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SYNTACTIC COMPLEXITY OF ORIGINAL AND ALTERED READING MATERIALS

MSSE Master's Project

Submitted to the Faculty of the Master of Science Program in Secondary Education of Students who are Deaf or Hard of Hearing

National Technical Institute for the Deaf
ROCHESTER INSTITUTE OF TECHNOLOGY

By

Monica Draiss

In Partial Fulfillment of the Requirements
For the Degree of Master of Science

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Gerald Bateman
MSSE Program Director
ABSTRACT

As deaf students struggle with a language they cannot hear, the acquisition of English in deaf learners is slower than in hearing learners (Berent, 2000). The average deaf 18-year-old graduates with approximately a fourth grade reading level (Traxler, 2000). Therefore, it is imperative for teachers to effectively choose appropriate literature for deaf learners to help them interact more successfully with text. This paper addresses some common challenges deaf readers have with respect to the acquisition of English syntax and how these difficulties affect their reading comprehension. Conjoined sentences and relative clause sentences serve as examples of complex grammatical structures that pose difficulty for deaf students in their writing and reading comprehension. Despite their limited input and attainments in English, deaf children have the ability to acquire syntactic notions and become successful readers.

This paper not only addresses the widespread reading struggles of deaf learners but, it suggests how educators can more effectively assess the syntactic complexity of reading materials for deaf students using the T-unit. The T-unit is a base unit of measurement for determining the complexity of a sentence and can be useful for estimating readability (Hunt, 1965). In particular, the T-unit can be an effective tool for comparing the readability of texts designed specifically for readers who struggle with complex grammar (like deaf students). Data derived from comparing original texts to their altered counterparts speaks to the credibility of the T-unit as an effective readability tool. Results showed a decrease in the number of words per T-unit from the original texts to their altered, simpler versions, confirming that the T-unit is sensitive to grammatical complexity and can serve as a useful index for struggling deaf readers.
REVIEW OF THE LITERATURE

Deaf students have a long history of struggling with a language they cannot hear. Given this dilemma and the fact that acquiring English is an essential component of development and a means to partake and succeed in the world, deaf students’ ability to read has received much attention by researchers, teachers and parents. While educators and parents emphasize and encourage English language learning, researchers have worked to provide numerous studies to better understand and meet deaf students’ English language needs. Clearly, a student’s command of English is a critical factor in his or her academic and professional success. This review of literature will discuss deaf students’ major hurdles with regard to complex English syntax. A closer look will be taken at their difficulties with respect to the acquisition of English syntax, how these difficulties affect their reading comprehension and how educators can more effectively assess the syntactic complexity of reading materials for deaf students.

Data indicate that median reading achievement for deaf 18-year-olds is approximately four grade level equivalents (Traxler, 2000). Three percent of deaf high school graduates have reading skills comparable to or on par with their hearing peers, and 30% of deaf students leave school functionally illiterate (Traxler, 2000; see Kelly, 1995). Due to the overlap of reading and writing, deaf students’ writing skills are similar to their reading abilities. To some extent, it can be assumed that the way someone writes also reflects how they read. Due to a lack of access to spoken communication and language, “deaf children’s performance in the input (reading) domain generally is paralleled by their performance in the “output” (writing) domain” (Marschark, Lang & Albertini, 2002,
Although writing is a separate skill, an overview of the writing abilities of Deaf students can provide some insight into their reading process and abilities. According to Albertini's (1993) research, the average deaf 18-year-old writes at a grammatical level comparable to that of a hearing 8 to 10 year old. In addition to Albertini's study, further analysis of deaf students' writing has shown it often lacks formal correctness and fluency. Typically, deaf students include their own experiences and feelings in writing assignments, showing limited command of complex discourse and English syntax (Albertini, Meath-Lang, & Harris, 1994).

**Acquisition of Syntax**

Berent (2000) identified and explained properties of English grammar that pose challenges for Deaf students. These include: (a) deviation from expected Subject-Verb-Object word order, (b) interruption of major grammatical relations by other constituents, (c) longer movement of constituents from their typical logical positions, and (d) establishing identity between two or more sentence constituents. Berent found that while most English speaking people naturally acquire SVO word order, deaf learners tend to overgeneralize SVO order to other structures that actually exhibit non-SVO orders. Therefore, if the SVO order is not followed in a more complex sentence, an especially large challenge is posed for deaf students in their written expression and reading comprehension. Berent (2002) noted that, "sentences with relative clauses have been shown to pose considerable difficulty for deaf students in reading comprehension and written expression" (p.2). For example, in the sentence "The teacher read the book which the student found," *which the student found* poses a problem since it does not follow the
SVO pattern. Clearly, grammatical deficiencies influence deaf students’ writing and reading comprehension.

Quigley and King (1980) describe some syntactic difficulties students encounter in acquiring English structure. It was discovered that hearing and deaf students tend to experience difficulty with the same syntactic structures. Negation, conjunction, and question formation were the least difficult structures for both deaf and hearing children. Pronominalization, the verb system, complementation, and relativization were more difficult (Quigley & King, 1980). The greatest difference between deaf and hearing participants, however, was disjunction and alternation (either-or, neither-nor), which proved to be extremely difficult for the deaf subjects. This discrepancy was thought to have been a result of the complex nature of such sentences and the tendency of deaf students to over-generalize or impose a subject-verb-object (S-V-O) pattern on sentences. Complex structures like relative clauses evidenced little progress over the years for deaf students from ages 8-18 years. Meanwhile, younger hearing students had already mastered all except the most difficult structures. “The 18-year-old deaf subjects performed at significantly lower levels than the 8-year-old hearing subjects on all structures” (Quigley & King, 1980, p. 335). Quigley and King concluded that “it is perhaps reasonable to assume that developmental stages in the acquisition of particular syntactic structures are similar for deaf and hearing children” but that the rate of development is greatly delayed in the case of deaf children (p. 335).

Bochner (1978) defines and tests his “linear order hypothesis.” The linear order hypothesis states that “deaf individuals tend to perceive, produce, and learn syntactic
structures by arranging lexical items in a linear-sequential fashion without regard to hierarchical order and without specifying relations of subordination and superordination” (Bochner, 1978, p. 174). Deaf participants were asked to make grammatical judgments on sentences which contained subordinate clause markers such as *that*, *which*, *when*, and *because*. Data indicated that the ability to identify sentences as either grammatically correct or incorrect with relative clauses introduced by *that* is extremely poor (Bochner, 1978). Similar struggles were found with the use of *which*. Bochner concluded that “many deaf individuals do not have an adequate knowledge of grammatical relationships which may occur among clauses; consequently, these individuals tend to arrange clauses in a linear sequential fashion without specifying relationships of subordination and superordination” (p. 187).

**Syntax and Writing**

A study by Everhart and Marschark (1998) compared hearing and deaf students’ writing abilities. Subjects were instructed to write about what they would do if they were picked up by a UFO. Both hearing and deaf students produced stories similar in structure and meaning; however, the deaf students wrote stories with shorter and simpler sentences and frequently incorrectly utilized conjunctions, as well as other complex grammatical structures. Consider the following passage written by an 11-year-old deaf student.

“When I get in ufo. They look funny. They have long pointed ears and have round face They speak different from our. They brought strange foods and Purple beverage. When I taste it I spill and begin to cought. I taste like dog food. But it was very pretty inside with many feather and clothes with very pretty. But one thing people in ufo stare at me beacuase they never see large muscular and can pick up Heavy thing like weight, people or table. They feel it and said wow and start to teach me how to talk but they speak Russian language. I hate to learn Russian languagage. So I stay in ufo for 5 hours so they stop to place where they
In comparing the writing products of hearing and deaf students, Everhart and Marschark noted commonalities with regard to syntactic structure in the deaf students’ writing. They reported that the characteristics of most deaf students’ writing overall “reflected less complex English structure.” Let’s further examine some specific struggles related to English syntax that can affect reading success.

