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ROADRUNNERS AND EAGLES

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Abstract
Our previous research on perception of gated casual English by university students suggests that *ceteris paribus*, Polish students are much more accurate than Greeks. A recent pilot study of casually-spoken Polish leads us to the conclusion that many shortcuts found in English are also common in Polish, so that similar perceptual strategies can be used in both languages, though differing in detail. Based on these preliminary results, it seems likely that perceptual strategies across languages tend towards the "eagle" approach - where a birds-eye view of the acoustic terrain without too much emphasis on detail is found - or the "roadrunner" approach, where phonetic detail is followed closely. In the former case, perceivers adjust easily to alternation caused by casual speech phonology while in the latter, perceivers expect little variation and possibly even find it confusing. Native speakers of Greek are "roadrunners", since there is little phonological reduction in their language there is little difference, for example, between stressed and unstressed syllables. We suggest that native speakers of Polish join English speakers as "eagles", which gives them a natural perceptual advantage in English. There is a conceptual similarity between this idea and that of the stress- or syllable-timed language, and we hypothesise that as in this case, there is a cline rather than a sharp division between eagles and roadrunners. As usual, more research is called for.

Keywords: perception, casual speech processes, prosody.

1. Introduction

It has long been axiomatic in foreign language instruction that the phonetics and phonology of one's L1 has a strong influence on production and perception of subsequent languages. Here, we will address an aspect which has received little attention: the contribution to perception of casual speech phonology. We will suggest that the study of "shortcuts" is more crucial for some students of English than for others.

Unselfconscious, conversational English is known to employ a variety of processes which increase contrast between stressed and unstressed syllables and reduce the size of consonant clusters, especially syllable-finally (see Shockey, 2003 for a summary). A few examples are:

thousand	[ˈθaʊz̩n̩]
can't	[kɑ̃ʔ]
surprise	[s̩ˈpraɪz̩]

These reductions or shortcuts are especially common in connected speech when consonants build up across a word or syllable boundary:

last night	[læsˈnaɪʔ]
mountain	[ˈmɑ̃ʊ̃ntn̩ ˈmɑ̃ʊ̃ʔn̩ ˈmɑ̃ʊ̃pm̩]
run the race	[rʌn̪ːə˞ɛɪs]
next week	[nɛksˈwik]
weakest link	[wikɨsˈlɪŋk]

We assume that one consequence of these very common reductions in spoken English is that native speakers learn to accept a variety of approximations to canonical pronunciation, based on an unconscious knowledge of what can be underachieved and what cannot. This knowledge forms part of their phonological competence and arguably involves recognition of the general phonetic profile of an utterance rather than an expectation of strict congruence with the most formal representation. We suggest the term "eagle" for this perceptual style because it involves recognising features of the landscape rather than precise detail.

When asked to recognise a gated[1] English sentence in which several conversational shortcuts are featured, native speakers of English generally achieve very high accuracy, with some delay. This has been reported in the literature for some time (cf. Bard et al, 1988). Typically, English native speakers can reinterpret a phonetic sequence as a reduced phonological string at the point when the conditioning factors are revealed. For example, as reported in Shockey, (2003, 97), when they hear "The screen [skrim] play", they interpret the second word as "scream" until they hear the "p", whereupon they usually reinterpret it as "screen".

2. The study

In an experiment reported elsewhere (Shockey and Bond 2012) we tested the perception of gated conversational English by speakers of two other languages, Greek and Polish. The groups tested were matched for age and experience with English. The stimuli were presented in 50-msec gates in quiet conditions.

[1] Gating is a process by which an utterance is presented in small incremental time units, building up from the beginning (Grosjean, 1980). Subjects are asked to judge what they have heard after each gate, and the percept builds up as more information becomes available.

The gated sentence was:
So it was quite good fun, actually, on the wedding, though...
[sə^{w}ɪ^{w}s^{wl}kwaɪʔgʊfʌnætʃʊɪn̪ːə^{l}wɛdɨŋ..d̪ʊʉ]
/səʊ ɪt wɒz .....ækʃʊəli.....ðəʊ/

There was no ‘t’ in ‘it’
The [w] in ‘was’ was represented by rounding in the first syllable
The ‘t’ in ‘quite’ was a glottal stop, there was no ‘d’ in ‘good’
‘actually’ was significantly reduced
There was no separate dental fricative in ‘the’
The fricative at the beginning of ‘though’ was pronounced as a dental stop

The surprising result was that Poles were much better at recognition of this phrase than the Greeks, nearly equalling the performance of English native speakers. To explain this discrepancy, we reasoned that Polish could have phonological strategies in common with English, because like English it is a language with a potential for complex consonant clusters, even though it differs prosodically. We postulated that, in accordance with the principles of Natural Phonology (Stampe, 1972), there would be a tendency to reduce complexity. Despite assurances from Polish speakers (not linguists) that they always pronounced their language exactly as written, we embarked on a pilot study of Polish casual speech.

