think about them, miss," the other man said, laughing. "Mr. Easton sure knows how to handcuff a man. I do not have a chance of getting away."

"Will we see you again soon, Mr. Easton?" the young woman asked.

"I think not," he answered. "My days of good times and no work are over, I believe."

"Well, I love the West," the young woman said, looking out of the car window. "Mother and I were in Denver all summer. She went home a week ago. I could live and be happy in the West. Money isn't everything. I could learn ..."
"Say, Mr. Marshal," the man with the sad face said. "This is not quite fair. I have not had a smoke all day. Could you take me in the smoking car now?"

"I should let the poor fellow smoke," Easton said, standing and causing the other man to stand with him. "I hope I see you again sometime, Miss Fairchild."

"It is too bad that you are not going East," she said, taking his hand. "But you must go on to Leavenworth, I guess."

"Yes," said Easton. "I must go on to Leavenworth."

The two men walked away, while the girl watched with a sad look on her face.

Two men in a seat near her had heard most of what had been said. One of them said, "That Marshal was a nice fellow. Some of these Western fellows are all right."

"He was a very young marshal, wasn't he?" asked the other.

"Young!" said the first man. "Say, didn't you catch on? If you had watched them going to the smoking car, you would have seen that the old one with the sad face was wearing the guns."
APPENDIX E

PROCEDURES FOR NARRATIVE ANALYSIS
(Adapted from Omanson, 1982)

Introduction
The investigator will need copies of the Form NA (Figure 1) on which the analysis will be charted.

The analysis consists of four major steps:

Step 1: The text will be divided into content units.
Step 2: Each content unit will be classified as focal, characterizing, or identifying.
Step 3: Relations among focal units will be identified.
Step 4: Classifications of units (Step 2) and relations among focal units (Step 3) will be used to further classify content units as central, supportive, or distracting.

These four steps will be outlined more specifically below.

Procedures

Step 1. The text will be divided into content units.

Each content unit will be listed on a separate line under column C on the analysis form. Each content unit will then be numbered by placing a number under column A. If more than one line is needed in column C for a content unit, place a dash in column A in the line corresponding to the extra line in column C.
A content unit consists of an event or state contained within a major clause plus possible additional subordinate clauses.

The major clause contains a stated or implied grammatical subject and predicate.

Additional guidelines for Step 1. For a dialogue stem or a stem expressing thought or feeling, the stem will be considered as part of the preceding or following main clause with which the stem appears.

EX: I thought I heard someone coming. (one content unit)

"It's Miss Fairchild," he said, with a smile. (one content unit)

The following clauses will not be considered as separate content units, but they will be considered with the main clauses that they modify:

Relative clauses, with or without a relative pronoun.

EX: In one coach there sat a very pretty young woman dressed in elegant taste. (one content unit)

Subordinate clauses (i.e. clauses connected by if, as, when).

EX: As they passed down the aisle of the coach the only vacant seat offered was a reversed one facing the young woman. (one content unit)

Infinitives.

EX: "I'll ask you to excuse the other hand." (one content unit)

Participle phrases.
EX: There sat a young woman dressed in elegant taste. (one content unit)

Coordinating conjunctions (while, and, then) connect two separate content units. The conjunction itself is included with the unit which it immediately precedes.

EX: You ride and shoot. (two content units: 1=You ride; 2=and shoot.)

For dialogue, single comments (Oh, Yes, Hello, Good-bye, I don't know) are attached to the following dialogue or action.

EX: "Oh!" said the girl. "So, that is what you are doing out here?" (one content unit)

"Watch!" said Laurie. He reached for the cookie jar. (one content unit)

Elliptical dialogue statements will be considered as major clauses if they contain a grammatically implied subject or predicate.

EX: A cat. (one content unit = It is a cat.)

Elliptical dialogue statements that contain deictic terms (i.e. refer to action) are attached to the content unit representing the accompanying action -- whether the statement is made just prior to or immediately following the action.

EX: He touched his toes. "Like this," he said. (one content unit)

Note: It may be necessary to insert a generic content unit. This is a unit which summarizes several content units occurring in the text. More specific information regarding this can be found in Step 3: Componential Relations.
Step 2. Each content unit will be classified as **focal**, **characterizing**, or **identifying**.

Column D will be used to indicate whether a content unit is focal (F), characterizing (C), or identifying (I).

A **focal** unit represents what happens in the story.

EX: Here the linked couple seated themselves. (action)

"I see you're acquainted with the marshal here." (dialogue used to advance action)

A **characterizing** unit represents what exists in the story. It can consist of descriptions of characters and settings, expansion of events, and clarification of previously depicted or yet to come events.

EX: At Denver there was an influx of passengers into the coaches on the eastbound B&M express.

An **identifying** unit is a content unit in which a major character is introduced. This is the first content unit in which a specific reference to a character is made.

EX: In one coach there sat a very pretty young woman.

First, mark all identifying units. (Place an I in column D.)

Second, use the following guidelines whether the other content units are focal or characterizing.

**No dialogue.** For content units which have as the main verb a verb which is not the stem of dialogue or for content units which contain no dialogue:

If the verb is in past tense and is of perfective aspect, then mark as focal.
EX: The younger man roused himself.

John read a book.

(Aspect is a way of viewing the internal temporal constituency of a situation. (Comrie, 1976) Perfective indicates a completed action. There is no reference to the internal temporal structure of an action. Imperfective, on the other hand, indicates a situation in progress. There is reference to the internal temporal situation.

EX: John read a book. (perfective)

John was reading a book. (imperfective))

If the verb is in the passive, the content unit should be rephrased (not recorded) in active voice to decide if perfective.

EXCEPTION: If verb is past tense-perfective aspect but is giving information about a character, the content unit will be classified as characterizing unless the unit furthers the action by causing a response from a character.

EX: The young man smiled cunningly. (characterizing)

Dialogue. For content units which consist entirely of dialogue or content units in which the main verb is a dialogue stem:

If the dialogue, consisting of multiple statements by one character, advances the action of the story, the first statement that indicates the purpose of the dialogue for advancing the action will be classified as focal. Other statements that lead
up to that statement or that follow and expand on that statement will be considered as characterizing.

EX: 1. "Well, Mr. Easton, if you will make me speak first I suppose I must. (characterizing)

   2. Don't you ever recognize old friends when you meet them in the West?" (focal)

   (The purpose is to get him to recognize her therefore 2 is focal while 1 is characterizing because it leads up to 2.)

   (Action is furthered if the dialogue causes or enables, either directly or indirectly, other action.)