**Conjoined Sentences**

Wilbur, Quigley and Montanelli (1975) did additional research into syntactic structures in the language of deaf children to assess their conjunction abilities. Students were asked to judge the grammaticality of certain structures and to conjoin sentences. According to their article, production of conjoined structures was found to be more difficult than judgments of grammaticality. The stimuli included several types of deviant conjoined structures that are common in written samples of deaf persons. Like Quigley and King’s research discussed above, deaf students showed great lag behind their hearing peers. If given a sentence that had no common elements, 10-year-old deaf children produced correct unreduced conjoined sentences 46% of the time and reduced conjoined sentences 25% of the time (Wilbur, Quigley & Montanelli, 1975). “The results indicate that with increasing age, deaf students are able to make more accurate judgments about grammatical English. By 18 years of age the students are correct in their grammaticality judgments about most conjoined structures 80% of the time or more” (Wilbur, Quigley & Montanelli, 1975, p. 331). Consequently, one can assume that rules of conjunctions are
generally acquired by deaf individuals by 18 years of age. Nevertheless, it should be noted that at 18 years old, “deaf subjects were unable to make grammaticality judgments concerning the use of conjunction about 20% of the time, whereas almost all the 10-year-old hearing subjects could perform the tasks without error” (Wilbur, Quigley & Montanelli, 1975).

Quigley, Wilbur, Power, Montanelli and Steinkamp (1976) analyzed the use of conjunction by deaf children. Conjunctions allow one to combine constituents using and, or, and but. Deaf students commonly struggle to correctly comprehend longer sentences like conjunctions, and make mistakes when producing conjunctions. For example, when given a sentence like the following, “Bob or John will buy a new coat” and asked how many people will buy a coat, 10-year-old deaf students answered correctly only 19% of the time although correct responses increased significantly with age to 43% correct at the age of 18. This datum still reveals poor comprehension of conjunctions even for older deaf students. Producing conjoined sentences proved to be even more difficult.

According to Quigley, Willbur, Power, Montanelli and Steinkamp’s research (1976), conjoined sentences proved overall to be a struggle for deaf students. Conjoined verb phrases in particular were complicated. For instance, the sentence, “Mother bought a fish and cooked it” was incorrectly judged 84% of the time at age 10 and 57% of the time at age 18. Hearing students were correct in their grammaticality judgment responses 92% of the time at age 8 and 100% at age 10 (Quigley, Wilbur, Power, Montanelli & Steinkamp, 1976). Clearly, deaf students struggle with complex grammar such as conjunctions.
The process of acquiring English syntax for deaf learners is much slower than for hearing learners (Berent, 2000). Limited access to English presents difficulties. In another paper, Berent summarizes many difficulties deaf students have with acquiring English syntax stating, “... deaf students’ written samples were found to contain shorter and simpler sentences, to display a somewhat different distribution of the parts of speech, to appear more rigid and more stereotyped, and to exhibit numerous errors or departures from standard English usage” (Berent, 1996, p. 472). For example, while hearing students use conjunctions by age 9, deaf students typically only start using them at age 11, and “some deaf students, even at age 15, use no conjunctions at all” (Berent, 1996, p.473). The greater variety in the syntax of hearing students is accredited, in part, to their use of more function words and adjectives. “Expanded utterances” (resulting in longer or more complex sentences) are achieved by hearing students using 26 different function words. In contrast, deaf students tend to only use three such words to expand utterances (and, because, and while). Berent (1996) further commented that verb process (specifically passive sentences), conjunction, and relativization skills were very delayed in deaf learners.

**Relative Clause Sentences**

Obviously, conjunctions are not the only complex structures with which deaf children struggle. Albertini and Forman (1985) provide more data to further explain the difficulties many deaf students have with relativization. They used experimental language tests designed to diagnose productive grammatical ability in English among deaf students. The researchers gave a visual dictation syntax test to hearing and deaf
adults and hearing ESL students. With this test, one sentence would be read out loud to the hearing participants who would then write down as literally as possible what they heard. For the deaf participants, the stimuli were presented visually via print for a brief amount of time (3 seconds). The subjects were still required to literally reproduce each sentence. After the stimuli were presented, participants were required to remember the sentence long enough to correctly repeat it. It is thought that the syntactic and semantic content of the sentence are filtered through the subjects' productive grammatical competence. Therefore, the task is used to gain a measure of grammatical competence. Below is an example sentence and response (Albertini & Forman, 1985, p. 4):

Sentence: THE OWL WHO EATS CANDY RUNS FAST.
Response: Owl eat candy and he run fast.

Albertini and Forman’s (1985) conclusions were consistent with much of Berent’s reports (2000) about the characteristics and struggles of deaf students’ writing and reading comprehension. First of all, great difficulty is seen with passive and relative clause structure as many of the writing samples showed simpler grammatical constructions that strongly adhere to subject-verb-object word order. Passive sentences posed the most frequent errors among deaf students (Albertini & Forman, 1985). Although much consideration was put into determining how long to display the stimuli during the visual dictation task, the validity of the test may be suspect as it most certainly taps into short-term memory skills. Despite this concern, the researchers thoroughly described their
procedures, participants and findings and provided insight into common syntactic struggles among deaf students.

Quigley, Smith and Wilbur (1974) provided an in-depth look at deaf children’s knowledge of relative clauses. This study demonstrated that “(1) the position and function of the relative clause affected its difficulty; (2) with medially embedded relative clauses, students tended to join the NP (noun phrase) of the relative clause with the VP (verb phrase) of the main sentence thus misunderstanding the sentence; (3) when conjoining two sentences, students tended to delete coreferential subjects and objects; and (4) the possessive form of NP’s was accepted by deaf students when the possessive form whose was the correct form” (p.325). The tests administered required students to make grammaticality judgments of stimulus sentences. Consistent with other research, the results showed as deaf students age, improvements are made regarding relativized sentences. However, younger hearing students surpass deaf students with their syntactic abilities related to relativized sentences.

Lillo-Martin, Hanson and Smith (1992) conducted a study similar to the Quigley, Smith and Wilbur’s (1974) investigation and their results were comparable. They found an overall deficit in reading performance with regard to relative clause structures. Their study went further to compare the syntactic comprehension performance of adult deaf good and poor readers to determine if deficient syntactic knowledge underlies the poor readers’ difficulty. To investigate whether the difficulties arise from a lack of specific syntactic structure knowledge or from deficits in processing,
the researchers tested in three modalities: written English, signed English, and American Sign Language. The most common mistake for both good and poor readers occurred because students chose an order-based response in which the second noun was considered the subject of the second verb. For example, in the sentence “The boys who waited for Susan picked the flowers,” it was incorrectly comprehended that Susan picked the flowers (Lillo-Martin, Hanson & Smith, 1992). Quigley et al. (1974) reported this same common error using the Test of Syntactic Ability. Lillo-Martin et al concluded that “deaf subjects might also have a lower level processing impairment that affects the higher levels of language processing in a systematic way” (p. 16). Due to reading differences between the subject groups (based on reading skills), it is hypothesized that these differences are based on processing issues and not dissimilarities in grammatical knowledge. Therefore, the deficit may lie in lower level phonological processing since better readers use phonological coding for processing English text and phonological coding is the most beneficial coding system for reading.

