

The School of English, Aristotle University of Thessaloniki

Thursday 17.10. 2019, 11.30-12.30

## TOWARDS MODELLING YOD COALESCENCE IN AMERICAN ENGLISH

*Małgorzata Kul, Adam Mickiewicz University, Poland*

[kgosia@wa.amu.edu.pl](mailto:kgosia@wa.amu.edu.pl)



Yod coalescence (also referred to palatalization or neutral assimilation) is a special case of assimilation. In order for palatalization to occur, two conditions must be met: “the environment that induces the change must be a palatalizing environment (i.e. it must be a front vowel, a palatal semivowel or a palatal or palatalized consonant), and [that] the sound that results must be palatal or palatalized” (Bhat 1978: 48). Phonologically, palatalization is a segmental change where the place of articulation is altered in the surface form relative to the lexical form (Halle and Monahan 1985). From the viewpoint of articulatory and acoustic studies, palatalization results from an increased gestural overlap of the two sounds involved (Zsiga 1995, 2000).

The study considers only the cases across word boundaries in American English and is corpus-based in using the Buckeye corpus, a corpus of spontaneously produced speech elicited from forty long-time residents of Central Ohio, USA 2000 (Pitt et al. 2005, 2007). It contains 40 hours of recordings of 20 males and 20 females, 20 old, 20 young and was compiled between October 1999 and May. In total, Buckeye has 307,000 words.

The study pursues two objectives: to establish the frequency of occurrence of yod coalescence, and to correlate it with a range of linguistic and non-linguistic factors. Following previous scholarship, the following factors were considered: target sound, phonetic context (preceding and following sound), lexical frequency, speech rate, grammar, morphology, gender and age.

The first aim was realized by a quantitative analysis of the Buckeye corpus. The analysis consisted of comparing potential sites of processes with their actual realization (Dilley and Pitt 2007, Zimmerer et al. 2009), with the use of the LaBB-CAT, and acoustic analysis (Praat). Logistic mixed-effect modelling estimates the effects of phonetic context, lexical frequency, speech rate, grammar, morphology, gender and age on realization of the processes. The model was estimated in the R software environment (version 3.4.2, R Core Team 2018) using the glmer function (generalized logistic mixed effects model) from the lme4 package (Bates et al. 2014).

In light of the results, of all possible environments, 51 percent of processes were actually realized. The results are unexpected given the widespread conviction that assimilation in general is a frequent process (e.g. Shockey 2003, Cruttenden 2008). As for modelling, the results yielded by the developed model only partly trend in the expected direction.

### References:

- Bates, D., Maechler, M. Bolker, B. & Walker, S. (2014). lme4: linear mixed-effects models using eigen and s4 (Computer software manual). Retrieved from <https://cran.r-project.org/web/packages/lme4/index.html>. Accessed 6th May 2018.
- Bhat, D. N. S. (1978). “A general study of palatalization”. In: Greenberg, J. H. (ed.). Universals of human language. Volume 2: Phonology. Stanford, CA: Stanford University Press. 47-92.

- Bush, N. (2001). "Frequency effects and word boundary palatalization in English". In: J. Bybee and P. Hoppers (eds.). Frequency and the emergence of linguistic structure. Amsterdam: John Benjamins Publishing Company. 255-280.
- Cruttenden, A. (2008). Gimson's Pronunciation of English. 7th edition. Hodder Education, London.
- Dilley, L. C. & Pitt, M. (2007). "A study of regressive place assimilation in spontaneous speech and its implications for spoken word recognition". Journal of the Acoustical Society of America (122). 2340-2353.
- Halle, M. & Monahan, K.P. (1985). "Segmental phonology of modern English". Linguistic Inquiry (16). 57-116.
- Pitt, M., Johnson, K., Hume, E. S. Kiesling, S. & Raymond, W. (2005). "The Buckeye Corpus of Conversational Speech: Labeling Conventions and a Test of Transcriber Reliability". Speech Communication (45). 90-95.
- Pitt, M.A., Dilley, L., Johnson, K., Kiesling, S., Raymond, W., Hume, E. & Fosler-Lussier, E. (2007). Buckeye Corpus of Conversational Speech (2nd release) [www.buckeyecorpus.osu.edu] Columbus, OH: Department of Psychology, Ohio State University (Distributor).
- R Development Core Team. (2018). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. ISBN 3-900051-07-0, URL <http://www.R-project.org>. Accessed 5th November 2017.
- Renwick, M. E. L. & Cassidy, C. N. (2015). "Detecting palatalization in spontaneous spoken English". Proceedings of Meetings on Acoustics (23). 1-10.
- Shi, R., Gick, B., Kanwischer, D., & Wilson, I. (2005). "Frequency and category factors in the reduction and assimilation of function words: EPG and acoustic measures". Journal of Psycholinguistic Research (34). 341-364.
- Shockley, L. (2003). Sound patterns of spoken English. Oxford: Blackwell Publishing.
- Zsiga, E. (1995). "An acoustic and electropalatographic study of lexical and postlexical palatalization in American English". In: B. Connell and A. Arvaniti (eds.). Phonology and Phonetic Evidence: Papers in Laboratory Phonology IV. Cambridge: Cambridge University Press. 282-302.
- Zsiga, E. C. (2000). "Phonetic alignment constraints: consonant overlap and palatalization in English and Russian". Journal of Phonetics (28). 69-102.