If the dialogue, consisting of multiple statements by one character, provides extra information about the action or state but itself does not further action, the content unit will be classified as characterizing.

EX: 1. "I see you're acquainted with the marshal here. (focal)

   2. If you'll ask him to speak a word for me..." (characterizing)

   (1 further the action in that the speaker is telling the young woman that Mr. Easton is the marshal rather than the prisoner. 2 is just adding further support the 1 therefore 2 is characterizing.)

If the dialogue accompanies an event, but is a separate content unit containing dialogue, the content unit will be classified as characterizing.
EX: 1. He clasped her fingers with his left hand. (focal)

   2. "It's Miss Fairchild," he said, with a smile. (characterizing)

If the dialogue refers to past events which occurred before the setting of the story, the content unit will be classified as characterizing.

EX: "Mamma and I spent the summer in Denver." (characterizing)

If the dialogue reports events which occur during the story setting, the content unit will be classified as focal and rules for No dialogue will apply.

EX: Johnny said, "Bill failed his test today." (The story setting includes from this morning until next week.)

Repetitions of an event, through dialogue or paraphrase, are considered as characterizing units.

EX: "So that is what you are doing out here?" (characterizing)

   "You're a marshal." (focal)

(As is illustrated here, the repetition can precede the focal unit. The one with the more complete information will be labeled focal. If repetition is same, the one which advances action will be marked focal.)

Questions that bring about action or a response that furthers immediate action will be classified as focal. (Immediate refers to current setting though not necessarily the next content unit.)
EX: "Pretty young to hold an office like that, isn't he?" asked the other. (focal)

"Young! Why ... Oh! didn't you catch on? (focal)

Say ... did you ever know an officer to handcuff a prisoner to his right hand?" (focal)

Questions that do not advance action are classified as characterizing.

EX: "Do you know what I did today? (characterizing)

I lost my lunch." (focal)

(Because speaker did not wait for a response, the question did not bring about further action.)

Responses to questions will be classified as focal if the response causes another question to be asked or results in an action that furthers the immediate story action.

EX: "How was work today?" (focal)

"OK." (focal)

"OK? Didn't you sell any stocks today?" (focal)

He immediately stormed out of the room. (focal)

If the dialogue is also represented by a generic unit which has been labeled as focal, that content unit containing the dialogue will be labeled as focal.

EX: Susie tried to start an argument. (focal)

She asked, "Didn't you sell any stocks today? (focal)

Did you forget to pick up the cleaning?" (focal)

Note: To decide whether dialogue advances action, the investigator will determine whether the action would have continued if the dialogue had been omitted.
Step 3. Relations among focal units will be identified.

Relational connections among focal units will be charted in columns E through I on the analysis form. Characterizing and identifying units will be ignored during this step.

Relations among focal units consist of five types:

- componential (Column E)
- purposeful (Column F)
- causal (Column G)
- disruptive (Column H)
- enabling (Column I)

**Componential relations** are relations that connect focal units that are part of a single complex event. A complex event is an event made up of a sequence of events. If an event is determined to be a component of a complex event the number of the content unit which represents the complex or summary event is placed in column E beside the component unit. If the complex or summary event is not directly stated in the text, the investigator may need to supply a content unit that represents the complex event. If so, the new content unit should be inserted just prior to its component units and numbered as M-#, so that the first summary unit to be inserted will be numbered M-1, the second M-2, etc. Any content unit that is inserted in this manner should be placed in parentheses in column C.
EX: M-1 (He started the car.)

1. He put the key in the ignition.
2. He pressed the accelerator.
3. He turned the key.

In order to decide whether a componential relationship exists among focal units, it must first be determined whether a complex event exists. A complex event can be one of three types of sequences:

- **typical**
- **generalizable**
- **extended dialogue and thought**

A **typical sequence** consists of events and states that enable each other and can be replaced by a single event or state. The component events can also depict an event or state occurring or existing within a single spatial setting.

EX: 1. She turned off the engine,
2. opened the door,
3. walked up the walk,
4. and went inside.

(1, 2, 3 are components of 4)

A **generalizable sequence** is a sequence in which the component events can be replaced by a generic term.
Extended dialogue and thought consists of one or more content units expressed as dialogue or thought of one character which represent a single action. The content units expressed as dialogue or thought are connected by componential relations. The unit which best illustrates the intent of the dialogue will be considered the summary component.

EX: 1. "Say, Mr. Marshal. This isn't quite fair..."  
2. Take me in the smoker now, won't you?"  
(1 is a component of 2; 2 states the intent of the dialogue.)

Purposeful relations that connect focal units are recorded in column F. A purposeful relation consists of an "in order to" or "so that" relation that exists between a focal unit which represents a voluntary action and a focal unit which represents a subsequent event or state. The voluntary action occurs "in order to" or "so that" the subsequent event or state will occur; therefore, a focal unit is considered to be purposeful if it represents an action which is performed in order to bring about something in the text. If a focal unit is determined as purposeful, then the number of the focal unit which represents the intended subsequent outcome will be placed under column F on the line of the purposeful focal unit.
EX: 1. She said, "Don't you ever recognize old friends when you meet them in the West?"

2. ...and then he clasped her fingers with his left.

(The purpose of 1 is to get him to recognize her which he does as is illustrated in 2.)

Note: A purposeful relation cannot exist between focal units which are components of separate complex events. The relations exists only between the focal unit representing the purposeful action and the summary component of the complex event. (This will also be true for causal, disruptive, and enabling relations.)

Causal relations that connect focal units are recorded in column G. A causal relation consists of a relation that connects events and states that are caused or prompted by prior events or states. A focal unit is considered to be causal through the examination of subsequent content units. For each content unit that has been classified as focal, the investigator will determine whether anything in the text could have caused that event or state. If another focal unit is identified as a prior cause it is labeled as causal, and the number of the focal unit representing the prior cause is placed in column G on the line of the focal unit that it has caused.
EX: 1. Here the linked couple seated themselves.

2. The young woman's glance fell upon them.

(The couple's seating of themselves caused the young woman to glance at them.)

Note: A causal relation does not have to be physical, i.e., prior events and states mechanically cause other events and states. Causal relations may also be psychological (prior states and events cause psychological states and involuntary actions) or motivational (events and states cause voluntary actions).

As a missing summary component is supplied for a componential relation, a missing cause is supplied for causal relations. A missing cause is supplied if an event or state is depicted that typically is physically or psychologically caused but the cause is not depicted. If a motivational cause is not depicted, the missing cause is not supplied. Any missing cause which is supplied will be numbered as M-# as a part of the same sequence of other supplied content units.

