

Model for the Acquisition of English Sound-Spelling Correspondence in Second Language Acquisition a Case Study of Monosyllabic Words

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ABSTRACT

This study investigates the correspondence between the spelling and pronunciation of English words, focusing on monosyllabic words. By applying the permutation and combination methods and the maximum onset principle, we systematically analyze the various forms of monosyllabic words preceding with zero consonant, single consonant, double consonants, and three consonants before vowels. The systematic analysis of vowel replacements (E, I, O, U) within C-V combinations unveils distinct patterns for long and short vowels, diphthongs, triphthongs and r-controlled vowels. The findings reveal the underlying regularities that impact the pronunciation of English words. The study is designed to cultivate phonological awareness in second language acquisition, paving the way for in-depth research on the relationship between the spelling and pronunciation of multi-syllabic words in English through the (((C)C) C) V((((C)C) C) C) model.

Keywords: sound-spelling correspondence, vowel letters, consonant clusters, permutation and combination, phonological awareness

INTRODUCTION

Language is a combination of sound, spelling and meaning. English is a phonetic text, and there is a correspondence between its sounds and spellings. This study uses permutations and combinations to illustrate the regularity between the pronunciation of English words and their spelling forms through the analysis of monosyllabic words. On the one hand, it shows the productivity and creativity of English words in regard to word formation. Permutations and combinations of the letters show that there are regular patterns between the pronunciation and spelling of English words. In the context of ESL, pronunciation learning is very important for English learners, especially for beginners. Only by mastering relevant pronunciation knowledge can learners be comfortable in the specific application of language listening, speaking, reading and writing. This study takes monosyllabic words in English as the research object, and uses relevant knowledge of phonetics and phonology to sort out and explain the correspondence between English spelling and pronunciation. The study intends to describe the pronunciation characteristics of English monosyllabic words, and then summarize the pronunciation rules of monosyllabic words, and at the same time explain the irregular phenomena by using the maximum onset principle for syllables in English. The model for English Sound-Spelling correspondence in SLA is established. The results of the study are applicable in instruction of second language teaching with the teaching aim to cultivate learners' phoneme-grapheme awareness.

METHODOLOGY

Syllable may be defined as a minimal pattern of phoneme combination with a vowel as nucleus, preceded

and followed by a consonant unit or permitted consonant combination (O'Connor and Trim 1953). The concept of the phonological syllable will hence be adopted as a construct helpful for organizing the explanation of rhythmic and prosodic facts at levels above the segment, and as a convenient domain for expressing the mutual distribution of phonemic segments (Laver, 1994). Kahn (2015) argued "The syllable is an organizing principle for grouping segments into sequences, and it is larger than the segment and smaller than the word". And the syllable serves as a domain of certain phonological process.

A syllable usually contains a syllable nucleus (usually a vowel), and may also have a margin (usually a consonant) at the beginning and end of the syllable. Syllables are often considered the phonological "building materials" of words, influencing the rhythm, rhyme, and verse of the language, as well as the light and stress patterns of the language. The composition of syllables is not an arbitrary combination of phonemes, but a combination with restrictions. In terms of phonetic form, a syllable usually consists of a vowel phoneme or a vowel phoneme plus one or several consonant phonemes; in terms of written form, a syllable usually consists of a vowel letter, a vowel letter combination, or A vowel plus one or more consonants. Phonotactic rules determine which sounds are allowed and which are not allowed in each part of a syllable. English allows the emergence of quite complex syllable structures: but its syllables can have up to three consonants at the beginning (such as string and splash), and occasionally have up to four consonants at the end (such as prompts). That is, the beginning and end of a syllable can be composed of multiple consonants. The number of consonants at the beginning of a syllable is no more than 3, and the number of consonants at the end of a syllable is no more than 4 (Roach, 2000), which can be described as (((C)C) C) V(((C)C) C) C (Zhang Jisheng, 1996, 2000. Hu Zhuanglin, 2017.), where C represents the consonant phoneme and V represents the vowel phoneme. This study focuses on the combination characteristics of consonant clusters before the core of monosyllabic words and the pronunciation rules of the entire word under this combination. Based on the permutations and combinations, monosyllabic words in English are described by CV and can have 20 forms in the following four categories:

- (1) V, VC, VCC, VCCC, VCCCC;
- (2) CV, CVC, CVCC, CVCCC, CVCCCC;
- (3) CCV, CCVC, CCVCC, CCVCCC, CCVCCCC;
- (4) CCCV, CCCVC, CCCVCC, CCCVCCC, CCCVCCCC.

