

## **Theoretical Approaches to Variation and Gradience**

Phonology Seminar; Spring 2010; MW 3:30 – 5:15

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### course overview

While phonology has traditionally focused on invariant categorical forms of speech, there is currently a general consensus that 1) phonological outputs do not contain all the language-specific information about the production of a given form and 2) phonetic forms naturally vary and this variance is subject to language-specific demands. If the grammatical values of a given phonetic property cannot be predicted from either phonological forms or from phonetic universals, then there must be a phonetic component of the grammar. This component should be able to account for variable, gradient phonetic outputs.

Various models have been proposed in the literature to account for the language-specific phonetic details of sound production (and perception). Our goal is to explore the diversity of language-specific phonetic phenomena, the models that have been proposed to account for these phenomena, and the types of data that could be used to test these models. We will consider the concerns of both the production and the perception grammar. Most of the papers we discuss will focus on synchronic data, but the applications of these models to sound change will also be addressed. Additionally, we may look at examples of categorical variation as well.

If there is interest in doing so, we may spend a week on some of the tools necessary to implement some of these models, e.g. learning simulations with praat/ot-soft.

### course requirements

Each student in this class must

- read all papers in preparation for each class meeting
- attend and participate in all class meetings (unless absence is due to a valid excuse)
- present 2 papers/lead class discussion
- write and present a paper proposal (due May 10)
- write and present a final paper (presentations on June 2, papers due June 9)

course schedule

		topic	reading
1	M Mar 29 W Mar 31	course objectives distinctivity	Cho & Ladefoged 1999, Walker & Pullum 1999
2	M Apr 5 W Apr 7	phonetics in phonology and phonology in phonetics	Cohn 1993, 2006 Campos-Astorkiza 2007 (ch 2-3)
3	M Apr 12 W Apr 14	types of models	Boersma 2007 (section 5 only), Keating 1990, Flemming 2001 (late class on M; no class on W)
4	M Apr 19 W Apr 21		Boersma 2007, Boersma 2006 Pierrehumbert 2001, Cole 2009
5	M Apr 26 W Apr 28	incomplete neutralization	Jessen and Ringen 2002, Warner et al. 2004 Yu 2007
6	M May 3 W May 5	learning	Boersma and Hayes 2001 Goldwater and Johnson 2003, Jäger 2007
7	M May 10* W May 12	learning simulations	Boersma 1999; suggested reading: Schwartz et al. 2005, Frazier 2009 (§§4.3.4-5; 5; 6)
8	M May 17 W May 19	phonological variation	Coetzee 2006 Antilla 2008, Kimper To appear
9	M May 24 W May 26	diachrony	Hyman 1976; Blevins 2008 Kingston 2005
10	M May 31 W Jun 2	<i>no class: Memorial Day</i> paper presentation	

\*discussion of paper proposals is scheduled for this day

papers (included suggested readings)

- Anttila, Arto. 2002. Morphologically Conditioned Phonological Alternations, *Natural Language and Linguistic Theory* 20: 1-42.
- Anttila, Arto. 2008. Gradient Phonotactics and the Complexity Hypothesis. *Natural Language and Linguistic Theory* 26: 695-729.
- Blevins, Juliette. 2004. *Evolutionary Phonology: The Emergence of Sound Patterns*. Cambridge: Cambridge University Press.
- Blevins, Juliette 2008. Phonetic Explanation without Compromise: The Evolution of Mussau Syncope. *Diachronica* 25: 1–19.
- Boersma, Paul. 1999. Optimality-Theoretic Learning in the PRAAT Program. *Proceedings of the Institute of Phonetic Sciences*, University of Amsterdam 23: 17-35. [ROA 380]
- Boersma, Paul. 2006. Prototypicality Judgements as Inverted Perception. In Gisbert Fanselow, Caroline Féry, Matthias Schlesewsky & Ralf Vogel (eds.), *Gradience in Grammar*, 167-184. Oxford: Oxford University Press. [ROA 505]
- Boersma, Paul. 2007. Some Listener-Oriented Accounts of *h*-Aspiré in French. *Lingua* 117: 1989-2054. [ROA 730]
- Boersma, Paul and Bruce Hayes. 2001. Empirical Tests of the Gradual Learning Algorithm. *Linguistic Inquiry* 32: 45-86.
- Cho, Taehong and Peter Ladefoged. 1999. Variation and Universals in VOT: Evidence from 18 Languages. *Journal of Phonetics* 27: 207-229.
- Campos-Astorkiza, Rebeka. 2007. Minimal Contrast and the Phonology-Phonetics Interaction. Doctoral dissertation, University of Southern California. [ROA 925]
- Coetzee, Andries W. 2006. Variation as Accessing “Non-Optimal” Candidates. *Phonology* 23: 337-385. [ROA 863]
- Cohn, Abigail. 1993. Nasalization in English: Phonology or Phonetics? *Phonology* 10: 43-81.