As an additional aid in determining causal relations, the investigator will consider that the following are seldom considered causes:

- emotions
- plans, goals, desires
- events and states described by character's speech and thought
The cause of an emotion is considered to be the cause of action following the emotion; therefore, the cause of the emotion is considered to be the cause of the subsequent action.

EX: 1. The alarm sounded
2. The child became frightened.
3. The child began to scream.
(The sounding of the alarm is considered to be the cause of the child's screaming.)

Plans, goals, desires are not considered as causes if the purpose expressed by them is expressed by the description of a subsequent action or by a subsequent purposeful relation.

EX: 1. Alice decided to go to a movie.
2. On the way she had an accident,
3. and her car was totaled.
(The accident is the cause of the car's being totaled - not her decision to go to the movies.)

An event or state described by a character in speech or thought is not considered as a cause if the described event or state is depicted in the text in its own right. The exception to this is when a character interprets the event to be something it is not.
EX: 1. Footsteps sounded on the sidewalk.
3. John ran to the closet.

(John ran because he heard the footsteps - not because of her announcement.)

A causal relation cannot exist between focal units which are components of separate complex events. The relation exists only between the focal units representing summary components of complex events. (This is also true for purposeful, disruptive, and enabling relations.)

**Disruptive relations** that connect focal units are recorded in column H. Disruptive relations are relations which involve a foiling of an action or prevention of a purpose from being attained. Disruptive relations connect focal units representing voluntary actions and focal units representing subsequent events or states that disrupt the voluntary action's execution or prevent the voluntary action's purpose from being attained. For each focal unit which represents voluntary action, the investigator will determine whether there is a subsequent event or state that causes this action to foil or that prevents this action's purpose from being attained. On the analysis form, the number of the focal unit which represents the subsequent event or state which disrupts the voluntary action will be placed in column H on the line of the focal unit representing the voluntary action which is disrupted.
EX: 1. The glad look in the girl's eyes slowly changed to a bewildered horror.

2. "I see you're acquainted with the marshal here."

(The other man relieved the girl's horror by allowing her to believe her friend is the marshal.)

Enabling relations that connect focal units are recorded in column 1. Enabling relations are relations which involve the physical allowing or enabling of an event or state to occur or exist. Enabling relations connect events and states with prior ones by which they are enabled but not directly caused. For each focal unit, the investigator will determine whether there is a prior event or state that is not a cause, yet still allows or enables the event or state represented by the present focal unit to occur or exist. If a focal unit is identified as enabling, the number of the prior enablement is placed in column 1 on the line of the focal unit representing the event or state which it enables.
EX: 1. Two passengers in a seat nearby had heard most of the conversation.

2. Said one of them: "That marshal's a good sort of chap."

(1 enables 2; the two men's sitting nearby enables one man to conclude that the marshal is a good man.)

An enabling relation or disruptive relation cannot exist between focal units which are components of separate complex events. The relation exists only between the focal units representing summary components of complex events. (This is also true for purposeful and causal relations.)

Step 4. Classifications of units (Step 2) and relations among focal units (Step 3) will be used to further classify content units as central, supportive, or distracting.

Column B will be used to label content units as central, supportive, or distracting. Content units will be classified in the following order: 1. Central, 2. Supportive, 3. Distracting.

Classification of units as central. Only those content units that were previously classified as identifying (I) or focal (F) in column D can be classified as central.

First, the investigator will classify all identifying (I) units as central. The word central should be entered in column B next to those units.
Second, the investigator will classify focal units as central by beginning with the final focal unit in the text and working backwards towards the beginning of the story. The investigator will begin the classification with the final focal unit that is not a component of another unit. (The final focal unit that does not have an entry in column E will be the starting point for the analysis.) From this unit, the purposeful-causal flow of events and states is followed to the beginning of the narrative.

Each focal unit which is labeled as central will be called an old unit. After labeling the final focal unit as central, the investigator will follow this procedure in the exact order presented:

1. If the content unit already identified as central is the purpose of any other content unit, these content units are classified as central and the procedure is begun again at those units. If the old unit is not the purpose of any other content unit, then the investigator will continue this procedure with 2. (To determine whether the old unit is the purpose of any other content unit, the investigator will look for the number of the old unit in column F.)

2. Any unit that caused any old unit is classified as central. To determine whether prior causes exist, the investigator will look in column G on the line of the old unit. If a number is listed, the investigator will classify that content unit as central. At the same time, the investigator will look in column H to determine whether any
content unit is disrupted by the old unit. This will be determined by looking for the number of the old unit in this column. Any content unit that is disrupted by an old unit is classified as central. For each unit classified as central, either through causal or disruptive relations, will now be considered old units; therefore, the procedure will start at 1 again for each of these old units. If no causal or disruptive relations exists for an old unit, the procedure is continued with 3.

3. Any content unit that enables the old unit is classified as central. To determine whether a content unit enables the old unit, the investigator will look in column I on the line of the old unit. If a number is listed, the investigator will classify that content unit as central. For each content unit classified as central, the procedure will begin again at 1. If no enabling relations exist for an old unit, the procedure is continued with 4.

4. The next preceding focal unit is classified as central that is not a component of a complex event, i.e. no number will be in column E. The procedure will then begin again for this unit at 1.

(Note: If a component of a complex event is classified as central, then the summary component is also classified as central. The exception to this is extended dialogue and thought. Here a judgment is made as to which specific components are causes. Then procedure is begun again at 1 from the summary component.)
Classification of units as supportive. Supportive units are those content units which expand, repeat, or further describe content represented by units labeled as central.

Supportive units can be either characterizing (C) or focal (F).

Specifically: Content units will be classified as supportive according to the following guidelines:

1. Characterizing units which describe the main characters or the setting of central or supportive units will be classified as supportive.

2. Focal units which depict event sequences, i.e. events and states that cause or enable them, that enable central or other supportive units will be classified as supportive.

3. Focal units which depict psychological states and events that are caused by central or supportive units and that do not prompt subsequent action will be classified as supportive.

4. Focal units which depict speech and thought whose content describe central or supportive content, its causes, or its purposes will be classified as supportive.

5. Focal units which depict content connected to central or supportive content by componential relations will be classified as supportive.

6. The following will be classified as supportive whether classified in column D as characterizing or focal:
a. dialogue or thought of speaker if in first person which accompanies (spoken by same character) a central unit. Exception: If the accompanying dialogue refers to past events which occur prior to the setting of the story, the dialogue is classified as distracting.

b. dialogue that asks a question which is answered by a central unit, or that is answered by a supportive unit which in turn accompanies a central unit.

c. dialogue which is used for repetition of a central unit.

d. dialogue which answers a central unit.

