The Role of Lexical Stress Differences in Learner Word Recognition

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Romance loanwords (largely from Latin and Old French) have become part of the vocabulary of West Germanic Languages. In present-day English, Dutch and German, many of these identical loans are phonologically dissimilar across the three languages. Not only are there segmental differences, main stress too can fall on different syllables of a loanword. From a word processing perspective, lexical stress can be used as cues in spoken word recognition (e.g. Friedrich et al., 2004). We used Romance words borrowed by three West Germanic languages to investigate the role of stress pattern differences in the recognition of English words by L2 speakers whose native language is either Dutch or German. Although previous studies on cognate[1] processing have assessed the influence of phonological overlap on word recognition (Dijkstra et al., 2010), little attention has been paid to the effect of suprasegmental differences across languages including differences in stress alignment.

To determine possible processing effects of differences in word stress in disyllabic and trisyllabic loans, we conducted two Lexical Decision Tasks (LDT) – both in the visual and auditory modality – with stimuli with either different or matched stress assignment in the three languages (see Table 1). Ex1 consists of monomorphemic disyllabic English words. Stress often correlates with the weight of the syllable. Thus, when stress placement differs, the unstressed syllable could be reduced (cf. final vowel in E *moral* vs. D *moraal*, but not in E *costume* vs. G *Kostüm*). The stimuli in Ex2 are monomorphemic and complex trisyllablic words. Both experiments include at least one condition where, in addition to stress placement, the number of syllables differs across the three languages. Whilst the loanwords in English consist of two syllables in Ex1 and three syllables in Ex2, their Dutch and German counterparts have two/three and four syllables respectively. This design enables us to test possible correlations between the degree of phonological similarity across the three languages (stress placement, weight/length of final syllable, number of syllables) and processing consequences. Loanwords which do not exist in either German or Dutch were chosen to provide a baseline. Nonwords were orthographically and phonotactically legal in English and were neither homographic nor homophonic with any existing word in German or Dutch.

Data was collected online via Prolific (N = 30 per experiment and language) for three language groups: monolingual British English native speakers, Dutch and German native speakers who are highly proficient in English and do not speak a Romance Language. Proficiency was assessed using LexTALE (Lemhöfer & Broersma, 2012) and a Language History Questionnaire. Participants only took part in either the auditory or visual version of the experiment. Results for German and Dutch speakers in Ex1 show lower accuracies for items with reduced vowels in the final syllable compared to English native speakers. L2 participants' reaction times were negatively affected by both differences in syllable number (Ex1 & Ex2) and the final vowel (Ex1) whilst differences in stress placement alone had no effect. These results indicate that the native language phonology does play a role in the processing of second-language items even in highly proficient learners but not all suprasegmental differences have equivalent effects. The observed patterns also seem to be modality-dependent as the results of the visual and auditory versions of these LDTs differ.

[1] As used in the L2 literature, i.e. to refer to loanwords that overlap in form and meaning across languages.

Table 1. Example stimuli for Experiments 1 (142 items) and 2 (144 items) (stress placement indicated by **'**)

Condition		English (E)	German (G)	Dutch (D)
	same stress			
EX1		'temple	'Tempel	'tempel
EX2		pro'fessor	Pro'fessor	pro'fessor
	different stress			
EX1	reduced non-reduced	'moral 'costume	Mo'ral Kos'tüm	mo'raal cos'tuum
	E+D 2syll, G 3syll E 2syll, G+D 3syll	'melon 'ballad	Me'lone Ba'llade	me'loen ba'llade
EX2		'melody	Melo'die	melo'die
	-ion	in'fection	Infek'tion	in'fectie
	trisyll E + quadrisyll G&D	'pyramid	Pyra'mide	pira'mide
	non-existent G+D			
EX1		'pigeon		
EX2		um'brella		

References

Dijkstra, T., Miwa, K., Brummelhuis, B., Sappelli, M., & Baayen, H. (2010). How cross-language similarity and task demands affect cognate recognition. *Journal of Memory and Language*, *62*, 284–301.

Friedrich, C. K., Kotz, S. A., Friederici, A. D., & Alter, K. (2004). Pitch modulates lexical identification in spoken word recognition: ERP and behavioral evidence. *Cognitive Brain Research*, *20*(2), 300-308.

Lemhöfer, K., & Broersma, M. (2012). Introducing LexTALE: A quick and valid Lexical Test for Advanced Learners of English. *Behavior Research Methods*, *44*, 325–343.