**Syntax and Reading**

While many researchers have studied the acquisition of certain grammatical structures, Leonard Kelly (1996) examined how critical components of reading processes like syntactic and vocabulary knowledge may influence each other. Syntax and vocabulary are components of language that may adversely affect reading comprehension in deaf learners. To determine if they influence each other, Kelly performed multiple regression analyses on predictor variables that included measures of vocabulary and syntactic competence and a variable summarizing the associations between vocabulary
and syntax. Kelly demonstrated that a relationship between syntax and comprehension was present among all subjects. The results suggest that “unless deaf readers have achieved a reasonable level of syntactic competence it may be difficult for them to capitalize fully on their vocabulary knowledge” (Kelly, 1996, p. 75). Therefore, syntax can wield both a direct and an indirect influence on comprehension in deaf readers. Lack of syntactic skill directly influences comprehension, and detracts from comprehension indirectly by hindering the reader’s ability to apply vocabulary knowledge. Syntactic knowledge can contribute to vocabulary understanding and vice versa. Accordingly, if a student has a higher level of syntactic competence, he or she will better be able to grasp the vocabulary and enjoy improved reading comprehension. Obviously, syntax and vocabulary influence reading comprehension.

As Kelly believes there to be a relationship between syntax and vocabulary during reading comprehension, Lichtenstein (1998) believes there to be a relationship involving various working memory (WM) recoding processes and English language skills among deaf learners. Using a short-term memory experiment and a recoding strategies questionnaire, Lichtenstein proposed “for most deaf students, neither the speech, sign, or visual codes are as efficient as the speech code of hearing persons for the purpose of maintaining English linguistic information in working memory. However, the ability to use speech-based recoding processes was positively correlated with WM capacity, and the use of sign recoding was found to decrease as the ability to make efficient use of a speech recoding strategy increased” (Lichtenstein, 1998, p. 80). Visual and sign recoding systems failed to supply many of the subjects with complete internal representations of English surface structure in working memory. Since deaf students’ capacity to depend on
a speech-based code tends to fall short, it is more difficult to maintain English words in WM. This may explain why deaf students tend to improperly produce and comprehend syntactic structures like relative clauses and conjunctions. As a student’s WM abilities increase, he or she can attend to sequential relationships among words and attend to function words and their relationships with other lexical and grammatical information in the sentence. Therefore, Lichtenstein’s research suggests that “deaf students’ task of learning English is made considerably more difficult by WM processes that do not adequately process English grammatical information” (Lichtenstein, 1998, p. 131).

Summary

Deaf students have a history of struggle with respect to acquiring English syntax due to the quality of their input. Development of English syntax is commonly delayed in many deaf learners and significantly lags behind their hearing peers. Conjoined sentences and relative clause sentences serve as examples of complex grammatical structures that pose difficulty for deaf students in their writing and reading comprehension. Vocabulary knowledge and working memory capacity are two variables that may further influence the reading process. Despite the lag and lack of input and above stated hurdles, there exists the potential in deaf children to acquire syntactic notions and thus become successful readers.

STATEMENT OF THE PROBLEM

It would be useful to have a way of estimating “readability” that takes the difficulties deaf students experience with complex syntax into consideration. Kellogg
Hunt (1965) provided a quantitative means of assessing grammatical (syntactic) complexity in writing that is methodical, coherent, systematic and broad, yet capable of refinement to accommodate details. Hunt developed the Minimal Terminal Unit or T-unit as a measurement to determine students’ writing maturity at various grade levels. A T-unit is a base unit of measurement for determining the complexity of a sentence (Hunt, 1965). Specifically, it is “one main clause expanded at any of many different points by structures that are modifiers or complements or substitutes for words in the main clause” (Hunt, 1965, p 160).

Hunt collected numerous samples of writing from students at the 4th, 8th and 12th grade levels. When his T-unit index was applied, he discovered that older students extended their “near-clauses” (thus number of words) more than younger students who produced short separate units (thus fewer words) per T-unit. For an example, see the text below (Hunt, 1965 p. 144).

**Younger student:**

*The sailor finally came on deck. He was tall. He was rather ugly. He had a limp. He had offered them the prize.*

# of T-units: 5  Average length of T-unit: 4.6 words

**Older Student:**

*The tall, rather ugly sailor with a limp, who had offered them the prize, finally came on deck.*

# of T-units: 1  Average length of T-unit: 18 words

A young student’s span of grammatical concern or attention is narrow. More advanced adults revealed that they differ from twelfth graders primarily in the length of
their clauses. The study determined that the average student when he gets his diploma writes T-units nearly 60% longer than he could eight years earlier (Hunt, 1965). Through his research, Hunt concluded that the longer the T-unit in ones’ writing the greater the maturity and that longer T-units closely adhere to competence in complex grammar.

Given the above stated struggles deaf learners face, it is axiomatic how important it is to effectively choose appropriate literature to help them interact more successfully with text. Placing enriching literature in the hands of children is just as important as providing them with healthy foods. Despite this reality, very few resources exist in deaf education to help educators determine the readability and effectiveness of text for deaf students. Most current readability charts and software formulate readability based on only two factors (length of sentences and number of syllables) which do not consider the distinctive struggles of deaf readers with regard to complex syntax. According to William DuBay (2004), Rudolf Flesch, the man noted for publicizing the need for readability strategies, developed the Reading Ease formula. The Reading Ease formula “...used only two variables, the number of syllables and the number of sentences for each 100-word sample” (DuBay, p. 20). Later, the Flesch-Kincaid formula was developed to take Flesch’s original formula and compute it into an American grade level. Another popular readability formula is the Fog Index developed by Robert Gunning. It uses two variables as well, average sentence length and the number of words with more than two syllables for each 100 words (DuBay, 2004). The Fog Index was improved with the development of the Fry Graph which became the easiest and most commonly used readability strategy used by educators (DuBay, 2004).
Average sentence length and average number of syllables per word alone cannot sufficiently predict coherence and therefore understanding of a text especially when considering deaf readers' special needs related to complex grammar. The T-Unit or minimal terminal unit will be used as the basis for a hypothesis concerning readability for deaf students. Since the T-unit is more sensitive to the structure of complex sentences, it may provide a more promising indicator of difficulty for deaf readers than what is typically used in readability formulas. Although Hunt's purpose was to assess the maturity of writing, he does state, "In readability formulae, T-unit length or clause length may prove more significant than sentence length" (1965, p. 151). Accordingly, the hypothesis of this paper is that an analysis based on the T-unit can serve as useful for estimating readability. In particular, the T-unit can be an effective tool for comparing the readability of texts designed specifically for readers who struggle with complex grammar (like deaf students).
METHOD

Materials

Adapted or abridged texts published by various companies were selected for analysis. These altered texts are described as "high-low" fiction meaning they are high interest books but are appropriate for low-level readers who struggle with reading comprehension. Each altered text makes various claims while targeting a specific audience. The Regents Publishing Co. offers the Dixson English Series. This series includes "selections for intermediate-level students of English as a second language [ESL]" (Dixson, 1971). From this resource, the adapted version of Edgar Allen Poe’s The Purloined Letter was analyzed. The same story was examined in another adapted text produced by Oxford University Press which claims their series of books includes "materials for school pupils and adults learning English as a second or foreign language" (Howe, 1975). An additional story selected was, Walter Tevis’ The Man Who Fell to Earth. This adapted classic, also published by Oxford University Press, is part of the Alpha Science Fiction series. The series includes novels by well-known authors, and the publisher states, “Careful control of the language and vocabulary provides a clear and straightforward text which allows the student to enjoy reading without constantly having to reach for the dictionary” (Oxford University Press, 1987). Sterling Publishing Co. offers a series called Classic Starts that features original well-known literary classics. The series offers “abridged versions of the novels so young readers can experience the wonders of timeless stories from an early age. Each novel is abridged for easier reading and is carefully rewritten” (Sterling Publishing, 2005). It is worth noting that the series
claims to be abridged, not adapted. However, the series is advertised through various retailers, such as the Follett Library Resource, as “high-low” books ideal for struggling readers (http://www.titlewave.com/intro/pdfs/High-Low-InterestLowres.pdf, 2006). The texts mentioned above are all designed for a specific audience of struggling readers. Adapted or high-low reading texts are often considered ideal for ESL and other students. Oxford University Press and Regents Publishing Co. produce these types of books controlling both vocabulary and grammar, which helps to increase readability for struggling readers.