All the possible forms of monosyllabic words composed of the above English vowel letters and consonant letters. The permutation and combination method were employed to explore the possible sound-spelling combinations within each category. The vowel letter 'A' was used as a representative, and the remaining 21 consonants replaced 'C' following specified combination conditions. This allowed for a systematic examination of pronunciation variations based on the arrangement of consonants and vowels.

This study intends to use the vowel letter 'A' to analyze the regularity of monosyllabic words, replace 'V' with the rest four vowel letters and use the remaining 21 consonants to replace 'C' respectively in the 'C-V' combination according to the combination conditions. This describes the pronunciation of the entire word when there are zero consonants, single consonants, double consonants, and three consonants before the vowels. A comprehensive sound-spelling relationship model for monosyllabic words was developed. This model captured the pronunciation variations for the vowels E, I, O, and U within the specified syllable structures.

ANALYSIS

The analysis focused on the sound-spelling correspondence within monosyllabic words, employing the

developed methodology to systematically explore pronunciation variations based on syllable structures and vowel-consonant combinations.

V-Series

When there is no consonant letter at the beginning of the V-series, the possible forms of English monosyllabic words are V, VC, VCC, VCCC, VCCCC. By searching for the monosyllabic words in current English vocabulary. In V mode, the vowel letter 'A' is read as its own name [eɪ]. For VC, VCC, VCCC, VCCCC modes, the vowel letter 'A' is pronounced [æ]. But when the vowel letter is controlled by r, the vowel letter is pronounced as the long sound [ɑ:]. At this time, the vowel is controlled by the consonant letter r, which we call r-controlled vowels. When the consonant letters after a vowel are the same letter combination ll, ss, zz, ff, the vowel letter in *all* is pronounced [ɔ:], and the others are pronounced [æ]. When the combined form of the vowel letter A is AY, the vowel letter A is read as its own name. To sum up, at this time we can use such a formula to describe the pronunciation of vowels. In the following formula V is the vowel letter A. The arrow points to the possible sounds of the vowel A. The slash represents the specific pronunciation of the vowel letter A in the current situation.

$V \rightarrow [eɪ] / V$

$[æ] / VC, VCC, VCCC, VCCCC$

$[ɑ:] / VR *, VRC, VRCC, VRCCC, VRCCCC$

$[ɔ:] / V+LL$

$[eɪ] / VY$

In this category, where the syllable begins with a vowel (V), the study revealed consistent pronunciation patterns. Vowels, particularly when preceded by certain consonant combinations, exhibited variations such as [æ], [ɑ:], [ɔ:], and [eɪ].

CV-Series

When the beginning of the section is a consonant, the combination can be described as CV, CVC, CVCC, CVCCC, CVCCCC; we put 21 consonants before the vowels to discuss the pronunciation of the vowels. The C V situation does not exist in modern English. In the case of CVC, the vowel A is pronounced [æ]. But when the vowel letter is controlled by the consonant letter r, the vowel letter reads the long sound [ɑ:]. This situation can be used in the combination of C VCC, CVCCC, CVCCCC. CVCC, In the case of the combination of CVCCC and CVCCCC, the vowel A is pronounced as [æ]. When a vowel is dominated by the consonant r, the vowel is pronounced as the long sound [ɑ:]. But when the consonant letters after the vowels are combined into the same letter ll, ss, zz, ff, the vowels are pronounced [ɔ:] in all, and the others are pronounced [æ]. At this time, we can use such a formula to describe the pronunciation of vowels.

$V \rightarrow \emptyset / CV *$ (* This combination does not exist in modern English)

$[æ] / CVC, CVCC, CVCCC, CVCCCC$

$[ɑ:] / CVR, CVRC, CVRCC, CVRCCC, CVRCCCC$

$[ɔ:] / V+LL$

[eɪ]/ C VY

CCV-Series

When there are two consonants at the beginning of the section, the combination can be described as CCV, CCVC, CCVCC, CCVCCC, CCVCCCC; we put 21 consonants before the vowels to explore the pronunciation of the vowels. In English, a consonant cluster composed of two consonants has the following form: In the CCV combination, the vowel letter A is pronounced [ɑ:]. In the case of the combination of CCVC, CCVCC, CCVCCC, CCVCCCC, the vowel A is pronounced as [æ]. But when the consonant letters after the vowels are the same letters ll, ss, zz, ff, the vowel A is pronounced [ɔ:], and the others are pronounced [æ]. At this time, we can use such a formula to describe the pronunciation of vowels.

