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Phonological and non-phonological factors in
non-native pronunciation acquisition

Dissertation theses

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Aims

The present dissertation brings under examination the accent of Hungarian learners of English (referred to throughout the thesis as “Hunglish”) and explores how two main types of factors (phonological and non-phonological ones) determine the degree of foreign accentedness in Hunglish. However, the effect of the determinants examined are not tested on *global* foreign accentedness – it is proposed that in non-native pronunciation varieties, and thus in Hunglish too, the potential features of the accent are to be predicted based on a contrastive analysis of the phonetics and phonology of the target language and the L1, and instead of overall foreign accentedness, it is the potential features that are to be tested in empirical studies. Such an approach, in addition to supporting with facts the claims made based on a contrastive analysis, can also reveal how non-phonological (language-external) factors contribute to the extent to which each potential pronunciation problem will be attested in actual idiolects of Hunglish.

The structure of the dissertation

Following the introductory sections, Chapter 2 is devoted to foreign accent in general: it presents the components and key features of interlanguage (i.e., what language-independent attributes characterise L2 phonological systems) and in what way these contribute to a better understanding of how a non-native pronunciation variety of a given language works.

Chapter 3 is concerned with the most important phonological factor in pronunciation acquisition, namely the role of the L1 (i.e., what features of Hunglish are attributable to L1 transfer). In so doing, it provides a comprehensive account of contrastive English and Hungarian phonetics and phonology, thus listing the features of Hunglish (i.e., all the potential

pronunciation errors a Hungarian learner's accent of English might display based on the differences between the sound systems of the two languages).

Chapter 4 sheds light on the most important language-external determinants affecting the success of pronunciation acquisition and the degree of foreign accent. The chapter does not only summarise the most important findings so far concerning the language-external factors that play a role in non-native pronunciation acquisition, but it also gives an overview of the methods for data collection and data analysis that have been used to examine the role of the factors in question, with the greatest emphasis on those determinants which were examined in the empirical studies presented in Chapter 5.

The last major chapter (Chapter 5) turns to the analysis of empirical data by presenting the design, the implementation and the findings of two larger research projects. The first one of these is a study on the acquisition of non-rhoticity (i.e., acquiring a pronunciation variety in which the consonant /r/ does not occur in non-prevocalic phonological positions) by speakers in whose L1 all orthographic R's are pronounced. The second project is concerned with the acquisition of word stress patterns in an instance of language contact where the speakers' L1 displays fixed stress (and thus stress is unable to express meaning contrasts), but the target language spoken has variable stress and the rules of stress placement are only partially predictable.

Finally, the conclusions drawn from all the discussions and analyses are summed up in Chapter 6. The chapter contains a general summary, a discussion of theoretical and practical considerations (as the conclusions involve fundamental implications for both phonology and phonodidactics), as well as directions for further research (since the projects presented in Chapter 5 are two examples only that fit into the system introduced in Chapters 1–4, but this whole framework leaves numerous areas for continuation).

The results of the experiments

The first experiment has shed light on Hungarian learners' acquisition of lenition, and illustrated that different types of intermediate language systems (in this case creoles and interlanguages) exhibit similar characteristics. The study investigated the phenomenon of non-rhoticity in varieties of English (semi-rhoticity in particular, which represents an intermediate system on the rhotic–non-rhotic continuum), and proved that non-native pronunciation varieties of English display similar systematic semi-rhotic patterns to those found in native ones (such as in Jamaican English, in which non-prevocalic R's are maintained in word-final stressed syllables, cf. Wells 1982: 76 & 221).

The experiment examined the degree and manner of rhoticity of 13 Hungarian advanced speakers of English (BA students of English studies and language teachers), all of whose target accent was non-rhotic, but who had not yet reached full non-rhoticity at the time of the experiment and whose English pronunciation therefore displayed semi-rhotic patterns. The participants took part in a recording session involving three elicitation tasks of different levels of formality, all of them focussing on words containing non-prevocalic R's. The analysis of the learners' pronunciation was concerned with how the factors influencing the rhoticity of native varieties (phonological variables such as the vowel preceding the R, the position of the R, etc., as well as non-phonological ones like text category) affect the realisation of R in a non-native variety.