Classification of units as distracting. Distracting units are those content units which do not expand, repeat, or describe content represented by central units. (Those content units not previously classified as central or supportive will be labeled as distracting.)

Distracting units can be characterizing (C), or focal (F).

Specifically: Content units will be classified as distracting according to the following guidelines:

1. Characterizing units which introduce or describe minor characters or the setting of other distracting content will be classified as distracting.

2. Focal units which depict event sequences that do not involve main characters will be classified as distracting.

3. Focal units which depict event sequences that interrupt central event sequences will be classified as distracting.
4. Focal units which depict event sequences that enable other distracting content will be classified as distracting.

5. Focal units which depict speech and thought whose content describes other distracting content, its causes, or its purposes will be classified as distracting.

6. Focal units which depict content connected to other distracting content by componential relations will be classified as distracting.

7. The following will be classified as distracting whether classified in column D as characterizing or focal:
   a. dialogue which refers to past events which occurred prior to the story setting even though dialogue may accompany a central unit.
   b. dialogue that does not accompany a central unit.
<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
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<th>H</th>
<th>I</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content Unit</td>
<td>Centrality</td>
<td>Text Divided Into Content Units</td>
<td>Type</td>
<td>Componential: Summary Component</td>
<td>Purposeful: Intended Subsequent Outcome</td>
<td>Causal: Prior Cause(s)</td>
<td>Disruptive: Subsequent Disruptions</td>
<td>Enabling: Prior Enables</td>
</tr>
</tbody>
</table>

Figure 1. Form NA
APPENDIX F

PROCEDURES FOR PROPOSITIONAL ANALYSIS
(Adapted from Turner and Greene, 1977)

1. Introduction

Propositional analysis provides a way of determining the "conceptual meanings underlying the text...a method for describing the text in terms of its semantic content." The system presented is meant to be used to express the semantic content of the text and to represent the cohesive ties existing in the text. "Information which is solely syntactic, with the exception of cohesive ties, is not represented in the propositional text base."

"The meaning of a text is assumed to be represented by a list of connected propositions. This proposition list is called a text base. Propositions are n-tuples of word concepts, one serving as a relation, the others as arguments of the proposition. Propositions are idea units, each one representing a single idea."

Propositions consist of abstract word concepts. These may be represented by one or more words in the surface structure. Word concepts are written in capital letters in the proposition. Words which are chosen to represent the concept are tokens for the abstract concept. The abstract concept may be represented by a number of words in a given language. Since the word concepts do not always map directly onto a one-word token, at times the token of the concept in the proposition will consist of several words.

2. Propositions

The propositions themselves consist of two or more word concepts, such that the first is a relation, the others arguments.
The relation is a connection between a set of arguments forming a single idea. Propositions have been classified into three distinct classes, based on the type of relation they contain: Predication, Modification, and Connection. Each class of propositions has certain constraints as to what kind of arguments may be taken by the relation in forming a proposition.

Predicate propositions express ideas of actions or states. The relations include verbs, nominal propositions, and the cohesive items of reference, substitution, ellipsis, and lexical cohesion.

Modifier propositions change a concept by restricting it or limiting it by means of another concept. Negation is included as a modification of a concept also.

3. Guidelines for Constructing Propositions

Propositions are representations of conceptual units. Each one consists of a relation and a number of arguments. The relation and its arguments are abstract word concepts, not to be confused with the actual words used in a given text. The concepts may be represented by one or more words.

Several conventions have been adopted for writing propositions. The relation and arguments are written in capitalized letters to indicate that they are word concepts, not individual words. The relation is written first in the proposition, followed by the arguments in the order specified by the constraints of the given relation. These are separated from each other by commas. The entire proposition is enclosed in parentheses.

EX: (RELATION, ARGUMENT1, ARGUMENT2)

The relation is the pivotal concept in the proposition. It connects its arguments in such a way that a single idea results. The idea may be compound or complex. That is, other ideas may be embedded in the proposition as arguments. Relations fall into three major classes: Predication, Modification, and Connection. It is possible to classify propositions on the basis of the type of relation they are expressing.

The arguments of a proposition are constrained by the relation. Certain semantic requirements must be met before a word is acceptable for a particular argument of a relation. Some of these constraints are dictates of an individual's world knowledge. Other constraints are caused by the nature of the relationship.
Many of these constraints are listed below in the appropriate sections.

3.1 Predication

Predicate relations express an action or a state. Three general types of predicates are verbs, nominals, and cohesive ties.

3.1.1 Verbs

For relations which are expressed by verbs, the proposition will be labeled PRED followed by a colon and the specific verb concept.

EX:  S.1 John went to town.

P.1 (PRED: GO, A: JOHN, G: TOWN)

When a relation is a verb, its arguments fill particular "cases". Each case holds a particular semantic relationship to the action or state specified by the verb relation.

Fillmore's theory of case grammar identifies the following categories of cases:

1. **Agent (A)** - typically animate instigator of the state or action identified by the verb.

2. **Experiencer (E)** - experiencer of psychological event.

3. **Instrument (I)** - typically inanimate stimulus of an experience, a force or object causally involved in the state or action identified by the verb.

4. **Object (O)** - object of an action which undergoes change or movement.

5. **Source (S)** - source of state or action identified by the verb.

6. **Goal (G)** - result or goal of state or action identified by the verb.
Case relations are represented by category symbols (e.g. A: or O:) which will be used throughout the remainder of this work. Each symbol can occur only once in a simple sentence, although compound instances of a single case may be permitted through conjunction (my term for this is coordination). In the sentence:

S.2 Beth hit the ball with a bat.
P.1 (PRED: HIT, A: BETH, I: BAT, O: BALL)

each argument assumes a different semantic role, as designated by its case marker. Beth is the agent, bat is the instrument, and ball is the object.

The general form then for the predicate proposition is

(PRED: ____, C1,C2,Cn)

where C1,C2...Cn are arguments which hold a particular semantic case relationships with the relation.

If a verb requires the presence of a certain case, but it is absent in the surface structure of the sentence, then an empty case marker ($) must fill the case position in the proposition. This is often the situation when a noun phrase which would normally fill that case can be inferred from contextual information.

EX: S.3 The message was received.
P.1 (PRED: RECEIVE, A: $, O: MESSAGE)

The verb receive requires the presence of an agent, someone to receive the object. Since the case is empty here, an empty case marker is used to fill the slot.

