

# Generalized additive modeling as a useful tool in phonetics

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In this presentation, I will illustrate how generalized additive modeling (GAM), a flexible and powerful non-linear regression technique, may be used to analyze articulatory data (e.g., Wieling et al., 2016; Wieling, submitted). An important advantage of the approach is that all (raw) data can be taken into account, rather than having to aggregate/simplify before conducting the analysis. During the presentation, I will take a hands-on, incremental, approach in which I will start from a very simple model, and end up at the final model, thereby discussing all relevant aspects of the GAM approach.

## References:

Martijn Wieling, Fabian Tomaschek, Denis Arnold, Mark Tiede, Franziska Bröker, Samuel Thiele, Simon N. Wood and R. Harald Baayen. Investigating dialectal differences using articulography. *Journal of Phonetics*, 59, 122-143. Available at: <http://martijnwieling.nl/files/WielingEtAl-JoP2016.pdf>

Martijn Wieling. Generalized additive modeling to analyze dynamic phonetic data: a tutorial focusing on articulatory differences between L1 and L2 speakers of English. Submitted (August 18, 2017) to *Journal of Phonetics* (Special Issue: Emerging data analysis in phonetic sciences). Available at: <http://martijnwieling.nl/files/GAM-tutorial-Wieling.pdf>