- Cohn, Abigail. 2006. Is there Gradient Phonology? In Gisbert Fanselow, Caroline Féry, Matthias Schlesewsky & Ralf Vogel (eds.), *Gradience in Grammar*, 25-44. Oxford: Oxford University Press.
- Cole, Jennifer. 2009. Emergent Feature Structures: Harmony Systems in Exemplar Models of Phonology. *Language Sciences* 31: 144-160.
- Flemming, Edward. 2001. Scalar and Categorical Phenomena in a Unified Model of Phonetics and Phonology. *Phonology* 18: 7-44.
- Frazier, Melissa. 2009. The Production and Perception of Pitch and Glottalization in Yucatec Maya. Ph.D. dissertation. University of North Carolina, Chapel Hill.
- Goldwater, Sharon and Mark Johnson. 2003. Learning OT constraint rankings using a Maximum Entropy model. In Jennifer Spenader, Anders Eriksson, and Östen Dahl (eds.), *Proceedings of the Stockholm Workshop on Variation within Optimality Theory*, Stockholm University, 111-120.
- Hyman, Larry M. 1976. Phonologization. In Alphonse Juillard (ed.), *Linguistic Studies Presented to Joseph H. Greenberg*, 407-418. Saratoga: Anma Libri.
- Jäger, Gerhard. 2007. Maximum Entropy Models and Stochastic Optimality Theory. In Annie Zaenen, Jane Simpson, Tracy Holloway King, Jane Grimshaw, Joan Maling, and Chris Manning (eds.), *Architectures, Rules, and Preferences. Variations on Themes by Joan W. Bresnan*, 467-479. CSLI Publications, Stanford.
- Jessen, Michael and Catherine Ringen. 2002. Laryngeal Features in German. *Phonology* 22: 189-218.
- Keating, Patricia A. 1990. The Window Model of Coarticulation: Articulatory Evidence. In John Kingston and Mary Beckman (eds.), *Papers in Laboratory Phonology I*: 451-470. Cambridge: Cambridge University Press.
- Kimper, Wendell A. To appear. Locality and Globality in Phonological Variation. *Natural Language and Linguistic Theory*.
- Kingston, John. 2005. The phonetics of Athabaskan tonogenesis. In Sharon Hargus and Keren Rice (eds.), *Athabaskan Prosody*, 137-184. Amsterdam: John Benjamins.
- Mielke, Jeff. 2003. The Interplay of Speech Perception and Phonology: Experimental Evidence from Turkish. *Phonetica* 60: 208-229.
- Moreton, Elliott. 2008. Analytic Bias and Phonological Typology. *Phonology* 25: 83-127.
- Ohala, John J. 1981. The Listener as a Source of Sound Change. In Carrie S. Masek, Robert A. Hendrick and Mary Frances Miller (eds.), *Papers from the Parasession on Language and Behavior*, Chicago Linguistic Society, 178-203.
- Ohala, John J. 1993. The Phonetics of Sound Change. In Charles Jones (ed.), *Historical Linguistics: Problems and Perspectives*, 237-278. Harlow: Longman.
- Pierrehumbert, Janet. 2001. Exemplar dynamics, Word frequency, lenition, and contrast. In Joan Bybee and Paul Hopper (eds.), *Frequency Effects and the Emergence of Linguistic structure*, 137-157. Amsterdam: John Benjamins.
- Schwartz, Randal L. Tom Phoenix, and brian d foy. 2005. *Learning Perl*, 4<sup>th</sup> ed. Sebastopol, CA: O'Reilly.
- Smith, Jennifer L. 2008. Phonological Constraints are not Directly Phonetic. *Proceedings of CLS 41*: 457-471. [ROA 779].
- Walker, Rachel and Geoff Pullum. 1999. Possible and Impossible Segments. *Language* 75: 764-780.
- Warner, Natasha, Allard Jongman, Joan Sereno, and Rachèl Kemps. 2004. Incomplete neutralization and other sub-phonemic durational differences in production and perception: evidence from Dutch. *Journal of Phonetics* 32: 251-276.
- Yu, Alan C.L. 2007. Understanding Near Mergers: the Case of Morphological Tone in Cantonese. *Phonology* 24: 187-214.