It must be emphasized that the cases used in a propositional analysis of discourse are semantic cases, not syntactic cases. Each case assumes a certain semantic relation to the predicate that it follows.

EX: S.4 The door opened.
P.1 (PRED: OPEN, A: $, O: DOOR)

A syntactic analysis of this sentence would suggest that the noun door is the subject of the sentence. Semantic case grammar specifies an object as an entity that undergoes change as the result of an action. Therefore the semantic case of door in this sentence is the object case.
Use of "HAVE" and "BE"

The verbs have and be when used as auxiliaries to mark tense are not represented in the propositional text base. Thus, the proposition (PRED: GO, A: SALLY, G: TOWN) can take the following forms in the text:

- Sally goes to town.
- Sally is going to town.
- Sally went to town.
- Sally had gone to town.

When have represents the semantic concept of possession, it is propositionalized this way:

EX: S.4a Sally has a hat.

P.1 (POSSESS, HAT, SALLY)

S.4b The cat has whiskers.

P.1 (PART OF, WHISKERS, CAT)

Be can represent the semantic concepts of group membership and qualification.

EX: S.4c John is a cowboy.

P.1 (IS A, JOHN, COWBOY)

S.4d John is fat.

P.1 (QUALITY OF, JOHN, FAT)

Have and be should be examined carefully to determine what content they represent before propositionalization is attempted.
Special Verbs

Dialogue - An exception to the use of the label PRED is the occurrence of dialogue. Dialogue will be labeled DIAL followed by a colon and the stem used.

EX: S.5 "Sally hit the ball," said John.
   P.1 (PRED: HIT, A: SALLY, O: BALL)
   P.2 (DIAL: SAID, A: JOHN, O: 1)

If dialogue is indicated through the use of quotation marks, but no stem is present, then DIAL: will be followed by ϕ.

EX: S.6 "Sally hit the ball."
   P.1 (PRED: HIT, A: SALLY, O: BALL)
   P.2 (DIAL: ϕ, 1)

Interjections - Interjections are included here because they usually occur in dialogue. Interjections will be labeled INJ followed by a colon and the word.

EX: S.6b "Oh!" cried Sally.
   P.1 (INT: Oh)
   P.2 (DIAL: CRY, A: SALLY, O: P1)

Questions - Another exception to the use of the label PRED is the occurrence of a question. Questions are most often found in dialogue. Questions take the propositional form

(QUEST, A1) or (QUEST:____, A1)

where A1 indicated the embedded proposition which is changed to question form.
EX: S.7 Did John see Sally?
P.1 (PRED: SEE, A: JOHN, O: SALLY)
P.2 (QUEST, 1)

Variations include tag question, why questions, and how questions. These question forms take the form of (QUEST: TAG (or WHY or HOW), A).

EX: S.8 John saw Sally, didn't he?
P.1 (PRED: SEE, A: JOHN, O: SALLY)
P.2 (QUEST: TAG, 1)

3.1.3 Cohesive Propositions

Cohesion in text essentially is the way the text "hangs together." Cohesion is created through the use of cohesive ties. A cohesive tie exists when something in the text can only be interpreted by means of something else in the text.

EX: S.10 John found Sally at the store.
S.11 He wanted to tell her some news.

He and her can only be interpreted by referring to the previous sentence. The cohesive items included under predication are the relations of reference, lexical cohesion, ellipsis, and substitution.

Reference

A referential proposition is one which states that a referent of one argument is the same as that of the second argument. Propositions of reference frequently are implied propositions. Pronouns are a common example of this type of proposition. Reference propositions take the form:

(REF, A1, A2)
where $A_1$ and $A_2$ are different expressions for the same entity.

EX: S.12 John saw Sally.
    S.13 He waved to her.
    P.1 (PRED: SEE, A: JOHN, 0: SALLY)
    P.2 (REF, JOHN, HE)
    P.3 (REF, SALLY, HER)
    P.4 (PRED: WAVE, A: 2, 0:3)

Possessive pronouns are treated similarly.

EX: S.14 John saw Sally.
    S.15 He caught her arm.
    (REF, SALLY, HER)

Other items of reference are included in Table 11.

**Cataphora** - If, in order to interpret a pronoun, the succeeding text is used, then the proposition takes the form:

$$\text{(REF, K-S.#, PRONOUN)}$$

where $K$ indicates cataphoric reference.

**First person narratives** - For stories told in first person, the proposition representing the first "I" will be written:

$$\text{(REF, "NARRATOR", I)}$$

**THE** - The definite article is treated as a reference item if it accompanies a noun which has a referent previously mentioned in the text. Propositions which include the reference THE take the following form:

$$\text{(REF: THE, A1, A2)}$$
where $A_1$ indicates the location of the previous occurrence of the referent and $A_2$ indicates the present concept.

**EX:**

S.16 John saw a cat.

S.17 The cat followed John.

P.1 $\text{(PRED: SEE, A: JOHN, O: CAT)}$

P.2 $\text{(REF: THE, S.1, CAT)}$

Note - For running text, the practice of referring to a previous proposition number or sentence number is more efficient than referring to concepts. This allows for the later establishment of cohesive chains. A proposition number should be used where possible. If no separate proposition exists for a referent, then a sentence number will suffice.

**EX:**

S.18 John saw a cat.

S.19 The cat licked his paws.

P.1 $\text{(PRED: SEE, A: JOHN, O: CAT)}$

P.2 $\text{(REF: THE, S.1, CAT)}$

P.3 $\text{(REF, 2, HIS)}$

**Lexical Cohesion**

Lexical cohesion occurs when the same word or synonym is used to represent a previously mentioned concept. The form for a lexical cohesion proposition is:

$(\text{LEX, } A_1, A_2)$

where $A_1$ represents the location of previously mentioned concept and $A_2$ represents the reoccurrence or synonym of that concept.
EX:  (LEX, S.18, CAT)

EX:  S.20 Sally bought a house.
S.21 The young woman wanted a garden.
       (LEX, SALLY, YOUNG WOMAN)

Note - A noun phrase can have two or more cohesive ties with
the previous text. The complete proposition list for
Sentences 18 and 19 follows:

Ex:  P.1 (PRED: SEE, A: JOHN, O: CAT)
     P.2 (REF: THE, S.18, CAT)
     P.3 (LEX, S.18, CAT)
     P.4 (REF, 3, HIS)
     P.5 (POSSESS, PAWS, 4)
     P.6 (PRED: LICK, A: 3, O: 5)

Note - Rather than repeating word concepts, the number of the
proposition in which these concepts are illustrated are used.
This is especially efficient for more complex embedding.