Approximately 3 minutes of speech were recorded from three Polish radio talk programmes. The speakers included both males and females. The speech was casual and unguarded.

The two authors LS and MĆ looked at the excerpts independently; LS did a relatively fine-grained phonetic transcription, MĆ (a native speaker of Polish) produced a phonemic transcription. Both LS and MĆ looked at acoustic displays (amplitude waveforms and spectrograms) while transcribing.

Several notable casual speech shortcuts found in both recordings:

Vowel compression

słowa od	/swova od/	[swovod]
Polsce oni	/polstse oni/	[polstsoni]

Approximant compression

czy już	/tʃɨ juʒ/	[tʃuʒ]
dawno ja studio	/davno ja studjo/	[davnestudjo]

Vowel devoicing

klaps	/klɑps/	[kl̥ɑ̥ps]
przeprowadzam	/pʃeprovɑdzɑm/	[pʃ̥ęp....]

Vowel loss

teraz	/terɑz/	[terz]
tradycyjnej	/trɑdɨtsɨjnej/	[trɑdzɨnej] (twice)
to na tym	/to nɑ tɨm/	[tnɑtɨm]

Consonant Loss

wszystkiego	/fʂɨstcego/	[fʂɨscego]
tradycyjnej	/trɑdɨtsɨjnej/	[trɑdzinej] (twice)

Epenthesis

dwóch	/dvux/	[dəvux]
dni	/dɲi/	[dəɲi]
też w Polsce	/tɛʃ f polstse/	[tɛʒ ɛf ...]

While these reductions are not identical to those found in English, they result in an equivalent degree of phonetic variability.

With the caveat that this is only a preliminary study, we suggest that due to having to cope with phonological reduction, native speakers of Polish develop a perceptual strategy similar to that of native speakers of English: both groups are "eagles".

A study by Barry and Andreeva (2001) cites one example of cluster simplification in Greek, but as few clusters arise in the phonotaxis of the language there is understandingly no mention of other similar reductions. Nicolaidis (2001) describes the articulation of casual Greek based on electropalatography. She notes considerable variation in degree of achievement of canonical articulations for consonants and cites a small number of cases where consonants show no contact (mostly in intervocalic position) and two where entire syllables appear to be lost.

It is possible that native speakers of Greek do not cope as well with phonological reduction in English because their language does not incorporate many shortcuts. They therefore "hug the phonetic ground" more closely as patterned variation is not anticipated in the input: they are "roadrunners".

Of course, there could easily be a cline between the two extremes if, indeed, they prove to be valid at all.

3. Conclusion

Obviously, much more research along these lines is called for before firmer ground can be reached, we are building a theory on a very small amount of data. But based on our results so far, we suggest that it is not just native phonetic inventory and canonical phonotactics which aid or hinder perception in subsequent languages learned, it is also phonological **strategies**. Casual speech phonology is a crucial part of these strategies for learners of English, and we suggest that it is even more important for students whose L1 is low in this type of variability, such as Chinese. Support for this notion comes from gating results for 16 native speakers of Hong Kong Cantonese, all young women studying to be teachers of English who had achieved a high score on an English proficiency test, and none of whom correctly parsed a reduced English utterance, largely due to lack of knowledge of shortcuts (Shockey 2003, 121). Complex consonant clusters may be challenging and reducible (unstable) consonant clusters even more so. This may point to the conclusion that the study of casual English phonology is more important for speakers of languages with a marked tendency towards CV syllables than for native speakers of Germanic or Slavic languages.

Based on this notion, we are engaged in further research to see whether perception of gated casual speech bears out our categorisation of "eagles" and "roadrunners". Among our predictions are:

1) L1 Polish speakers will perform well at perceiving gated Polish with casual speech reductions (equivalent to L1 English speakers perceiving gated English casual speech).
2) L1 speakers of Spanish will be equivalent to L1 speakers of Greek at perceiving gated English casual speech.
3) L1 speakers of Catalan will be better than speakers of Spanish at perceiving gated casual English.
4) L1 speakers of Latvian (a Balto-Slavic language) will perform at the same level as speakers of Polish at perceiving gated casual English.

2,3, and 4 assume that subjects have achieved an equal level of instruction in English, which may prove the most difficult variable to control.

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