The results have shown that in general it is the word-final (especially the word-final stressed) position that contributes to the realisation of the R, which means that the intermediate stage in the learners' interlanguage is mostly governed by universal phonological principles. This makes Hunglish similar to the Yorkshire (cf. French et al. 1986) and the Jamaican types (cf. Wells 1982; Rosenfelder 2009) of native semi-rhotic systems. In addition to the factors influencing native semi-rhotic varieties, a number of determinants peculiar to

the non-native context (the length of a word and the source the speaker learnt a particular vocabulary item from) were also found to have an effect on the rhoticity of Hunglish.

The second experiment delved into the acquisition of a suprasegmental feature, namely word stress. Based on the differences between the stress systems of English and Hungarian, and previous research on the phenomenon of stress deafness (whereby native speakers of languages with no distinctive stress will be insensitive to stress contrasts in a foreign language – cf. Dupoux et al. 1997, Dupoux et al. 2001; Dupoux et al. 2008; Csépe 2010), it was hypothesised that beginner learners' perception and production of English word stress would be primarily determined by L1 transfer (i.e., they would both perceive and pronounce stresses on the first syllable of words) and that at higher levels of proficiency hypercorrect forms would appear in the learners' pronunciation. The experiment also examined to what extent musical talent was a predictor of stress perception and production as musicality was expected to be positively correlated with pronunciation skills.

The hypotheses were tested on altogether 28 Hungarian learners of English grouped into three levels of proficiency, who took part in a stress perception test, a stress production test and a three-part musicality test. The findings did not confirm the first two hypotheses, as the answers the learners provided in the stress perception test showed no consistency, and in the stress production test the majority of the learners managed to pronounce target-like forms. The few errors they made in the latter task were almost all hypercorrections – it was found that learners had a tendency to pronounce non-initial stresses in words that were stressed on the first syllable (which had not been expected to cause problems). This happened in heavy syllables, especially ones containing a long vowel. As for musical talent, of the three components of musicality tested (tone deafness, sense of rhythm and pitch perception), it was

only sense of rhythm that was found to be positively correlated with stress production, and this correlation was the strongest in the group of the beginner learners.

Phonological implications

This section summarises how the findings of the two experiments have contributed to the understanding of linguistic universals in L2 acquisition.

Phenomena related to the notion of markedness are discussed in Section 2.2 of the dissertation, where it is mentioned that markedness may account for certain features of interlanguage not found in either the L1 or the L2/FL (cf. Eckman 2008). Such examples illustrate the phenomenon of “The Emergence of the Unmarked” (TETU).

One particular finding in each of the experiments presented in Chapter 5 can be considered an instance of TETU. The first one of these is the observation that certain Hungarian learners acquiring a non-rhotic accent of English systematically drop the [r] before consonants (e.g., in words like *marrket*), but variably drop it in word-final position (e.g., in words like *car*). This indicates that apparently the suppression of the [r] is “easier” pre-consonantally than word-finally, which leads to an intermediate stage in the acquisition of R-dropping. Intriguingly, it is well-known that universally, processes that delete consonants or vocalise them (replace them with vowels) apply word-finally only if they also apply before consonants – that is, such processes are more marked in the former position than in the latter. It can be illustrated by a number of examples taken from various languages that a word-final coda position is stronger than a preconsonantal (word-medial) one, which can explain why word-final R’s are less prone to lenition (deletion in this particular case) than preconsonantal ones.

For example, as demonstrated in, for example, Scheer (2004: 629), the diachronic process of Old French L-vocalisation, leniting /l/'s into vowels, left unaffected non-coda L's (e.g., *luna* > *lune* 'moon'; *flore* > *fleur* 'flower'; *vela* > *voile* 'sail, veil') as well as those in final codas (e.g., *sal* > *sel* 'salt', *caball* > *cheval* 'horse'), whereas it systematically weakened preconsonantal L's (e.g., *alba* > *aube* 'dawn', *talpa* > *taupe* 'mole'). Such universal tendencies in consonant lenition may also apply to produce the semi-rhoticity patterns found in Jamaican-type varieties of English as well as Hunglish, and preconsonantal-only deletion is an instance of TETU.

The other instance of TETU (the one found among the observations of the second experiment) is Hungarian learners' tendency to pronounce otherwise unstressed (C)VV and (C)VC syllables as stressed, of which the former was more frequent. Let us see why stress assignment to (C)VV syllables is less marked than to (C)VC.