V → [ɑ:] / CC V

[æ] / CCVC, CCVCC, CCVCCC

[ɑ:] / CCVR, CCVRC, CCVRCC, CCVRCCC, CCVRCCCC

[ɔ:] / CCV+LL

[eɪ] / C CVY

CCCV-Series

When the beginning of a section is composed of three consonants, the combination can be described as CCCV, CCCVC, CCCVCC, CCCVCCC, CCCVCCCC; however, in English vocabulary, the number of word combinations with three consonants as the beginning of the section is relatively small. These The initial sound cluster at the beginning of the stanza is composed of s pr, spl, str, skr, skw, spy, sty, smy and sky. It has the following characteristics: the first consonant letter is always /s/, the second consonant letter is always /p/, /t/, /k/, and the third consonant letter is always /l/, /r/, /w/, or /y/. The CCCV combined form does not exist in English. In the case of the combination of CCCVC, CCCVCC, CCCVCCC, CCCVCCCC, the vowel A is pronounced as [æ].

V → Ø / SCCV*

[æ] / SCCV, SCCVC, SCCVCC, SCCVCCC, SCCVCCCC

[æ] / SCCV, SCCVR, SCCVRC, SCCVRCC, SCCVRCCC

[ɔ:] / SCCV+LL

[eɪ] / SCR VY

FINDINGS

During the analysis of sound-spelling correspondence within monosyllabic words through (((C)C) C) V(((C)C) C) C) model, the vowels E, I, O, and U are used to replace the V in (((C)C) C) V(((C)C) C) C) model respectively and alphabetic choice of consonant letters are made according to the model. We can get the following four sound-spelling relationships of monosyllabic words.

V=E → LONG VOWEL [i:] / CCCV, CCCVY

SHORT VOWEL [e] / CCCVC, CCCVCC, CCCVCCC, CCCVCCCC

V=I → DIPHTHONG [ai] / CCCV

SHORT VOWEL [i] / CCCVC, CCCVCC, CCCVCCC, CCCVCCCC

V=O → DIPHTHONG [əʊ] / CCCV

SHORT VOWEL [ɒ] / CCCVC, CCCVCC, CCCVCCC, CCCVCCCC

LONG VOWEL [ɔ:] / CCCVR

V=U → Ø / CCCV

SHORT VOWEL [ʌ] / CCCVC, CCCVCC, CCCVCCC, CCCVCCCC

LONG VOWEL [ɜ:] / CCCVR

CONCLUSIONS

The analysis provides comprehensive insights into the systematic nature of sound-spelling correspondence in monosyllabic English words. The identified patterns contribute to the cultivation of phonological awareness in second language acquisition. The study sets the stage for future research on multi-syllabic words, contributing to a deeper understanding of English pronunciation rules. The analysis elucidates the intricate relationship between spelling and pronunciation in monosyllabic words. The implications extend to language learners, educators, and researchers, fostering a comprehensive grasp of sound-spelling correspondence in the English language. These regularities have an impact on the pronunciation of words for English learners in SLA. and spellings have unique meanings and functions. In the process of our discussion and research, we also discovered some phenomena that do not conform to the correspondence of sound and spelling. The main reason for these irregular phenomena is the formation of English vocabulary. In the process of forming English words, English has absorbed a large number of foreign words have been absorbed into English vocabulary. English vocabulary has adopted the principles of domestication and foreignization in the pronunciation of foreign words, which has led to the violation of the law of correspondence of sound and spelling. For learners of English as a foreign language or as a second language, we should master the rules of the composition of English vocabulary and syllables, master the rules of correspondence of sound and spelling, and constantly explore the connection between the pronunciation and spelling of the English language. It can not only improve the accuracy of vocabulary spelling, but also learn the suprasegmental features of English in syllable units, thereby improve the listening, speaking, reading and writing skills of English learners.

IMPLICATIONS AND RECOMMENDATIONS

The findings carry implications for language learners, educators, and researchers. Understanding the regularities in sound-spelling correspondence enhances accuracy in vocabulary spelling and aids in developing listening, speaking, reading, and writing skills. Future research could explore the impact of irregularities in English vocabulary formation, considering the absorption of foreign words and their influence on pronunciation rules. Continued exploration of the connection between pronunciation and spelling will contribute to a more nuanced understanding of English language phonetics. The findings of this analysis provide valuable insights into the systematic nature of sound-spelling correspondence in

monosyllabic English words. The identified patterns contribute to enhancing phonological awareness in second language acquisition. Additionally, the analysis lays the groundwork for future research on multi-syllabic words, further advancing our understanding of English pronunciation rules.

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FOOTNOTE

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