After these altered texts were selected, the original versions of the same books were collected. The altered and original stories chosen were The Purloined Letter (Poe), Little Women (Alcott), and The Man Who Fell to Earth (Tevis). Selecting original and adapted versions of classic stories permitted objective comparisons between texts to be made.

**Analysis Procedure**

The T-unit is a base unit of measurement for determining the complexity of a sentence. One main clause expanded at any of many different points by structures that are modifiers or complements or substitutes for words in the main clause is measured as a T-unit (Hunt, 1965). Fifty representative sentences in each story (original and altered texts) were examined and the number of T-units per sentence was computed. Then, the average length of T-units for the excerpt was calculated. For easy comparison, the following information was gathered, calculated and recorded in tables (displayed below): total number of words, total number of sentences, total number of T-units, average
number of words per sentence and average number of words per T-unit. The complexity of grammatical structure varies based on how the main clause is expanded and the analysis procedure is intended to quantify the grammatical complexity of the materials. For example, the excerpt below from, The Man Who Fell to Earth, has a total of 6 T-units and includes conjoined as well as relative clause sentences. In the passage below each T-unit is denoted by a double slash (//).

Several people stared at him, a few of them suspiciously, // but this did not worry him //. He did not expect to be molested, // and he was confident after observing the others that his clothes would bear up under inspection //. When the jewellery store opened he waited for ten minutes and then walked in //. There was one man behind the counter, a small, chubby man in a white shirt and tie, dusting the shelves //.

(Tevis, 1963).

Table 1. Procedural Example

<table>
<thead>
<tr>
<th>Total Words</th>
<th>Total Sentences</th>
<th>Total T-Units</th>
<th>Avg. # of words per sentence</th>
<th>Avg. # of words per T-Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>73</td>
<td>4</td>
<td>6</td>
<td>18.25</td>
<td>12.16</td>
</tr>
</tbody>
</table>

The conjoined phrases, He did not expect to be molested, and he was confident after observing the others that his clothes would bear up under inspection count as two separate T-units. If the "he" was removed from the clause, and he was confident after observing the others that his clothes would bear up under inspection, the sentence would have been more complex or considered more mature as it features more words per T-unit. The reduced relative clause, a small, chubby man in a white shirt and tie, does not count as a T-unit. Unreduced, the relativized sentence could be written as, There was one man behind the counter who was small and chubby, in a white shirt and tie dusting the shelves but, it is still counted as one T-unit just as the actual statement, There was one man
behind the counter, a small, chubby man in a white shirt and tie, dusting the shelves is counted as one T-unit. The use of a relative clause is considered more complex since it consists of more words per T-unit than if, for example, the above statement was written as, **There was one man behind the counter. He was a small, chubby man in a white shirt and tie dusting the shelves.**

**RESULTS**

As shown in Tables 2-4, altered texts contained fewer words per fifty sentence passage than their original counterpart. The altered texts also contained fewer T-units per excerpt. The average number of words per sentence in original texts was considerably higher than the average in the altered texts. The average number of words per T-unit varied in comparison among the texts but, with one exception, altered texts showed fewer words per T-unit as seen in the tables below.

**Table 2. Comparison of original and abridged versions of “Little Women.”**

<table>
<thead>
<tr>
<th>Text</th>
<th>Total Words</th>
<th>Total Sentences</th>
<th>Total T-Units</th>
<th>Avg. # of words per sentence</th>
<th>Avg. # of words per T-Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcot, 1915 (Original)</td>
<td>887</td>
<td>50</td>
<td>92</td>
<td>17.74</td>
<td>9.64</td>
</tr>
<tr>
<td>McFadden, 2005 (Abridged)</td>
<td>621</td>
<td>50</td>
<td>64</td>
<td>12.42</td>
<td>9.70</td>
</tr>
</tbody>
</table>

In the 50 sentence passage, there is a 266 word difference between the original and abridged version of **Little Women**. Within the same 50 sentence excerpt, the abridged version has 28 fewer total T-units. The original featured an average of 9.64 words per T-units, while the abridged had 9.74 for the average number of words per T-
unit. In this comparison, the average number of words per sentence indicated a clear difference between texts; however, the average number of words per T-unit did not show a difference between the original and abridged texts.

**Table 3. Comparison of original and altered versions of “The Man Who Fell to Earth.”**

<table>
<thead>
<tr>
<th>Text</th>
<th>Total Words</th>
<th>Total Sentences</th>
<th>Total T-Units</th>
<th>Avg. # of words per sentence</th>
<th>Avg. # of words per T-Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tevis, 1963 (Original)</td>
<td>627</td>
<td>50</td>
<td>61</td>
<td>12.54</td>
<td>10.27</td>
</tr>
<tr>
<td>Oxford, 1999 (Altered)</td>
<td>417</td>
<td>50</td>
<td>59</td>
<td>8.34</td>
<td>7.06</td>
</tr>
</tbody>
</table>

As indicated in Table 3, the original text has 210 more words than the altered text. The total number of T-units is almost the same; but the original version of *The Man Who Fell to Earth* has an average of 10.27 words per T-unit and the altered version has 7.06 words per T-unit.

**Table 4. Comparison of original and two altered versions of “The Purloined Letter.”**

<table>
<thead>
<tr>
<th>Text</th>
<th>Total Words</th>
<th>Total Sentences</th>
<th>Total T-Units</th>
<th>Avg. # of words per sentence</th>
<th>Avg. # of words per T-Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poe, 1966 (Original)</td>
<td>1,050</td>
<td>50</td>
<td>60</td>
<td>21.00</td>
<td>17.50</td>
</tr>
<tr>
<td>Howe, 1975 (Altered)</td>
<td>744</td>
<td>50</td>
<td>58</td>
<td>14.88</td>
<td>12.82</td>
</tr>
<tr>
<td>Dixson, 1971 (Altered)</td>
<td>725</td>
<td>50</td>
<td>57</td>
<td>14.50</td>
<td>12.71</td>
</tr>
</tbody>
</table>

In Table 4, there is a difference of 306 words between Howe’s altered version of *The Purloined Letter* and its original and a difference of 325 words between Dixon’s...
altered version and the original. The original has on average 21.00 words per sentence, the Howe altered version has 14.88 words, and the Dixon altered version has 14.50 words. The original text contains an average of 17.50 words per T-unit. The altered text by Howe has on average 12.82 words per T-unit and the altered version written by Dixon contains 12.71 words per T-unit.

DISCUSSION

Interpretation of Results

As mentioned above, the altered texts contained fewer words per T-unit than the original with one exception. As shown in Table 2, the abridged version of Little Women did not contain a difference in the average number of words per T-unit but did show a substantial difference in the total number of words and the average number of words per sentence. This supports the notion that “abridged” is indeed different from “altered.” The abridged text was designed to provide a more condensed form of the classic story. The story was made more accessible to readers by the adherence to a more restricted vocabulary and shorter reading passages, not through the close control of grammar. Clearly, given the data, the syntactic complexity of the original text and the abridged text are relatively equivalent.