Ellipsis
Ellipsis occurs when the structure of a sentence is maintained
but content is deleted. That content is recoverable because
of the sentence structure. Ellipsis propositions take the
form:
       (ELLIP, A1, A2)
where A1 indicates the location of the recoverable content and
A2 indicates the word which marks the deleted content.
EX: S.22 Did he lose his dog?
S.23 He did.
(ELLIP, S.22, DID-)

Substitution
Substitution propositions are similar to ellipsis with the difference being that a word is inserted as a placeholder of the deleted content. Substitution propositions take the form:

(SUB, A1, A1)

where A1 indicates the location of the recoverable content and A2 represents the placeholder word.

EX: S.24 I'll have eggs.
S.25 I want the same.
(SUB, S.24, SAME)

Table 11 includes words which may be used as placeholders.

3.2 Modification

"Relations of modification express various forms of restrictions or limitations of one concept by another. Four types of modification are: Qualifiers, Quantifiers, Partitives, and Negatives." Modification propositions take the form:

(RELATION, A1, A2)

where A1 represents the argument or proposition to be modified and A2 indicates the way in which A2 is modified.

3.2.1 Qualifiers

"Qualifier propositions limit or restrict the scope of an argument or proposition by expressing a quality or attribute
There are two types of qualifier propositions: QUALIFY and QUALITY OF. QUALIFY propositions limit the scope of an argument or proposition. QUALITY OF propositions indicate an attribute of an argument or proposition.

**EX:**

- the black cat
  - P.1 (QUALITY OF, CAT, BLACK)
- the very black cat
  - P.1 (QUALIFY, BLACK, VERY)
  - P.2 (QUALITY OF, CAT, 1)
- S.26 Jane sang terribly.
  - P.1 (PRED: SING, A: JANE)
  - P.2 (QUALIFY, 1, TERRIBLY)
- S.27 Jane must sing.
  - P.1 (PRED: SING, A: JANE)
  - P.2 (QUALIFY, 1, NECESSARY)

### 3.2.2 Quantifiers

Quantifier propositions include NUMBER OF and EXTENT OF propositions. NUMBER OF can be used to represent both precise and imprecise numbers.

**EX:**

- two men
  - (NUMBER OF, MEN, TWO)
- all men
  - (NUMBER OF, MEN, ALL)
- a long distance
  - (EXTENT OF, DISTANCE, LONG)
3.2.3 **Partitives**

Partitive propositions express part/whole relationships. Partitives include PART OF and SOME OF propositions.

**EX:** the car window

(PART OF, CAR, WINDOW)

3.2.4 **Negatives**

Negatives express the denial of truth of a proposition. Negative propositions take the form:

(NEG, A1)

where A1 indicates the proposition to be negated. A1 is always an entire proposition.

**EX:** S.28 John does not play the piano.

P.1 (PRED: PLAY, A: JOHN, O: PIANO)

P.2 (NEG, 1)

3.2.5 **Quasi-Modification**

Quasi-modifiers include propositions which indicate time and location of arguments or propositions.

**Time** - A proposition of time relates an event or occurrence to a temporal reference. The reference may be another event or occurrence, or it may be a specific point in time such as a date or pseudo-date (yesterday). The reference time may also be unspecified (sometime, often). These propositions take the form:

(TIME, A1, A2)
where A1 is the argument or proposition being placed in temporal reference and A2 indicates the time.

**Location** - Locative propositions are used to place objects or events into a spatial framework. They take the form:

\[(\text{LOC}, A1, A2)\]

where A1 is the argument or proposition being placed in the spatial framework and A2 is the location.

**EX:** S.29 John saw Sally today at the park.

P.1 (PRED: SEE, A: JOHN, O: SALLY)

P.2 (TIME, 1, TODAY)

P.3 (LOC, 2, PARK)

3.3 **Connection**

Connectives relate arguments or propositions in text to each other. For the purposes of this analysis, there will be two categories of connectives: CONJUNCTION and COORDINATION. Connectives take the form:

\[(\text{CONJ:} \_\_\_, A1, A2)\]

\[(\text{COORD:} \_\_\_, A1, A2)\]

where A1 is the first argument or proposition occurring in the text and A2 is the argument or proposition which is connected to the first. The blank is to be filled with the word indicating the relation in the surface structure.
3.3.1 Conjunction

Conjunctives are connectives between whole sentences. For the purposes of this analysis only connectives which are present in the text itself will be marked as conjunctives. Conjunctives include adverbs, adverbial phrases, and conjunctions.

EX:  S.30  I want to go to the movie.
     S.31  Yet I do not have any money.
           (CONJ: YET, S.30, S.31)
     S.32  We flew to Denver.
     S.33  Then we caught a train.
           (CONJ: THEN, S.32, S.33)

3.3.2 Coordination

Coordinate propositions are connectives which occur within sentences. They can connect single concepts or whole propositions.

EX:  S.34  Mary and Jane went to the movies.
     P.1   (COORD: AND, MARY, JANE)
     P.2   (PRED: GO, A: 1, G: MOVIE)
     S.35  Mary caught a plane and flew home.
     P.1   (PRED: CATCH, A: MARY, O: PLANE)
     P.2   (PRED: FLY, A: MARY, G: HOME)
     P.3   (COORD: AND, 1, 2)

Coordinates do not require a word in the surface structure to express connection. Connection can be illustrated through punctuation or other syntactic function words.
EX: S.36 John called to Sally, laughing constantly.

P.1 (PRED: LAUGH, *A: JOHN)

P.2 (QUALIFY, 1, CONSTANTLY)

P.3 (PRED: CALL, A: JOHN, G: SALLY)

P.4 (COORD: Ø, 3, 2)

Note - * indicates a concept is retrievable from surface structure but not directly stated.

EX: S.37 John called to tell her something.

P.1 (PRED: TELL, *A: JOHN, 0: SOMETHING, G: HER)

P.2 (PRED: CALL, A: JOHN)

P.3 (COORD: * IN ORDER TO, 2, 1)

Word which typically express conjunction or coordination are listed in Table 11.

Note - Arguments are usually ordered as they logically occur.

4. Specific Procedures

Read entire text. Read first sentence. If the sentence is a complex sentence or a compound one, it is better to work with small segments at a time.

The following is a list of suggestions for ordering propositions. Although the order does not have to be strictly adhered to, following this order may aid efficiency.

"The basic rule to follow is:
**Ordering Rule:** A proposition "A" which is embedded in another proposition "B" is written before that proposition "B" whenever possible.

