

## What matters in phonology? Pre-voicing does not.

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Laryngeal contrasts are widely studied in L2 speech research. According to *Speech Learning Model* (Flege 1995), cross-linguistic interaction stems from “equivalence classification”, whereby L2 learners classify two sounds as belonging to the same phonological category and this can lead to a foreign accent in L2 as well as phonetic drift in L1 (Chang 2012). Under this view, the direction of CLI is assumed to depend on what a given theory sees as *equivalent*.

Onset Prominence representational model (OP; Schwartz 2016 et seq.) captures the laryngeal contrast in Polish and English using only a privative feature [spread glottis], with no reference to [voice]. This is formalised in Figure 1 below, with the first two trees corresponding to the laryngeal contrast in English, and the third and the fourth tree illustrating it in Polish. The difference between aspirated voiceless stops in English (left-most tree) and a plain voiceless stop in Polish (third tree from the left) lies at the level at which the feature [spread glottis] is assigned. The representations for /bdg/ in both languages are identical, thus it is assumed that this series will be more susceptible to CLI effects.

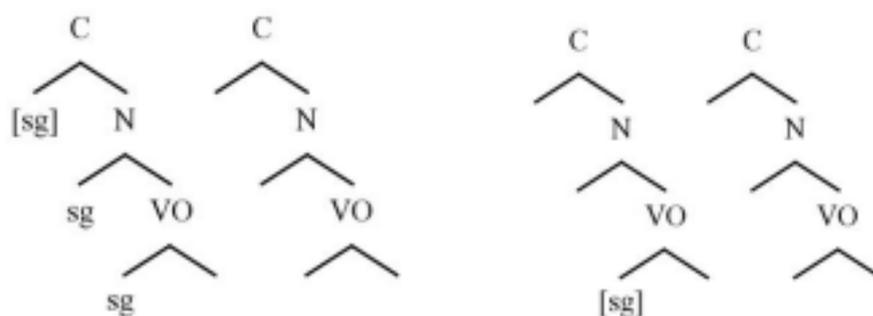


Fig. 1. The representations of /p, t, k/ and /b, d, g/ respectively in English (left) and Polish (right) within the OP environment (after Schwartz 2017).

The aim of the present study is to yield empirical support to the representations proposed by OP by studying the effects of phonetic drift in the productions of Polish learners of English. Groups of 20 first year students (henceforth: 1BA) and 15 second year students (henceforth: 2BA) read word lists in Polish, comprising mono- and disyllabic words starting with /p, t, k, b, d, g/ and followed by a non-high vowel. Recordings were made in June after, respectively, one year and two years of intensive phonetic training in English (both theoretical and practical). The obtained acoustic data were compared with the control group of 15 quasi-monolingual speakers.

Linear Mixed Effects Model showed (pairwise comparisons to follow) that no significant effects of phonetic training on Polish /ptk/ productions were found - neither after one year (1BA vs. Controls:  $p=.962$ ; contrast estimate: 0.2ms), nor after two years (2BA vs. Controls:  $p=.767$ ; contrast estimate: 1.36ms). Decidedly more phonetic drift was observed for

/bdg/: after one year of training, the difference in the duration of pre-voicing between students and controls oscillated at about 13ms ( $p=.006$ ), while after two years - 18ms ( $p=.000$ ). Binary Logistic Regression has revealed that the number of unvoiced, “English-like” productions in Polish also got progressively bigger: after one year, 13% of Polish productions lacked pre-voicing ( $p=.000$ ), while after two years it was 24% ( $p<.000$ ).

These results go in line with the representations proposed by OP but cannot be captured by other phonological theories. It is argued that pre-voicing in plosives is a phonetic detail that has no bearing on phonology (Schwartz 2019); other acoustic correlates are much more important to maintaining laryngeal contrast in Polish (particularly F1; Schwartz and Wojtkowiak 2018).

### References:

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