In Table 3 there is a substantial difference between the average number or words per sentence and average number of words per T-unit. The original text has nearly 35% more total words than the altered ESL version. The original version of The Man Who Fell to Earth has an average of 10.27 words per T-unit while the ESL version shows an average of 7.06 words per T-unit, suggesting the original text features more complex grammatical structure while the ESL text tended to control the complexity of grammar.
Three versions of The Purloined Letter were purposely chosen to compare not only the original with an altered text but to compare two altered texts that claim to be for different reading audiences. The data showed, as expected, the original text to have the greatest average number of words per T-unit, Oxford's altered text (gauged for adult readers) to have slightly fewer words per T-unit and Regents' intermediate text to have the fewest number of words per T-unit. According to the data in Table 4, a substantial difference was found between the original text and the altered texts, but only a small difference between the two altered texts was illustrated. The Regents' version of The Purloined Letter only had 19 fewer total words and one less T-unit than the Oxford version. Additional considerations related to these findings will be discussed later.

**Complex Syntax and Readability**

It was hypothesized that the T-unit would serve as an effective readability tool for comparing altered texts designed specifically for readers who struggle with complex grammar. While the average words per sentence consistently differed between the original and altered texts in all the examples used, the data derived from comparing original texts to their altered counterparts also speaks to the credibility of the T-unit as an effective readability tool. Results showed a decrease in the number of words per T-unit from the original texts to their altered, simpler versions, confirming that the T-unit is sensitive to grammatical complexity and can serve as a useful index. Adjoining long phrases with *but, so, or and* is grammatically acceptable. Doing so would be measured as more mature writing using a readability tool that is based on sentence length (Hunt, 1965). However, more mature writing would feature variation in sentence length and
more advanced grammatical structures which can be accounted for when using the T-unit. Hunt (1965) concluded that, “neither sentence length nor clause length is a significant index of maturity” but combining the indices producing the T-unit “may turn out to be a good index of maturity” (p. 13, p. 20).

**Implications**

As stated earlier, the data in Table 2 support the idea that there is a difference between abridged and altered texts. However, book sellers pitch abridged versions like the “Classic Starts” as high interest books for low level readers although the level of grammar, according to the results, is generally as complex as the original. The T-unit can help educators distinguish between high-low reading books for ESL and deaf learners or decipher if abridged texts actually do offer some control over complex grammar.

Another use of the T-unit is that it can serve as a quantitative unit of measure to help compare any texts including altered ESL versions against other altered ESL versions. A reading series designed for ESL or struggling readers will claim to have controlled grammar but how can one know to what degree? The T-unit can give insight into the degree of alteration between books or the level of grammatical complexity. Like the example in Table 4, the two altered ESL texts claimed to be appropriate for different audiences. However, grammatically these stories were not significantly different in complexity. While the Dixon series designed for intermediate readers may do more to control vocabulary than the Oxford series which is intended for adults, both books will most likely pose equal challenges to readers with regard to grammar. Although ESL series note the level of vocabulary, they do not note the nature of the grammatical
structure or its complexity. Therefore, the use of the T-unit would be useful in comparing the grammar of one text versus another or determining the degree of alteration between ESL books.

Golladay (1979) states, “designing and using supplementary materials and procedures to facilitate student understanding can make even relatively difficult textbooks into effective sources of learning” (p. 130). As deaf students struggle with textbooks, more teachers are creating resources that parallel the original textbook or are making supplementary materials to improve comprehension. The T-unit can be used to help teachers assess their own reading materials. By comparing the original text with the supplementary materials using the T-unit, the educator can determine if their resources will help facilitate better understanding.

**Pedagogical Implications**

As discussed earlier, deaf students have long struggled with the acquisition of English syntax due to the quality of their input. Development of English syntax is commonly delayed in many deaf learners and often lags behind their hearing peers. As supported by the reviewed research, despite the lag and lack of input, and struggles with complex grammar, deaf children have the potential to acquire complex syntactic notions and to become successful readers. The results of this study suggest that ESL resources can be an asset to deaf learners with limited English proficiency. Educators should take advantage of available ESL materials as they offer supplemental teaching strategies, software, differentiated texts, and research-based activities geared toward the linguistic needs of deaf students to help them interact with texts more positively. ESL programs
aim to build vocabulary in students who have limited English language proficiency. Meanwhile, they also write texts that address the nature of deaf or ESL students' struggles with complex syntactic notions. As noted previously, lack of syntactic skill directly influences comprehension, and detracts from comprehension indirectly by hindering the reader's ability to apply vocabulary knowledge. Syntactic knowledge can contribute to vocabulary understanding and vice versa (Kelly, 1996). ESL texts can help provide a balance in encouraging the development of vocabulary and grammar simultaneously. Furthermore, teachers can use the resources to target specific constructions.

Another benefit of implementing ESL reading materials is that they provide access to texts deaf students may not have otherwise had. ESL materials are often oriented toward high school or adult readers but are brought to a readable level for readers with limited English proficiency. As a result, students don't have to feel patronized when carrying around or reading from apparent low-level texts. Furthermore, they allow students access to classic literature like the examples used in this study. ESL versions of classics provide a great opportunity for higher-level learning and for students to participate in the cultural classics while making them readable.

It is imperative to note that it is not always favorable to present reading materials or convey subject matter in simplest terms. Continually offering simplified texts is not beneficial to a student. It is important to know learners' strengths and weaknesses to provide them with appropriately challenging reading materials. ESL series offer differentiated texts to ensure educators can help readers reach a balance where students
interact positively with a text while being challenged. Meanwhile, the T-unit can help educators differentiate between texts as to which are grammatically more complex and thereby help achieve a better balance between enjoyment and challenge.

**Implications for Future Research and Final Thoughts**

While the T-unit can be a very useful tool, it should be noted that it touches upon only one aspect of readability. Vocabulary load, idea density, human interest, conceptual difficulty, organization and miscellaneous difficulties peculiar to deaf students such as figures of speech, idiomatic language, etc. are other variables that decidedly affect readability and cannot go overlooked (Golladay, 1979). The T-unit can be most helpful when used in conjunction with other readability tools or as part of readability formulae. For example, just as Fry added to and enhanced Fog’s readability formula (see lit review), the T-unit can be an improvement to currently available readability measures. Integrating the T-unit into existing readability formulae to produce a more effective specified formula for readers having limited English proficiency could be achieved with future research. Additionally, the T-unit is a useful tool for comparing texts, but educators could benefit from more absolute guidelines based around the T-unit that can be equated to grade levels.

The T-unit shows great promise for being an effective readability tool. It adequately and simply helps to quantify and assess readability while comparing texts and can be most useful when comparing altered texts specifically designed for readers who struggle with complex grammar like deaf students. Not all deaf students have limited English proficiency but we must take students from where they are and provide
appropriate texts to bring them to where they can be. Data indicate that approximately 20% of deaf and hard of hearing 17 year olds perform at or above the eighth grade level (Traxler, 2000). This percentage shows great promise but also presents a great challenge to educators. The only way to increase the percentage of successful readers and bring more deaf students to proficient or advanced reading levels is through trying innovative approaches that will help students develop reading skills. The T-unit can help educators make strides toward helping deaf students develop a love for reading through appropriate reading materials, which in turn may help solve students’ educational and linguistic problems or help them achieve their fullest potential as readers.
APPENDIX A

Excerpt from the original version of Little Women (Alcott, 1911)

Jo! Jo! Where are you?” cried Meg, at the foot of the garret stairs.

“Here!” answered a husky voice from above; and, running up, Meg found her sister eating apples and crying over the “Heir of Redclyffe,” wrapped up in a comforter on an old three-legged sofa by the sunny window. This was Jo’s favorite refuge and here she loved to retire with a half a dozen russets and a nice book, to enjoy the quiet and the society of a pet rat who lived near by, and didn’t mind her a particle. As Meg appeared, Scrabble whisked into his hold. Jo shook the tears off her cheeks, and waited to hear the news.

“Such fun! Only see! A regular note of invitation from Mrs. Gardiner for tomorrow night!” cried Meg, waiving the precious paper, and then proceeding to read it, with girlish delight.

