Vowel length of Czech trisyllabic words in L1 Russian speakers

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https://doi.org/10.36505/ExLing-2020/11/0052/000467

Abstract

Languages differ in how vowel length is applied, which can affect the acquisition of a second language. In Czech, the length is phonological. There are practically no restrictions on its occurrence. It is also completely independent of word stress. In Russian, the length of vocals does not have a phonological status but can be an accompanying characteristic in the implementation of a word stress. The subject of the experiment is the perceptual analysis of vocal quantity in Czech as L2 in Russian speakers (8 subjects). The material consists of recordings of a set of trisyllabic words (48 lexemes, 256 items), in which the structure of quantity (8 different patterns) is checked.

Keywords: Czech as L2, Russian as L1, vowel length, perception, trisyllabic words.

Introduction

The vowel length belongs among the segmental phenomena causing difficulty in production and perception for speakers of Czech as L2, including Russian L1 speakers. (Romaševská & Veroňková 2016) In Russian, vowel quantity is present; however, it does not have phonological status, and it is associated with word stress. On the contrary, in Czech, the vowel length is phonological, and it is entirely independent of Czech word stress; the stressed syllable can be both long and short. A long syllable is not tied to a specific position in a word, and words may contain more than one long vowel; on the other hand, a word may contain no long vowel. Incorrect pronunciation of vowel length may result in the change of meaning of a message, or at least it may contribute to worse intelligibility of speech (in the sense of Munro & Derwing 1995).

In this paper, the L1 Czech listeners' perception of the vowel length of L2 Czech speakers with Russian mother tongue in trisyllabic words with various length patterns is presented.

Methodology

Short (S) and long (L) vowels in a trisyllabic word may be combined in eight different ways (SSS, LSS, SLS... LLL), with all these patterns attested in Czech. For each pattern, we selected six words (2 nouns, 2 adjectives, 2 verbs), i.e.,

48 target words altogether. When collecting the suitable words, an attempt was made to apply the parameter of similarity with Russian, but it was not possible to establish definite criteria for determining which Czech word has a similar equivalent in Russian and which does not.

A story was created using the target words, which were placed in the middle of the sentence. In order to reduce the influence of the surroundings on the realization of the vowel quantity, the surrounding words contained only short vowels and were at least disyllabic in order to avoid including the target word with a surrounding word in one stress group.

11 female speakers with Russian as L1 – students of Czech language courses who were preparing to study at Czech universities (level B1–B2 according to CEFR) – were recorded. Recordings were taken individually in a sound-treated room (AKG C 4500 B-BC microphone, sample rate 32 kHz, 16-bit depth), and speakers were provided a short time for preparation.

We performed a perceptual analysis using Praat software (Boersma & Weening 2019) and determined vowel lengths in the target words and the position of word stress. In case of uncertainty, the listening was performed by another native listener, phonetically educated.

Results

Of the 528 items analysed, 16.3% were excluded because of slips of tongue or repetitions. A relatively larger number of excluded words belonged to three of four patterns containing at least two long vowels (see Figure 1, left column). One-quarter of LLS words (25.8%) and one- fifth of LSL and LLL words (19.7% both) were excluded. We believe that the occurrence of more than one long vowel in a word may have contributed to the pronunciation difficulties.

The successful pronunciation of vowel length was achieved in 37.3% of items, i.e., in less than half of them. However, the success score varies considerably, regarding particular patterns (see Figure 1, right column). The highest success score was achieved in the LSS words (77.2%), with a long vowel in the first syllable (which regularly bears word stress in Czech). None of the other patterns achieved a success rate of 50%. The lowest scores were noticed in the two patterns mentioned above with the highest number of excluded items – LLS 10.2% and LLL 17.0%, containing at least two long vowels. The SSS pattern also displayed a very low success score (25.9%), which, unlike these patterns, contained only short vowels. When pronouncing SSS words, speakers prefered to use SLS pattern, often with word stress on the second syllable, i.e., long in the production.