In languages with weight-sensitive stress systems, stress assignment is dependent on syllable weight in that heavy syllables attract stress. In some languages, heavy syllables are determined qualitatively (i.e., it is the quality of the segments in the syllable that account for syllable weight), while in others syllable weight is quantitative, which means that in order for a syllable to be heavy (and thus stressable), it needs to contain two moras. The fact the bimoraic syllables attract stress is so frequent a characteristic of weight-sensitive stress systems that the principle expressing this regularity in metrical phonology (the so-called Weight-to-Stress Principle, commonly abbreviated as WSP) has also been formalised as a markedness constraint in Optimality Theory (cf. Gordon 2004, Prince & Smolensky 2004). In this respect, stress assignment to bimoraic syllables can be considered an unmarked property of weight-sensitive systems.

In such systems, (C)V syllables are light (which means they are unable to attract stress); however, what counts as a heavy syllable varies greatly: while

there are languages in which only (C)VV syllables are heavy (i.e. syllables containing a long vowel, including diphthongs), in others both (C)VV and (C)VC syllables are heavy. In other words, if a stress system treats (C)VC syllables as heavy, it also treats (C)VV syllables as heavy, but not vice versa. This means that in a quantity-sensitive stress system, it is less marked for the WSP to assign primary stress to (C)VV than to (C)VC. Since Hungarian is not weight-sensitive, the participants' tendency to stress (C)VV syllables to a greater extent than (C)VC can be regarded as another instance of TETU.

What the above examples illustrate is that learners possess an innate knowledge of what is universally less marked (even if the feature in question is not part of their L1), and what makes this case special is that these instances were found in purely EFL settings (i.e., with learners' exposure to the target language limited to the classroom) in the pronunciation of learners who are well beyond the critical or sensitive period in FL language learning. It can thus be concluded that these universal strategies are available to learners totally irrespective of such crucial differences as learning setting and age.

Phonodidactic implications

As for phonodidactic implications (how the findings can be used in the field of pronunciation teaching), the first experiment shed light on an important aspect of the acquisition of non-rhoticity by providing a description of the transition period between a non-rhotic target and an initial accent that is (presumably) fully or heavily rhotic. As the accents of the participants displayed consistent patterns in the intermediate stage of rhoticity (which suggests that it is easier for learners to drop the R's in certain environments than in others), the findings of the study can be used to support learners who wish to acquire full non-rhoticity by highlighting what types of words they need to pay special attention to when

practising non-rhotic pronunciation. This may be relevant only to highly advanced and/or extremely motivated learners, though.

Nonetheless, other conclusions of the first experiment are more broadly applicable. The observation that the participants' accents barely displayed R-liaison is not unknown – it is impossible not to notice that many learners trying to imitate a British accent suppress R's in word-final position even if the next word begins with a vowel, and fill the hiatuses with glottal stops instead. In addition to the fact that contact varieties very often lack liaison, this may also be attributed to the way learners of foreign languages learn vocabulary in general: it seems that despite all the efforts of modern language teaching to encourage students to memorise chunks of the language rather than words in isolation, learners' vocabulary learning mechanism still appears to be primarily word-based, that is, what they store in their memory is the citation form of words. This highlights that focussing on chunks instead of isolated words would not only be important in making the acquisition of the grammar and the vocabulary of the target language effective, but also in learning pronunciation, therefore connected speech phenomena would need more attention in pronunciation teaching.

The conclusions of the second experiment can also be used in phonodidactics. As especially the stress perception test used in the study (but the stress production test too) was designed so that it would be familiar to the schoolchildren participants (i.e., their English course book contained pronunciation exercises of the same kind), the problems encountered concerning the data collection instruments also apply to the textbook activities. There are English language course books (e.g., the *English File* series), which are full of listening activities where the learners need to underline the stressed syllables of words. Based on the results of the experiment, such activities may be insolvable for some learners even after months or years of practice, which can be rooted

either in the learners' suffering from stress deafness or the fact that the thinking mechanism necessary for this task type takes much longer to develop. This experience, especially if repeated, may lead to serious frustration and anxiety.

For these reasons, if a language teacher insists on activities where the task is to underline stressed syllables, it would be beneficial to hold an ear training session prior to the first such activity type – the training should focus on developing the learners' ability to perceive stress degrees as well as making them realise what stress is at all, because, as we have seen, they are likely to equate stress with vowel length. Describing the exact methodology with which this can be achieved is beyond the scope of the discussion.