“Mrs. Gardiner would be happy to see Miss March and Miss Josephine at a little dance on New-Year’s Eve.” Marmee is willing we should go; now what shall we wear?”

“What’s the use of asking that, when you know we shall wear out poplins, because we haven’t got anything else?” answered Jo, with her mouth full.

“If I only had a silk!” sighed Meg. “Mother says I may when I’m eighteen, perhaps; but two years is an everlasting time to wait.”
“I’m sure our pops look like silk, and they are nice enough for us. Yours is as good as new, but I forgot the burn and the tear in mine. Whatever shall I do? The burn shows badly, and I can’t take any out.”

“You must sit still all you can, and keep your back out of sight; the front is all right. I shall have a new ribbon for my hair, and Marmee will lend me her little pearl pin, and my new slippers are lovely, and my gloves will do, though they aren’t as nice as I’d like.”

“Mine are spoilt with lemonade, and I can’t get any new ones, so I shall have to go without” said Jo, who never troubled herself much about dress.

“You must have gloves, or I won’t go,” cried Meg decidedly. “Gloves are more important than anything else’ you can’t dance without them, and if you don’t I should be so mortified.”

“Then I’ll stay still. I don’t care much for company dancing’ it’s no fun to go sailing round’ I like to fl about and cut capers.”

“You can’t ask mother for new ones, they are so expensive, and you are so careless. She said when you spoilt the others, that she shouldn’t get you any more this winter. Cant you make them do?” asked Meg anxiously.

“I can hold them crumpled up in my hand, so no one will know how stained they are’ that’s all I can do. No! I’ll tell you how we can manage- each wear one good one and carry a bad one’ don’t you se?”

“Your hands are bigger than mine, and you will stretch my glove dreadfully,” began Meg, whose gloves were a tender point with her.
“Then I’ll go without. I don’t care what people say!” cried Jo, taking up her book.

“You may have it, you may! Only don’t stain it, and do behave nicely. Don’t put your hands behind you, or stare or say ‘Christopher Columbus!’ will you?”

“Don’t worry about me’ I’ll be as prim as I can, and not get into any scrapes, if I can help it. Now go and answer your note, and let me finish this splendid story.”

So Meg went away to “accept with thanks,” look over her dress, and sing blithely as she did up her one real lace frill’ while Jo finished her story, her four apples, and had a game of romps with Scrabble.

On New-Year’s Eve the parlor was deserted, for the two younger girls played dressing-maids, and the two elder were absorbed in the all-important business of “getting ready for the party.” Simple as the toilets were, there was a great deal of running up and down, laughing and talking, and at one time a strong smell of burnt hair pervaded the house. Meg wanted a few curls about her face, and Jo undertook to pinch the papered locks with a pair of hot tongs.

“Ought they to smoke like that?” asked Beth, from her perch on the bed.

“It’s the dampness drying,” replied Jo.

“What a queer smell! It’s like burnt feathers,” observed Amy, smoothing her own pretty curls with a superior air.

“There, now I’ll take off the papers and you’ll see a cloud of little ringlets,” said Jo, putting down the tongs.
She did take off the papers, but no cloud of ringlets appeared, for the hair came with the papers, and the horrified hair-dresser laid a row of little scorched bundles on the bureau before her victim.

“Oh, oh, oh! What have you done? I’m spoilt! I can’t go! My hair, oh, my hair!” wailed Meg, looking with despair at the uneven frizzle on her forehead.

“Just my luck! You shouldn’t have asked me to do it’ I always spoil everything. I’m so sorry, but the tongs were too hot, and so I’ve made a mess,” groaned poor Jo, regarding the black pancakes with tears of regret.
APPENDIX B

Excerpt from the abridged version of Little Women (McFadden, 2005)

As Jo read, tears streamed down her slim cheeks. With her pet rat Scrabble nearby, she sat on an old couch in the attic. It was her favorite place in the house; she often sent there to eat apples and lose herself in a book. Hearing Meg’s call, she yelled, “I’m up here!”

Meg was very excited because they had been invited to a New Year’s Eve dance at Sallie Gardiner’s house.

“oh Jo! Marmee said we could go,” she cried.

“What should we wear?”

“You know we’ll wear our old poplin dresses. That’s all we have.”

“If only I had a silk dress!” Meg sighed.

“Mother says I have to wait until I’m eighteen-two whole years away.”

“Our poplin dresses are fine. Yours looks just like new. But mine has that burn and tear. What am I going to do?”

Her sister advised, “You’ll sit as much as you can with your back to the wall so no one will see the burn.”

“And what about my gloves? I spilled lemonade on them and they’re ruined, too,” Jo thought the cost for new ones, and said, “I just won’t wear any.”

“You must have gloves, or I won’t go,” cried Meg. She always wanted to be proper.

They decided each would wear one of Meg’s good gloves, and hold one of Jo’s spoiled ones. Meg made Jo promise to behave like a lady, and never say things like
“Christopher Columbus!” Jo agreed and sent an acceptance to the invitation as soon as she finished her book.

On New Year’s Eve, the two older March girls spent a long time getting ready for the party. After one mishap (Jo burned Meg’s hair while trying to curl it), both girls were happy with the results. They looked smart and pretty, even if Meg’s high-heeled shoes were too tight and Jo’s hairpins stuck straight into her scalp. Their mother told them to have a good time.

The girls arrived at Sallie’s house and spent a few minutes inspecting themselves in Mrs. Gardiner’s dressing-room mirror. Meg worried about her burned hair, and Jo worried about doing something wrong. They developed a system: Meg would lift her eyebrows if Jo acted improperly.

Once downstairs, Meg found a group of girls her age to talk to and was soon dancing, even though her new shoes hurt her feet. Jo desperately wanted to join a group of boys who were talking about skating, which she loved, but Meg’s eyebrows went right up—so none of that! Jo tried not to feel so alone and out of place, but when a big redhead boy came toward her, she disappeared into a curtained closet. Only she wasn’t alone: she was face to face with the Laurence boy!

“I’m sorry,” Jo blurted out. “I didn’t realize anyone was here.” She started to back out of the closet when he laughed and said, “Don’t mind me. Stay if you like.”

“Wouldn’t I bother you?”

“Not at all. I came here because I don’t know many people and felt a little strange by myself.”

“So did I.”
Their conversation started awkwardly, for they were both shy. Then Jo thanked him for the Christmas dinner, and he explained it was his grandfather’s idea.

“How is your cat, Miss March?”

“How well, thank you, Mr. Laurence; but my name is just Jo, not Miss March.”

He smiled and replied, “Well then, I’m Laurie, not Mr. Laurence.”

“Laurie Laurence, what a funny name.”

“My name is Theodore, but I don’t like it because the boys called me Dora. I made them say Laurie instead.”

“And I wish everyone would call me Jo instead of Josephine.”

Soon, the two talked like old friends.
APPENDIX C

Excerpt from the original version of *The Man Who Fell to Earth* (Tevis, 1963)

After two miles of walking he came to a town. At the town's edge was a sign that read HANEYVILLE POP. 1400. That was good, a good size. It was still early in the morning- he had chosen morning for the two-mile walk, because it was cooler then- and there was no one yet in the streets. He walked for several blocks in the weak light, confused at the strangeness- tense and somewhat frightened. He tried not to think of what he was going to do. He had thought about it enough already.

In the small business district he found what he wanted, a tiny store called the Jewel Box. On the street corner nearby was a green wooden bench, and he went to it and seated himself, his body aching from the labour of the long walk.