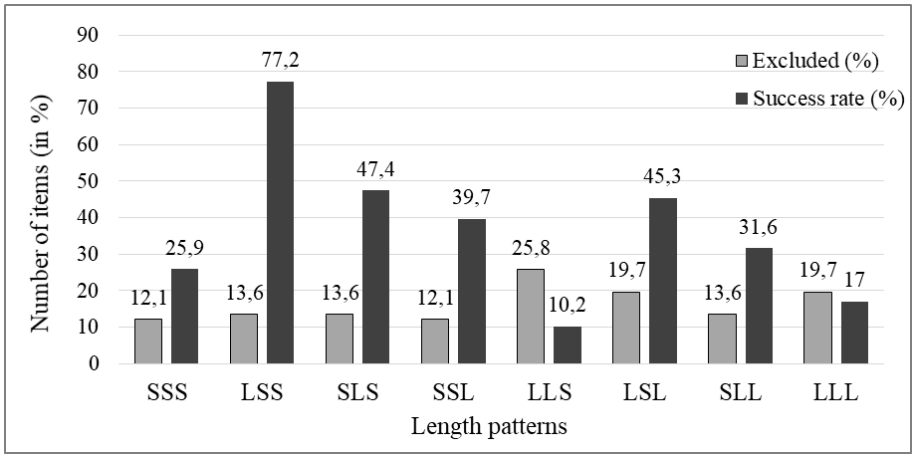

Figure 1. Number of items excluded from the analysis and successfully pronounced, categorized by length pattern. S – short vowel, L – long vowel.

Regardless of whether it was the correct realization or not, speakers preferred LSS and SLS patterns in production. Almost 60% of all the realizations are covered by these two patterns. On the contrary, the LLS and LLL patterns were rarely used in the production (each only in 2% of realizations). See Figure 2.

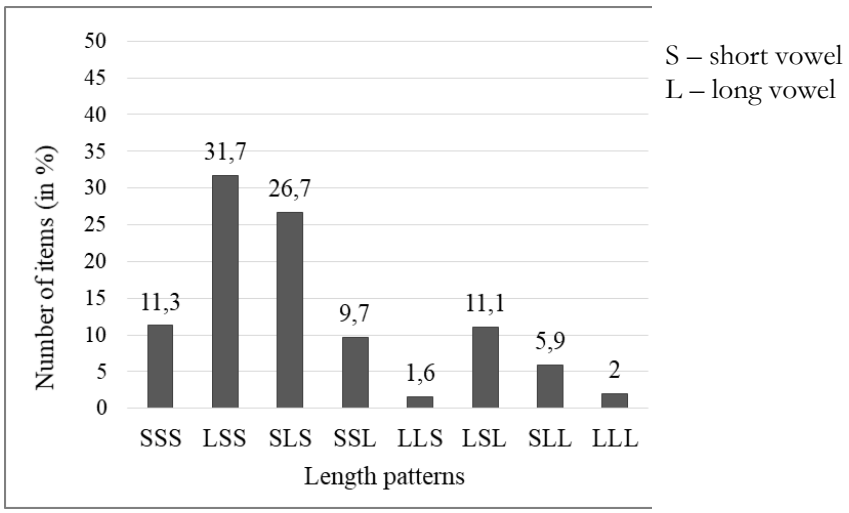

Figure 2. Number of pronounced variants categorized by length patterns.

Conclusion

It has been confirmed that the Russian speakers truly have difficulty pronouncing short/long vowels in Czech. The type of vowel length pattern, especially the accumulation of lengths, may affect the success of pronunciation. Two successive long vowels proved the most difficult, with their combination in the word-final position (SLL) being less difficult than in the word-initial position (LLS), or in the case of three long vowels (LLL). It is apparent that the position of long vowels may influence pronunciation success as well. The pattern LSL with two long vowels separated by a short vowel, representing a relatively more successful pattern, is another example of that. Nevertheless, the difficulties are not only caused by long vowels, but also by words containing canonically only short vowels; in such cases the production of the long vowel may be motivated by the word stress. The relationship between long vowels and word stress also explains the preference of the LSS pattern with a long vowel in the first, stressed syllable in Russian speakers' production. Similarly, the wider use of SLS, in which speakers implemented the word stress mainly on the second syllable, can be explained. It is evident that Czech vowel quantity practice in Russian speakers should be combined with word stress exercises. Familiarity with patterns causing more difficulties has an impact on the creation of pronunciation exercises that may be focused on the specific combinations.

Acknowledgements

This research was supported by the Czech Science Foundation project No. 18-18300S "Phonetic properties of Czech in non-native and native speakers' communication". We would like to thank Petra Poukarová (Faculty of Arts, Charles University, Prague) for contributing to the listening analysis.

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