**Numbering of Propositions** - Number each sentence (S.1 etc). Within each sentence, number each content unit (C.1 etc) using the narrative analysis content units. Then number each proposition beginning with 100. This will allow for insertions and changes.

For propositionalizing each sentence:

1. Look for the deepest embedded clause and work outward. (It is sometimes helpful to label whole clauses as particular cases.)

   **EX:** S.38 I want to find a book.

   *find a book* fills the object case for the verb *want*.

2. Write all reference, lexical, ellipsis, and substitution propositions. At times, it may be necessary to write reference propositions before Step 1 if a pronoun in an embedded clause has a referent earlier in the same sentence.

   **Note** - If the referent occurs later in text, mark as *K* and provide the sentence number.

3. Write all modifier propositions which are used to modify an argument within a clause.
4. Write all coordinate propositions which are used as arguments for a predicate proposition and which occupy the same case relation.

5. Write the predicate proposition.

6. Write all modifiers (and quasi-modifiers) of the predicate proposition.

7. Write coordinate propositions which connect proposition with any previous proposition.

8. Write any conjunctive proposition which connects the sentence to any previous sentence.

9. Repeat steps for next higher embedded clause.

Note: Not all steps are necessary for every unit of text.
Table 11. Sample cohesive elements

<table>
<thead>
<tr>
<th>A. REFERENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pronouns</td>
</tr>
<tr>
<td>he, him, his</td>
</tr>
<tr>
<td>she, her, hers</td>
</tr>
<tr>
<td>it, its</td>
</tr>
<tr>
<td>they, them, their, theirs</td>
</tr>
<tr>
<td>Demonstratives</td>
</tr>
<tr>
<td>this, these</td>
</tr>
<tr>
<td>that, those</td>
</tr>
<tr>
<td>here, there, then</td>
</tr>
<tr>
<td>the</td>
</tr>
<tr>
<td>Comparatives</td>
</tr>
<tr>
<td>same, such other, else</td>
</tr>
<tr>
<td>more, less</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B. SUBSTITUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal</td>
</tr>
<tr>
<td>one/ones</td>
</tr>
<tr>
<td>the same</td>
</tr>
<tr>
<td>so</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C. CONNECTIVES</th>
</tr>
</thead>
<tbody>
<tr>
<td>and</td>
</tr>
<tr>
<td>and so</td>
</tr>
<tr>
<td>or</td>
</tr>
<tr>
<td>thus</td>
</tr>
</tbody>
</table>
APPENDIX G

PROCEDURES FOR COHESION ANALYSIS

(Adapted from Halliday and Hasan, 1976)

Introduction

Because cohesive elements were incorporated into the propositional analysis, the cohesion analysis for a story will begin with the list of propositions obtained through the propositional analysis.

General Principles

1. Cohesive ties exist only between sentences not within sentences.

2. Cohesive ties will be assumed to be anaphoric (relying on previous text for interpretation) unless specifically marked \( K \) to indicate cataphoric reference (relying on subsequent text for interpretation).

3. Immediate reference indicates that a cohesive element can be interpreted by referring to the sentence immediately preceding that sentence in which the element is found.

   EX: S.1 Sally went to town.
   S.2 She bought a hat.

4. Mediated reference indicates that the referent on which interpretation relies is not found in the immediately preceding sentence, but another cohesive element referring
to that same referent is found in the immediately preceding sentence.

EX: S.3 She found a dress.
(S.2 represents mediated reference.)

5. Non-mediated reference indicates that neither the referent nor another element referring to that element is found in the immediately preceding sentence.

EX: S.4 The dress matched the hat.
S.5 She bought the dress.
(There is no mediated reference between S.5 and S.3.)

6. For stories told in first person, "I" is not considered as a cohesive tie.

7. Within dialogue, propositions labeled REF can be considered as cohesive ties with the exception of references to the narrator.

Procedures

1. Form C (Figure 2) will be used for cohesion analysis.

2. The analysis will begin with the list of propositions at Sentence #2. The sentence number will be recorded in column 1.

3. The investigator will look for propositions whose relations are labeled: REF, LEX, ELLIP, SUB, CONJ. If the first argument lists any proposition or sentence number other than the present sentence number, then the second argument
is listed in column 3 and the relation is listed in column 4. The presupposed item can be retrieved by going to the proposition or sentence listed as the first argument. This presupposed item is then listed in column 6. For items labeled ELLIP or CONJ the presupposed item will be the sentence number listed as the first argument in the proposition.

4. Distance between the cohesive element and its referent, or presupposed item, is listed in column 5. Distance is labeled according to immediate or mediated and/or non-mediated reference. If the referent is found in the immediately preceding sentence, 0 is recorded in column 5. If mediated reference occurs, this is indicated by M-#. If non-mediated reference occurs, this is indicated by N-#. A combination of mediation and non-mediation is possible. If this occurs, then the two numbers are added together: M-# + N-# = ____.
EX: (using S.1 - S.5 above)

<table>
<thead>
<tr>
<th>Sent. #</th>
<th>No. of ties</th>
<th>Cohesive item</th>
<th>Type</th>
<th>Distance</th>
<th>Presupposed item</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>1</td>
<td>she</td>
<td>REF</td>
<td>0</td>
<td>Sally</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>she</td>
<td>REF</td>
<td>M-1</td>
<td>she-&gt;Sally</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>The (dress)</td>
<td>FRE</td>
<td>0</td>
<td>dress</td>
</tr>
<tr>
<td></td>
<td></td>
<td>dress</td>
<td>LEX</td>
<td>0</td>
<td>dress</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The (hat)</td>
<td>REF</td>
<td>0</td>
<td>hat</td>
</tr>
<tr>
<td></td>
<td></td>
<td>hat</td>
<td>LEX</td>
<td>0</td>
<td>hat</td>
</tr>
<tr>
<td>5</td>
<td>3</td>
<td>she</td>
<td>REF</td>
<td>N-1 + M-2 = 3</td>
<td>she-&gt;she-&gt;Sally</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The (dress)</td>
<td>REF</td>
<td>0</td>
<td>dress</td>
</tr>
<tr>
<td></td>
<td></td>
<td>dress</td>
<td>LEX</td>
<td>0</td>
<td>dress</td>
</tr>
</tbody>
</table>

Note: For CONJ the distance will always be 0. For items having cataphoric reference, K will be placed in the distance column.

6. The number of ties for each sentence will then be counted and recorded in column 2. If a sentence contains two elements which have the same referent, this is counted as two cohesive ties and indicated in both columns 2 and 3.