It was a few minutes later he saw a human being. It was a woman, a tire-looking woman in a shapeless blue dress, shuffling towards him up the street. He quickly averted his eyes, dumbfounded. She did not look right. He had expected them to be about his size, but this one was more than a head shorter than he. Her complexion was ruddier than he had expected, and darker. And the look, the feel, was strange- even though he had known seeing them would not be the same as watching them on television.

Eventually there were more people on the street, and they were all, roughly, like the first one. He heard a man remark, in passing, '...like I say, they don't make cars like that one no more,' and, although the enunciation was odd, less crisp than he had expected, he could understand the man easily.
Several people stared at him, a few of them suspiciously; but this did not worry
him. He did not expect to be molested, and he was confident after observing the others
that his clothes would bear up under inspection.

When the jewellery store opened he waited for ten minutes and then walked in.
There was one man behind the counter, a small, chubby man in a white shirt and tie,
dusting the shelves. The man stopped dusting, looked at him for a moment, a trifle
strangely, and said, ‘Yes sir?’

He felt over tall, awkward. And suddenly very frightened. He opened his mouth
to speak. Nothing came out. He tried to smile, and his face seemed to freeze. He felt,
der in him, something beginning to panic, and for a moment he thought he might faint.

The man was still staring at him, and his look seemed not to have changed. ‘Yes
sir?’ he said again.

By a great effort of will he was able to speak. ‘I...I wonder if you might be
interested in this... ring?’ How many times had he planned that innocuous question, said
it over and over to himself? And yet now it rang strangely in his ears, like a ridiculous
group of nonsense syllables.

The man was still staring at him. ‘What ring?’ he said. ‘Oh.’ Somehow he
managed a smile. He slipped the gold ring from the finger of his left hand and set it on
the counter, afraid to touch the man’s hand. ‘I... was driving through and my car broke
down. A few miles down the road. I don’t have any money’ I thought perhaps I could
sell my ring. It’s quite valuable.’

The man was turning the ring over in his hands, looking at it suspiciously. Finally
he said, ‘Where’d you get this?’
The way the man said it made his breath choke in his throat. Could there be something wrong? The colour of the gold? Something about the diamond? He tried to smile again.
APPENDIX D

Excerpt from the altered version of *The Man Who Fell to Earth* (Tevis, 1979)

He walked for two miles until he came to a town. At the side of the road was a sign. HANEYVILLE: POPULATION 1,400 it said. That was good: the town was a good size.

It was still early in the morning, and there was no one in the streets. He walked through the town in the weak light. Everything was so strange. He felt worried and frightened. He tried not to think about what he was going to do.

In the small shopping centre, he found what he wanted. It was a small shop called The Jewel Box. On the street corner nearby was a green wooden seat. He went and sat on it, his body hurting from the long walk.

A few minutes later he saw a human being—a woman in a dirty blue dress. She walked slowly towards him up the street. He quickly looked away, surprised. She did not look right. She was too small; about a head shorter than he was. And the look, the *feel* of her was strange.

It was very different from watching them on television. Soon there were more people in the street. They all looked the same as the woman. He heard a man speak as he passed, ‘...like I say, they don’t make cars like that any more.’ The voice sounded different but he could understand the man easily. A few people noticed him, but this did not worry him. He was sure that his clothes were all right after seeing the others.

When the jewllery shop opened, he waited for ten minutes. Then he walked in. The shopkeeper was a small fat man wearing a tie and white shirt. He stopped cleaning a glass case. ‘Yes, sir?’ he said.
He felt too tall and suddenly very frightened. He opened his mouth to speak. Nothing came out. He tried to smile, but his face didn’t change. Deep in him, something wanted to run away. He felt sick.

The man was still looking at him. ‘Yes, sir?’ he said again. He forced himself to speak. ‘I...I wonder if you are interested in buying this... this ring?’ How many times I have planned that question in my mind, he thought. But now it sounds wrong.

The other man was still looking straight at him. ‘What ring?’ he asked.

‘Oh.’ Somehow he forced a smile. He pulled the gold ring from the finger of his left hand. ‘I...was driving through and my car broke down. It’s a few miles down the road. I don’t have any money.
APPENDIX E

Excerpt from the original version of *The Purloined Letter* (Poe, 1966)

At Paris, just after dark one gusty evening in the autumn of 18-, I was enjoying the twofold luxury of meditation and meerschaum, in company with my friend C. Auguste Dupin, in his little back library, or book-closet, *au troisieme*, No. 33, Rue Dunot, Faubourg St. Germain. For one hour at least we had maintained a profound silence' while each, to any casual observer, might have seemed intently and exclusively occupied with the curling eddies of smoke that oppressed the atmosphere of the chamber. For myself, however, I was mentally discussing certain topics which had formed matter for conservation between us at an earlier period of the evening’ I mean the affair of the Rue Morgue, and the mystery attending the murder of Marie Roget. I looked upon it, therefore, as something of a coincidence, when the door of our apartment was thrown open and admitted our old acquaintance, Monsieur G-, the prefect of the Parisian police.

We gave him a hearty welcome’ for there was nearly half as much of the entertaining as of the contemptible about he man, and we had not seen him for several years. We had been sitting in the dark, and Dupin now arose for the purpose of lighting a lamp, but sat down again, without doing so, upon G.’s saying that he had called to consult us, or rather to ask the opinion of my friend, about some official business which had occasioned a great deal of trouble.

“If it is any point requiring reflections,” observed Dupin, as he forbore to enkindle the wick, “we shall examine it to better purpose in the dark.”
“That is another of your odd notions,” said the Prefect, who had a fashion of calling every thing “odd” that was beyond his comprehension, and thus lived amid an absolute legion of “oddities.”

“Very true,” said Dupin, as he supplied his visitor with a pipe, and rolled towards him a comfortable chair.

“And what is the difficulty now?” I asked. “Nothing more in the assassination way, I hope?”

“Oh no; nothing of that nature. The fact is, the business is very simple indeed, and I make no doubt that we can manage it sufficiently well ourselves’ but then I thought Dupin would like to hear the details of it, because it is so excessively odd.”

“Simple and odd,” said Dupin.

“Why, yes; and not exactly that, either. The fact is, we have all been a good deal puzzled because the affair is so simple, and yet baffles us altogether.”

“Perhaps the mystery is a little too plain,” said Dupin.

“Oh, good heavens!” who ever heard of such an idea?”

“A little too self-evident.”

“Ha! Ha! Ha!-ha! Ha!-ha!-ho! Ho! Ho!” — roared our visitor, profoundly amused, “oh, Dupin, you will be the death of me yet!”

“And what, after all, is the matter on hand?” I asked.

“Why, I will tell you,” replied the Prefect, as he gave a long, steady, and contemplative puff, and settled himself in his chair. “I will tell you in a few words’ but, before I begin, let me caution you that this is an affair demanding the greatest secrecy,
and that I should most probably lose the position I now hold, were it known that I
confided it to any one."

"Proceed," said I.

"Or not," said Dupin.

"Well, then' I have received personal information, from a very high quarter, that a
certain document of the last importance, has been purloined from the royal apartments.
The individual who purloined it is known; this beyond a doubt; he was seen to take it. It
is known, also, that it still remains in his possession."

"How is this known?" asked Dupin.

"It is clearly inferred," replied the Prefect, "from the nature of the document, and
from the non-appearance of certain results which would at once arise from its passing out
of the robber's possession; that is to say, from his employing it as he must design in the
end to employ it."

"Be a little more explicit," I said.

"Well, I may venture so far as to say that the paper gives its holder a certain
power in a certain quarter where such power is immensely valuable."

The prefect was fond of the cant of diplomacy.

"Still I do not quite understand," said Dupin.

