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Phonosyntaxes*

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18.1. Introduction

Although the search for linguistic universals has been successful in discovering a wide variety of similarities among the languages of the world (Greenberg 1966, 1978), few generalities about the semantic properties of languages have been uncovered (Weinreich 1963). Some of the most striking examples of a structured semantic domain are to be found in the connection between sound and meaning. In principle, resemblances between meaning and sound should not exist. As Greenberg (1957) notes, the connection between sound and meaning is essentially arbitrary. A meaning can theoretically be represented by almost any set of sounds in a language.

Despite claims that this principle applies to all languages, the articles in this volume show that connections between the meanings and the sounds of language do exist. Two universal and well-documented cases of sound symbolism are relevant to the present study. First, Ultan (1978) found evidence for distance symbolism. The notion of distance symbolism must be considered within the broader framework of deixis. Deixis refers to those features of the language which reflect the spatio-temporal coordinates of the relative situation of the utterance. Distinctions are made between things that are near in space and/or time versus things that are far in space and/or time. In an analysis of 136 languages, Ultan found that 33.1% of the sample exhibited distance (spatial) symbolism in their demonstrative system. More importantly, the languages that overtly symbolized distance relationships predominantly used front or high front vowels to represent proximity to the speaker. Ultan also found universal correspondences for size symbolism in language. Some languages overtly mark words expressing diminution by changing the phonological features of the sound in the root. Ultan found that 27.3% of the 136 languages he sampled had diminutive marking. In almost 90% of these languages, the diminutive was symbolized by high front vowels. The wide-
The graph shows the distribution of frequent words (closed vocabulary) and non-frequent words (open vocabulary) across different languages. The percentage of frequent words is higher in English compared to other languages, indicating a larger closed vocabulary in English. The graph highlights the importance of considering both frequent and non-frequent words in language processing and machine learning tasks, as they differ in their co-occurrence patterns and semantic contributions.
Methods

High-frequency words (or a limited vocabulary) are a central processing strategy in the development of reading (Deason, 1982). In early readers, the frequency of high-frequency words is much higher than in late readers. In contrast, late readers show a higher frequency of low-frequency words. In this regard, high-frequency words are more likely to be processed as a whole, whereas low-frequency words are more likely to be processed as individual letters or letter combinations. This suggests that high-frequency words are more effectively processed in the early stages of reading development.

Table 1: Percentage of nouns and verbs with frequent and infrequent words

<table>
<thead>
<tr>
<th>Word Type</th>
<th>Frequent</th>
<th>Infrequent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nouns</td>
<td>75%</td>
<td>25%</td>
</tr>
<tr>
<td>Verbs</td>
<td>80%</td>
<td>20%</td>
</tr>
</tbody>
</table>

In English, the frequency of high-frequency words is significantly higher than that of low-frequency words. This is evident in Table 1, which shows that 75% of nouns and 80% of verbs are high-frequency words. In contrast, only 25% of nouns and 20% of verbs are low-frequency words. This suggests that the use of high-frequency words is more effective in early reading development.
RESULTS

The order of the page was presented for every stimulus in the paragraph. The order of the paragraph was not the same for all paragraphs. The order of the paragraph was different for each paragraph.

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and (b) the language shift in a function of vowel type (non-vowels vs. back vowels) in (a) high-frequency words, and (b) non-vowel words. 

Figure 1.8. Language shift in a function of vowel type (non-vowels vs. back vowels) in (a) high-frequency words, and (b) non-vowel words. 

There was also a significant interaction for Trial, i.e., different baseline levels between the two levels of the factor. For high-frequency words, the baseline level was higher than for non-vowel words. For non-vowel words, the baseline level was lower than for high-frequency words. The interaction was significant only for non-vowel words. 

More importantly, however, only one significant interaction between Vowel and Baseline was evident in the data. The mean response levels were higher on initial Baseline and for Baseline trials. 

Figure 1.6. Language shift in a function of vowel type (non-vowels vs. back vowels) for non-vowel words. 

The main effect of Vowel was significant. 

Figure 1.5. Language shift in a function of vowel type (non-vowels vs. back vowels) for high-frequency words. 

There was only a significant effect for Baseline. 

Figure 1.4. Language shift in a function of vowel type (non-vowels vs. back vowels) for non-vowel words.
Discrimination between frequent and low-frequency words in English on the other hand, showed pronounced and pronounced differences existed only in the right -prefrontal area. The right -prefrontal area, which is involved in the comprehension and production of language, showed enhanced activity when frequent words were presented compared to low-frequency words.

In contrast, the left -prefrontal area, which is involved in speech production and planning, showed increased activity when low-frequency words were presented compared to frequent words.

The main difference in activity was shown in the 18 -Hz band. Low-frequency words were processed earlier in the brain, but the processing was less efficient. Frequent words were processed later, but the processing was more efficient. This suggests that the information may be encoded in a different manner for frequent and low-frequency words.