

How Polish learners of English produce English nasalized diphthongs

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This talk is concerned with the acoustic and phonological status of English diphthongs before nasals produced by Polish learners of English. The aim is to show the acoustic properties of English nasalized diphthongs produced by Poles in comparison to similar sound sequences in Polish, to interpret the results in the framework of Natural Phonology (Stampe 1969, 1979, Donegan 1985, Dressler 1984) and to provide a functional explanation of the phenomena (Dressler and Dziubalska-Kořaczyk 1994).

A production experiment tested how Polish native speakers produce British English diphthongs. The diphthongs taken into account were: /eɪ/, /aɪ/, /ɔɪ/, /aʊ/, /əʊ/ and /eə/. The diphthongs were tested in real words. The aim was to test each diphthong in four conditions: 1) followed by an alveolar nasal consonant, in a stressed position, 2) followed by an alveolar nasal consonant in an unstressed position, 3) followed by an alveolar nasal and a fricative, in a stressed position, 4) followed by an alveolar nasal and a fricative in an unstressed position. Of course, not every diphthong appears in all the configurations, but since the aim was to test natural speech as far as possible, no nonce words were employed in the place of conditions which could not be filled by real words. Words containing the diphthongs were embedded in sentences, controlled for stress position, rhythmic units and length. The sentences were read by 10 female Polish advanced learners of English and by a control group of native speakers. Similar sound sequences were also tested in Polish.

In the analysis, the assumption is made that the status of diphthongs in English is phonemic and that in Polish the vowel plus glide sequences, although phonetically different mainly with respect to the rate of transition between the sound qualities, do not have a phonemic status (cf. Biedrzycki 1963, Jassem 1958, Kempf 1960, Leszczyński 1967, Trypućko 1971, Wierzchowska 1966, 1980).

The aim of the phonetic part of the study is to find out what acoustic properties English diphthongs produced by Poles have. The acoustic analysis done with Praat takes into account the following issues: formant transitions and timing relations in English diphthongs produced by Poles, specific differences in initial and final phases of diphthongs, differences in approximating rising and centering diphthongs and differences between the realization of simple vowels and diphthongs (cf. Peeters 1991). The results obtained for English diphthongs produced by Poles are compared with properties of nasalized diphthongs in English and similar sound sequences in Polish as produced by two control groups of native speakers.

In the phonological part of the presentation the results of the phonetic experiment are interpreted in the framework of Natural Phonology and the theory of second language acquisition within the framework of Natural Phonology (Dziubalska-Kořaczyk 1990). It is claimed that the mismatch between English diphthongs produced by Poles and target realizations, like for example diphthong nasalization and nasal consonant deletion before fricatives, can be accounted for by natural phonological processes. Attention is also paid to the elements of the English system which remain resistant to acquisition by Poles, like for example quality or timing relations. A hierarchy of natural phonological processes responsible for the restructuring of the vowel system is proposed.

Finally, a functional approach is employed in analyzing the learner's perspective on English diphthong pronunciation. Goal conflicts are traced in regard to diphthongs undergoing lenitions or fortitions in specific contexts. It is also examined to what extent properties of diphthongs or processes applied to diphthongs serve perceptibility in stressed positions and ease of articulation in unstressed positions (cf. Harris 2004).

References

- Biedrzycki, L. 1963. Fonologiczna interpretacja polskich głosek nosowych. *Biuletyn Polskiego Towarzystwa Językoznawczego*. 25–45.
- Donegan, Patricia. (1978) 1985. *On the Natural Phonology of Vowels*. New York: Garland.
- Dressler, Wolfgang U. 1984. Explaining Natural Phonology. *Phonology Yearbook 1*. 29–50.

- Dressler, Wolfgang U. and Katarzyna Dziubalska-Kořaczyk. 1994. Functional analysis in the study of second language acquisition. *Function of Language* 1, 2. 201–228.
- Dziubalska-Kořaczyk, Katarzyna. 1990. *A Theory of Second Language Acquisition within the Framework of Natural Phonology. A Polish-English Contrastive Study*. Poznań: UAM Press.
- Harris, John. 2004. Vowel reduction as information loss. *UCL Working Papers in Linguistics* 16. 1–16.
- Jassem, Wiktor. 1958. A phonologic and acoustic classification of Polish vowels. *Zeitschrift für Phonetik und allgemeine Sprachwissenschaft* 11. 299–319.
- Kempf, Z. 1960 Czy sę dyftongi w polszczyźnie? *Język polski* 3. 176–189.
- Leszczyński, Z. 1967. Fonologiczna wartość dźwięku j we współczesnej polszczyźnie kulturalnej i w gwarach. *Biuletyn Polskiego Towarzystwa Językoznawczego*. 217–226.
- Peeters, Willem J.M. 1991. *Diphthong Dynamics. A Cross-Linguistic Perceptual Analysis of Temporal Patterns in Dutch, English, and German*. Kampen: Mondiss
- Stampe, David. 1969. The acquisition of phonetic representation. *CLS* 5. 443–453. (1979. Bloomington: Indiana University Linguistics Club).
- Stampe, David. 1979. *A Dissertation on Natural Phonology*. New York: Garland.
- Trypućko, J. 1971. Polskie samogłoski nosowe w świetle najnowszych badań. *Sprawozdania z Posiedzeń PAN, Kraków 1971*. 503–505.
- Wierzchowska, Bożena. 1966. *Analiza Eksperymentalno-Fonetyczna Polskich Dźwięków Nosowych*. Lublin.
- Wierzchowska, Bożena. 1980. *Fonetyka i Fonologia Języka Polskiego*. Warszawa.