EX: S.6 She took her purchases home.

Cohesive
# of ties item

| 2 | She (her) |
This situation is readily identifiable in the list of propositions because the proposition representing *her* would have as its first argument *she*.

**EX:**

P.1  (REF, S.5, SHE)

P.2  (REF, P.1, HER)
<table>
<thead>
<tr>
<th>Column</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sentence Number</td>
<td>Number of Ties</td>
<td>Cohesive Item</td>
<td>Type</td>
<td>Distance</td>
<td>Presupposed Item</td>
<td></td>
</tr>
</tbody>
</table>

Figure 2. Form C
APPENDIX H

PROCEDURES FOR SURFACE FEATURE ANALYSIS

Introduction

The investigator will need copies of Form SF-A (Figure 3) and Form SF-B (Figure 4). The analysis will begin with the story which has been previously divided into content units as described in the Procedures for Narrative Analysis.

The analysis consists of two major steps:

Step 1: Use Form SF-A to fill in numbers of words, main clauses, and subordinate clauses per sentence.

Step 2: Use Form SF-B to list nouns, verbs, adjectives, and adverbs per sentence.

These steps will be outlined more specifically below:

Step 1: Form SF-A will be used for step 1. The columns will be filled in according to the following:

Column 1: Record the sentence number. A sentence will be defined as beginning with a capital letter and ending with a period.

EX: "Naaah," said Laurie. "He just sat there."

1. "Naaah," said Laurie.

2. "He just sat there."

Note: The above example would have been identified by the content unit analysis as being one content unit. For the purposes of surface feature analysis, that same content unit consists of two sentences.
**Column 2:** Count the number of words in the sentence and record in column 2. A word is defined as having a space on both sides.

EX:  
- little-boy = 1 word
- little sister = 2 words
- P.T.A. = 1 word
- Mr. Smith = 2 words

**Column 3:** Record the number of main clauses in the sentence in column 3. Main clauses are those previously identified as separate content units through the content unit analysis. This information is retrievable from column A on the Narrative Analysis form. If a single content unit consists of two separate sentences, each sentence is numbered separately and therefore consists of at least one main clause.

EX: (from Narrative Analysis form)

<table>
<thead>
<tr>
<th>Col. A</th>
<th>Col. C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content Unit</td>
<td>Text</td>
</tr>
<tr>
<td>1</td>
<td>1) &quot;Naah,&quot; he said. 2) &quot;He just sat there.&quot;</td>
</tr>
<tr>
<td>2</td>
<td>3) Laurie took a cookie, and left.</td>
</tr>
</tbody>
</table>
Form SF-A

<table>
<thead>
<tr>
<th>Sent. #</th>
<th>No. of Words</th>
<th>No. of Main Clauses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>6</td>
<td>2</td>
</tr>
</tbody>
</table>

Column 4: Count the number of subordinate clauses, and record in column 4. **Subordinate clauses** are phrases consisting of at least one word and which include a verb form which is **not** the verb of the main clause. These clauses may function as a single part of speech (i.e. noun, adjective, adverb). Typically the verbs in these clauses take the form of infinitives, gerunds, or participles. (The **exception** is a participle occurring in an adjective slot immediately preceding a noun: **experienced salesman**.) These clauses are also commonly marked by relative pronouns, subordinate conjunctions, or commas.

**EX:** 1. When he started kindergarten, he renounced overalls with bibs.
   - 1 sentence, 1 main clause, 1 subordinate clause

2. You ought to know that.
   - 1 sentence, 1 main clause, 0 subordinate clause
Note: Auxiliary verbs do not count as separate verbs. Examples of auxiliary components are:

had to do
ought to know
needn't have done

got washed

In marking column 4, if there is more than one main clause recorded under column 3, record the number of subordinate clauses separately per main clause in the sentence.

Content

Units

EX: 1 John went to town

and bought a chicken to fry.

No. of No. of No. of

Sent. # Words Main Clauses Subordinate Clause

1 10 2 C1:0 C2:1

Step 2: Form SF-B will be used for Step 2. The columns will be filled in according to the following:

Column 1: Record the sentence number and the clause (i.e. content unit) number.

EX: S1:C1 S = sentence

S1:C2 C = clause

S2:C1

Column 2: List the nouns which occur in the clause. A noun usually functions as the subject or object in a sentence. Nouns usually represent concepts of persons,
places, things, ideas. A noun can take the endings plural -s, -es, possessive 's, -ment, -ation, -ism, -ness. Proper nouns consisting of more than one word can be grouped as one noun.

EX: Mr. Smith = 1 noun

B&Q Company = 1 noun

Column 3: List the verbs which occur in the clause. A verb usually functions as a predicate or part of a predicate and express action or state. Verbs usually take the endings -s, -ed, -ing. Infinitives, participles, and gerunds will be listed in this column. The exception to this is a participle occupying an adjective slot immediately preceding a noun.

EX: the colored egg

For verb phrases, only the main verb will be listed. Forms of be and have and modals will not be listed. If be or have act as main verbs then they will be listed. Verbs with particles will be listed together.

EX: passed away = verb

put up with = verb

Ellipsis: If only a portion of a verb phrase is left intact and the main verb is recoverable from previous text, the auxiliary verbs left intact are not listed. The same is true for the substitution of do for the recoverable main verb. Do is also not listed.
Column 4: Adjectives will be listed for each clause. Adjectives function to modify or qualify nouns and pronouns. These include predicate adjectives which follow linking verbs.

EX: He seemed happy.

Numbers are listed as adjectives with the exception of one when it is used to substitute for a noun. Another exception is when the number is accompanied by the and no noun follows.

EX: The three went to the store.

Three would not be listed in any column because it acts as a pronoun.

Column 5: Adverbs will be listed for each clause. Adverbs function to modify verbs, adjectives, and other adverbs. They also may modify phrases or whole sentences. Days of the week when not used as the subject of a sentence will be listed as adverbs.
<table>
<thead>
<tr>
<th>Column</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sentence Number</td>
<td>Number of Words</td>
<td>Number of Main Clauses</td>
<td>Number of Subordinate Clauses Within Main Clauses</td>
<td></td>
</tr>
</tbody>
</table>

Figure 3. Form SF-A
<table>
<thead>
<tr>
<th>Column</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sentence and Clause Number</td>
<td>Nouns</td>
<td>Verbs</td>
<td>Adjectives</td>
<td>Adverbs</td>
<td></td>
</tr>
</tbody>
</table>

Figure 4. Form SF-B
REFERENCES


