EMERGENT CONSONANTAL CLUSTERS IN BRAZILIAN PORTUGUESE

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Introduction

The syllable structure of Brazilian Portuguese (BP) has traditionally been described as of a predominantly CV type, although CVC and CCV syllables also occur in the language [1][2][3]. Consonantal clusters tend to undergo phonological processes in the Minas Gerais variety. CCV and CVC-type syllables are commonly reduced to CV ones as in li[vr]o > li[v]o "book" and as in fe[st]a > fe[s]a "party" [4]. These cases of cluster reduction indicate that phonological processes seem to favor CV syllables. One would expect that BP would be moving towards a consistent CV syllable type. Nevertheless, phenomena related to vowel reduction seem to give rise to unexpected consonantal clusters of three or maybe more consonants, something which had not been previously displayed in the language. This paper focuses on investigating emergent clusters in syllables with a sibilant in the coda.

Method

SUBJECTS and TASK

Five University students aged 21 to 29 (3F, 2M) took part in the experiment. They were asked to read gapped sentences which they had to fill in with the ten target words in the same position in the utterance. Each complete sentence was then repeated.

N = *100* (5 x 10 x 2)

The experiment was recorded and the utterances analyzed acoustically using the software *Praat*.
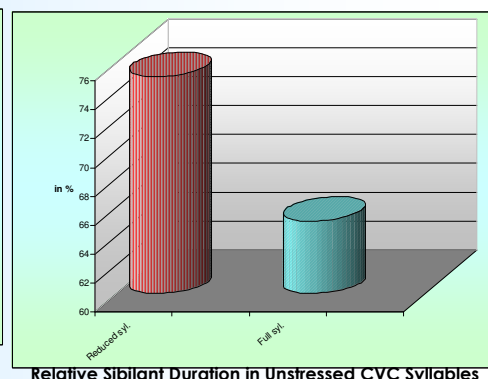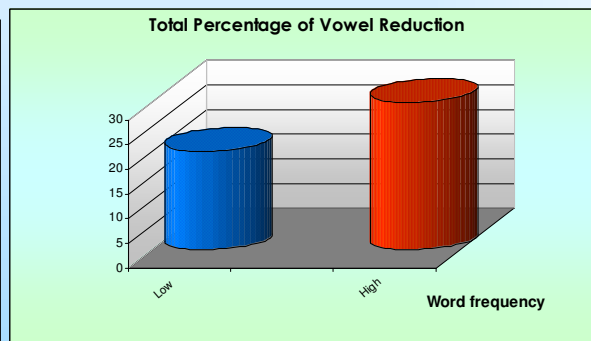
TARGET WORDS

Ten penultimate stressed words containing an initial CVC syllable with an unstressed high back vowel were selected for the task. The following variables were controlled:

• Type of initial consonant: only stops [b,p,k,g,t] were used.
• Word frequency.
• Number of syllables: three-syllable words were preferred (8 in 10).
• Type of consonant in the adjacent syllable: only voiceless stops
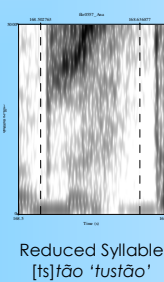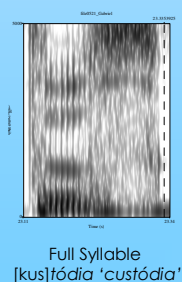
Results
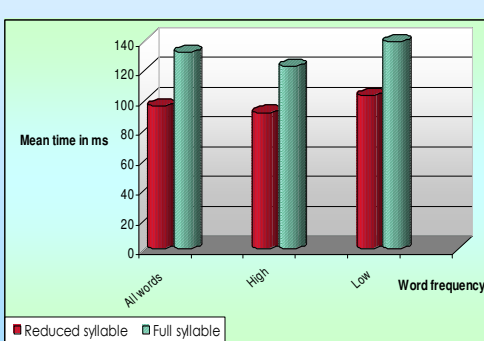
Mean Rime Duration in Unstressed CVC Syllables

Relative Sibilant Duration in Unstressed CVC Syllables

Target Words Spectrograms

Full Syllable
[kus]*tódia 'custódia'*

Reduced Syllable
[ts]*tão 'tustão'*

Discussion

The acoustic analysis shows that although a full vowel cannot be identified as being adjacent to the sibilant it is possible to observe that vowel deletion leaves relevant traces in the signal. Moreover, the remaining sibilant occupies a much larger space in the syllable compared to those in non-reduced ones. The fine phonetic detail which can be observed in the acoustic analysis of emergent consonantal clusters in BP may play an important role in language change. Exemplar Models can accommodate this variation by postulating that both phonetic detail and frequency are relevant aspects in the phonological representation of individual words. Further work may consider other frequency effects in the analysis of the phenomenon. Perceptual experiments may be run to understand better the relationship between perception and production.

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