

**Invited Talk:**  
**Universal Constraint Rankings Result from Learning and Evolution**

**Paul Boersma**

Institute of Phonetic Sciences  
University of Amsterdam  
Herengracht 338  
1016CG Amsterdam, The Netherlands  
paul.boersma@uva.nl

**Abstract**

Optimality Theory has met with a bad press in the more emergentist (e.g. computational) literature for its reliance on innate constraints and even on innate constraint rankings (positional faithfulness, licensing by cue). In this talk I will show with computer simulations that even if the learner's initial grammar starts with a large number of constraints that have no inherent bias towards unmarked or otherwise good sound systems, the learner will gradually turn the constraint ranking into something resembling a universally unmarked sound system as an automatic result of input frequencies and imperfections of the transmission channel. It turns out that the parents' sound system is "semi-learnable": if the parents' sound system happens to be universally marked, the offspring will learn to mimic the quirks of this system to some extent, but they will tend to turn the language into a universally unmarked sound system within three generations or so. The conclusion will be that a bidirectional Optimality-Theoretic model of the grammar with two phonological and two phonetic representations is compatible with the view that there is no innate phonological substance in language acquisition.