However, taking into consideration our participants' remarkable ability to copy the stress patterns of words correctly, ear training sessions might not even be worth the nuisance, and the “underline the stressed syllables” tasks could as well be left out – after all, from the learners' point of view, actual pronunciation would be more important than marking stresses correctly in writing. The classic “listen and repeat” task seems to be highly effective, and it has a good chance of making the learners acquire the stress patterns of English words, even without doing the written tasks.

Lastly, the fact that stress production is correlated with sense of rhythm implies that learners may develop their sensitivity to stress by improving their rhythmic skills. Therefore, the solution to stress-related problems may not only be looked for in the EFL classroom, but also in the music lesson.

References

- Csépe Valéria (2010). Szóhangsúly – Az idegen nyelvek tanításának elfeledett aspektusa? *Iskolakultúra* 20(4): 68–76.
- Dupoux, Emmanuel – Christophe Pallier – Nuria Sebastian – Jacques Mehler (1997). A destressing “deafness” in French? *Journal of Memory and*

- Language* 36(3): 406–421.
- Dupoux, Emmanuel – Sharon Peperkamp – Núria Sebastián-Gallés (2001). A robust method to study stress “deafness”. *The Journal of the Acoustical Society of America* 110(3): 1606–1618.
- Dupoux, Emmanuel – Núria Sebastián-Gallés – Eduardo Navarrete – Sharon Peperkamp (2008). Persistent stress ‘deafness’: The case of French learners of Spanish. *Cognition* 106(2): 682–706.
- Eckman, Fred (2008). Typological markedness and second language phonology. In: Jette G. Hansen Edwards – Mary L. Zampini (Eds.), *Phonology and second language acquisition* (pp. 95–115). John Benjamins Publishing Company.
- French, Peter – Stephen Miller – Veronica Cade – Charles Hunt (1986). Documenting language change in East Yorkshire: Outlining a research project. *Transactions of the Yorkshire Dialect Society*, Part LXXXVI, Vol. XVI, 29–36.
- Gordon, Matthew (2004). Positional weight constraints in Optimality Theory. *Linguistic Inquiry* 35(4): 692–703.
- Prince, Alan – Paul Smolensky (2004). *Optimality Theory: Constraint interaction in Generative Grammar*. Blackwell.
- Rosenfelder, Ingrid (2009). Rhoticity in educated Jamaican English: An analysis of the spoken component of ICE-Jamaica. In: Thomas Hoffmann – Lucia Siebers (Eds.), *World Englishes – Problems, properties and prospects: Selected papers from the 13th IAWC conference* (pp. 61–82). John Benjamins Publishing Company.
- Scheer, Tobias (2004). *A lateral theory of phonology: What is CVCV and why should it be?* Mouton de Gruyter.
- Wells, John C. (1982). *Accents of English*. Cambridge University Press.

Publications in the subject of the dissertation

- Balogné Bérces, Katalin – Piukovics Ágnes (2019). Semi-rhoticity in language contact: English-based creoles and interlanguages. In: *Contemporary Perspectives on Language, Culture and Identity in Anglo-American Contexts* (pp. 326–343). Cambridge Scholars Publishing.
- Piukovics, Ágnes (2018). A nem-r-ezés elsajátítása magyar nyelvtanulók angol kiejtésében. In: Scheibl György (Ed.), *LingDok 17: Nyelvészdoktoranduszok dolgozatai* (pp. 9–24). SZTE NyDi.
- Piukovics, Ágnes – Balogné Bérces Katalin (2019). Factors influencing interlanguage rhoticity: The case of Hungarian-accented English. In: Jolanta Szpyra-Kozłowska – Marek Radomski (Eds.), *Phonetics and Phonology in Action* (pp. 129–147). Peter Lang.
- Piukovics, Ágnes – Üstöki Klaudia (2019). Az angol szóhangsúlymintázatok észlelésének és produkciójának tényezői magyar nyelvtanulók esetében: Egy próbakísérlet tanulságai. In: É. Kiss Katalin – Hegedűs Attila – Pintér Lilla (Eds.), *Nyelvelmélet és kontaktológia 4* (pp. 237–256). Pázmány Péter Katolikus Egyetem.