Laryngeal contrast in heritage Dutch

Charlotte E. Vanhecke
University of Wisconsin-Madison

This paper examines how laryngeal contrast is realized in the phonology of heritage Dutch speakers in an English-speaking environment. As established within the framework of Laryngeal Realism (Iverson & Salmons, 1995), English and Dutch establish the contrast between the set of sounds written as <b, d, g> and the set <p, t, k> in different ways. In English, as in most other Germanic languages such as German and most Nordic dialects, the feature [spread glottis] characterizes fortis stops /p, t, k/, whereas Dutch — like Yiddish, Scots and West Frisian — employs the feature [slack] to distinguish voiced /b, d, (g)/ from laryngeally unmarked /p, t, k/. Preliminary findings show how Dutch heritage speakers of the first, second and fourth generations gradually shift from the Dutch system to a more English-like system of phonological contrast in specific ways.

The results are based on acoustic analysis of the speech of fifteen heritage Dutch speakers from Wisconsin. The table below summarizes the average Voice Onset Times (VOT) of word-initial stops for each speaker. The evidence shows that all speakers, including first generation heritage speakers who immigrated as adults, show a reduction in voicing of <b, d>: most speakers show a very short negative VOT or a VOT of approximately zero (i.e. voicing starts at the burst of the stop), where we would expect a negative VOT (prevoicing) for most voiced stops in non-heritage Dutch speakers (van Alphen, 2007; van Alphen & Smits, 2004). First-generation heritage speakers retain an otherwise mostly intact Dutch system, with short-lag VOT and no aspiration on voiceless stops. From the second generation onwards, we see a considerable increase in the VOT of voiceless/fortis stops, marking a move towards more English-sounding aspirated /p, t, k/. The boxplot below shows longer mean VOTs and more variability with each successive generation of heritage Dutch speakers. This leads to laryngeal overspecification in the stop category of heritage Dutch speakers, as /p, t, k/ are characterized by [spread] while /b, d/ remain characterized by [slack].

These results provide insight into shifts in phonological contrast in language contact situations, as gradual phonetic change eventually leads to a shift in the feature specification, i.e. a move from one system of laryngeal contrast towards another. The observation that voiceless stops move towards an English-like aspirated long-lag VOT in the Dutch of heritage speakers is consistent with previous work on bilingual acquisition of aspirating and voicing languages (Simon, 2010, 2011).

Table. Mean VOT in msec. of Voiced and Voiceless Stops

	/b, d/	/p, t, k/
1st generation	-8.9	34.4
2nd generation	1.5	62.2
4th generation	-17.1	61.0

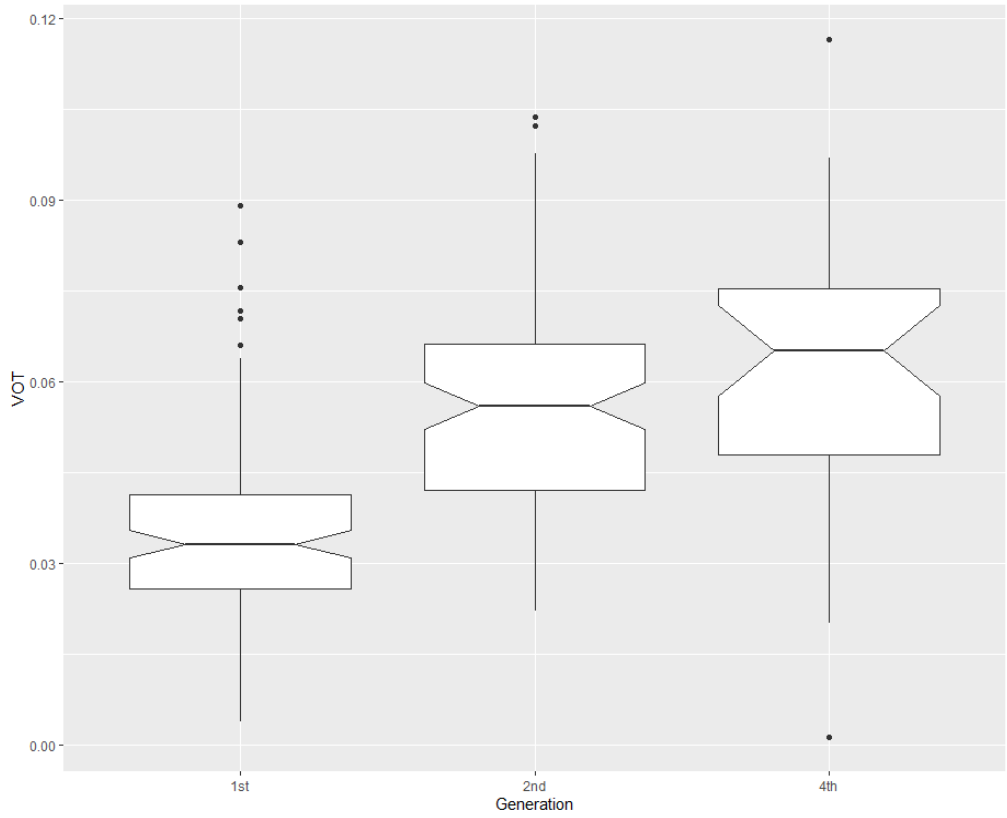

Figure. VOT of Voiceless Stops by Generation

References

Iverson, Gregory and Joseph Salmons, J. C. (1995). Aspiration and Laryngeal Representation in Germanic. *Phonology*, *12*(3), 369–396. https://doi.org/10.1017/S0952675700002566

Simon, E. (2010). Child L2 development: A longitudinal case study on Voice Onset Times in word-initial stops. *Journal of Child Language*, *37*(1), 159–173. https://doi.org/10.1017/S0305000909009386

Simon, E. (2011). Laryngeal stop systems in contact: Connecting present-day acquisition findings and historical contact hypotheses. *Diachronica International Journal for Historical Linguistics. Founded by E.F.K. Koerner, General Editor, 1984–2001*, *28*(2), 225–254. https://doi.org/10.1075/dia.28.2.03sim

van Alphen, P. M. (2007). *4. Prevoicing in Dutch initial plosives: Production, perception, and word recognition. 1983*, 99–124. https://doi.org/10.1075/cilt.286.05alp

van Alphen, P. M., & Smits, R. (2004). Acoustical and perceptual analysis of the voicing distinction in Dutch initial plosives: The role of prevoicing. *Journal of Phonetics*, *32*(4), 455–491. https://doi.org/10.1016/j.wocn.2004.05.001