"No? Well; the disclosure of the document to a third person, who shall be
nameless, would bring in question the honor of a personage of most exalted station' and
this fact gives the holder of the document an ascendancy over the illustrious personage
whose honor and peace are so jeopardized."
"But this ascendancy," I interposed, "would depend upon the robber's knowledge of the loser's knowledge of the robber. Who would dare—"

"The thief," said G., "is the Minister D--, who dares all things, those unbecoming as well as those becoming a man. The method of the theft was not less ingenious than bold. The document in question—a letter, to be frank—had been received by the personage robbed while alone in the royal boudoir. During its perusal she was suddenly interrupted by the entrance of the other exalted personage from whom especially it was her wish to conceal it. After a hurried and vain endeavor to thrust it in a drawer, she was forced to place it, open as it was, upon a table. The address, however, was uppermost, and, the contents thus unexposed, the letter escaped notice. At this juncture enters the Minister D--. His lynx eye immediately perceives the paper, recognizes the handwriting of the address, observes the confusion of the personage addressed, and fathoms her secret. After some business transactions, hurried through in his ordinary manner, he produces a letter somewhat similar to the one in question, opens it, pretends to read it, and then places it in close juxtaposition to the other. Again he converses, for some fifteen minutes, upon the public affairs. At length, in taking leave, he takes also from the table the letter to which he had no claim. Its rightful owner saw, but, of course, dared not call attention to the act, in the presence of the third personage who stood at her elbow.
APPENDIX F

Excerpt from the altered version of *The Purloined Letter* (Howe, 1975)

Outside it was a dark windy evening. I was sitting with my friend Mr Dupin in the library of his house. For at least one hour, we had been sitting in total silence. A stranger, seeing us like that, would have though that we were only watching the smoke that curled up from the pipes we were smoking. The real truth, though, was quite different. I was thinking about certain topics that we had discussed earlier. Dupin’s mind was so active and imaginative that, even when we finished discussing something there was always plenty left for me to think about.

Then, quite unexpectedly, there was a knock on the door, and in walked the Chief of the Paris Police.

We welcomed him warmly, for we always found him amusing, even though he was not too clever. I wondered what it could be that brought him to Dupin’s house, because we had not seen him for several years.

Duping rose in order to light a lamp, for we had been sitting in the dark. But before he could do so, the chief of Police told us why he had come. He wanted to ask Dupin for advice about some official business which was causing a great deal of trouble. When he heard this, Dupin sat down again without bothering to light the lamp. It was always his way to think in the dark. I think he must have found it easier to concentrate. His next words confirmed my belief, ‘If it is something that requires thought,’ said Dupin, ‘we shall be able to think better in the dark.’
‘That is another of your odd ways,’ said the Chief, who had a habit of calling everything ‘odd’ when he didn’t understand it. He therefore lived in a world surrounded by ‘oddities’, since we believed that he understood very little.

After the Chief had seated himself comfortably, Dupin asked him what his difficulty was.

‘Well, the fact is,’ began the Chief importantly, ‘it’s a very simple thing indeed. I’m sure we could solve it by ourselves really, but I thought that Dupin would like to hear the facts about this business because the whole thing is so very odd.’

‘Simple and odd,’ said Dupin.

‘Why, yes, but not exactly that either. The fact is, we have all been so puzzled because it is so simple, and yet we cannot solve it.’

‘Perhaps the mystery is a little too clear,’ said Dupin.

‘Oh, Good Heavens! Whoever heard of such an idea?’

‘Well, what is the problem you wanted to talk about?’ I asked, a little impatiently.

‘I will tell you,’ replied the Chief. ‘I will tell you in a few words, but before I begin, I must warn you that this matter is secret. I would probably lose my job if it were known that I had told anyone about it.’

‘Well, start then,’ I said.

‘But if you would rather not...’ said Dupin.

‘Well, then,’ said the Chief, starting at last, ‘I have received information from a very important person, that a certain document of great importance has been stolen from the royal palace. The person who stole the document is definitely known. He was seen talking it. It is known also that he still has the document.’
‘How is this known?’ asked Dupin.

‘It is known,’ replied the Chief, ‘because of what the document is, and because certain things have not happened which would immediately happen if the robber no longer had the document. In other words, the only way the robber can use this document is to give it to someone, and then we would immediately know that he no longer had it.’

‘Please be a little clearer,’ I said.

‘Well, let me say that the paper gives this robber a certain power in a certain place where such power is very valuable.’ The Chief was fond of being difficult.

‘I still do not quite understand,’ said Dupin.

‘No? Well, showing this document to a third person, whom we shall not name, would bring dishonour to a very important person. This is what gives the robber such power over the person whose honour was mentioned.’

‘But this power,’ I interrupted, ‘must mean that the person who had the document in the first place, must know who took it.'
APPENDIX G

Excerpt from the altered version of The Purloined Letter (Dixson, 1971)

In Paris, just after dark one evening in the autumn of 18--, I was enjoying the company of an old friend, C. Auguste Dupin, in his small library. The door of the room was opened suddenly and an old acquaintance, Monsieur G., head of the Paris police, entered.

We were glad to see him, for we had not seen him for several years. Monsieur G. said that he had come to consult us, or rather to ask the opinion of my friend Dupin, about some official business which was causing him a great deal of trouble.

"I will tell you in a few words what it is," he said, "but before I begin, let me tell you that this is a matter of the greatest secrecy and I might lose my position if it became known that I had told someone about it.

"Proceed," said I.

"Well, I have received confidential information that a document of great importance has been stolen from the royal apartments. The thief is Minister D--. The person from whom the letter was stolen needs the letter badly. But, of course, he cannot proceed openly. And he has asked me to take care of the problem."

"My first act," he went on, "was to make a careful inspection of the minister’s apartment. Of course, I had to do this secretly and without his knowledge because we did not want the minister to know that we suspect him. Fortunately, the daily habits of the minister helped me greatly. He is frequently absent from home at night. He has only a few servants and they do not sleep in his apartment. I have keys, as you know, with which I can open any door in Paris. For three months, a night has not passed in which I
have not been busy personally searching his apartment. It is now a question of my honor and my reputation. In addition, to mention a great secret, the reward is enormous. Therefore I did not discontinue the search until I was completely satisfied that the thief is a more clever man than I am. I am sure that I have examined every corner of the apartment in which it is possible that the paper can be hidden.”

“But is it not possible, “I suggested, “that although the minister has the letter, he has hidden it somewhere outside the apartment?

“Oh, no!” said the police officer. “Twice he has been stopped on the street by my own men, pretending to be thieves, and they have searched him carefully under my own inspection.”

“Tell us,” said I, “exactly what you did in your search of the apartment.”

“I have had long experience in these matters,” answered the police officer. “Thus, I examined the apartment room by room, spending an entire week in each room. We examined the furniture. We opened every drawer, and I suppose you know that for an experienced police officer such a thing as a secret drawer is impossible. Next, we examined the chairs. We removed the tops from all the tables.”

“But,” I said, “you were not able to take apart all the pieces of furniture. That would be impossible.”

“Of course,” he answered. “But we did better. We examined every section of each piece of furniture under a very powerful microscope- and we found no indications or marks that the furniture had been touched or disturbed in any way to create a hiding place for the letter. After we had examined the furniture, we examined the apartment itself.
We divided the entire surface into sections, and gave a number to each section so that we could not possibly miss any. Then we inspected each square inch of the apartment."

"You examined the grounds around the house?"

"Yes—but that gave us little trouble. The grounds are paved with bricks. We examined each brick and also the grass between the bricks and found no indication that anything had been touched or moved."

"You looked among the minister's papers, of course, and into the books of his library?"

"Certainly, we opened every package. We not only opened every book but turned every page in each volume. We also inspected carefully the cover of each book with our microscope."

"You examined the floors beneath the carpets?"

"Certainly! We removed every carpet and examined every board beneath the carpets."
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REFERENCES


