

## Topics in Phonology: Models of Phonological Variation

LING 343/743, Fall 2015

Instructor: Claire Moore-Cantwell

### Short course description

This course will provide an overview of variable phonological phenomena, and explore the question of how these phenomena can best be modeled. Variation both within and across lexical items, as well as gradient phonotactic knowledge, will be discussed. Since grammatical knowledge is often thought of as categorical rather than variable, these phenomena provide a unique perspective on the nature of the phonological grammar as well as the larger cognitive system in which it is situated.

### Long course description

This course will examine the evidence for and against various psychological and generative models of variable phonological behavior, with the goal of understanding the strengths and weaknesses of each type of model, and the implications that each model has for our understanding of the cognitive architecture that gives rise to phonological knowledge.

The course will provide an overview of the different types of variable or probabilistic phonological phenomena, including variation within lexical items (English t/d deletion, French schwa alternations, etc.), variation across lexical items (the English past tense, Tagalog nasal substitution, etc.), and gradient phonotactic knowledge. These phenomena provide an interesting perspective on the role of the phonological grammar in the larger cognitive system. A wide variety of factors can influence speakers' behavior on variable phenomena, including phonological factors like syllable structure, psychological factors like word frequency, and social categories such as speaker/listener gender and formality. Because of this, it is not immediately clear what aspects of variable phonological phenomena should be encoded as part of the phonological grammar, and how other cognitive mechanisms should interface with that grammar.

We will discuss 'algebraic' models of variable phenomena, including Optimality-Theoretic models like variable constraint ranking, Noisy Harmonic Grammar, and Maximum Entropy grammar. These will be compared to models which are designed to avoid abstract rules or constraints, such as statistical learning models, analogical models, or connectionist models, and hybrid models including dual-route models and the 'Minimal Generalization Learner'.

### Prerequisites

LING 235 (Phonological Theory) or permission of instructor.

## Readings

All readings, handouts, slides, etc. will be posted on the course website.

## Course Requirements

Each student will be expected to:

- Write short (less than one page) answers to provided discussion questions for each reading.
- Give in-class presentations of several readings throughout the semester. The actual number of presentations will depend on enrollment in the seminar. You may present on papers from the syllabus, but if there's a paper you'd like to read that is not listed on the syllabus, let me know and we can try to work it in. When presenting a reading, you are responsible for preparing a handout summarizing and critiquing the central claims and arguments of the paper, and for leading in-class discussion of the paper. As much as possible, you should also draw connections to related research and generally try to situate the paper within the broader context of the field. You are not required to answer discussion questions on weeks when you present.
- Write a term paper

6 Oct. Deadline to meet with me to discuss your topic

3 Nov. Submit an outline, abstract or other summary of your paper

in class Present your term paper in class (20-30 minutes)

17 Dec Final draft due

Papers should be 8-10 pages long for undergraduates, 15-20 pages for graduate students.

Topics pertaining to the seminar are particularly encouraged, but you are free to write on any topic in phonology as long as you check with me first.

## Academic honesty

Yale does not tolerate plagiarism. People found to have plagiarized will be reported to the administration, with failure of the course, academic suspension, or even dismissal from the university as possible consequences. If you're unclear about what constitutes plagiarism, or what the consequences are, check out:

<http://yalecollege.yale.edu/content/cheating-plagiarism-and-documentation>

For advice on how (and why) to cite primary sources:

<http://writing.yalecollege.yale.edu/using-sources>

### **Disabilities**

If you qualify for classroom accommodations because of a disability, please:

1. Get a Course Accommodation Request from the Resource Office on Disabilities (ROD).
2. Submit it to me in person outside of class (e.g. office hours) within the first two weeks of the semester.

Contact the ROD at (203) 432-2324 (voice), (203) 432-8250 (fax), (203) 432-8250 (tty/tdd), or see <http://yalecollege.yale.edu/content/resource-office-disabilities> for more information.

**Updated Schedule**

15 Sept	<i>Overview</i> Coetzee and Pater (2009)
	<i>Variable Rules/ Competence and Performance</i>
22 Sept	Cedergren and Sankoff (1974) Guy (1997)
	<i>Gradual Learning Algorithm</i>
29 Sept	Zuraw (2010) Boersma and Hayes (2001)
	<i>MaxEnt grammar and learning</i>
6 Oct	Goldwater and Johnson (2003) Play with learning models
	<i>Frequency and Formality</i>
13 Oct	Coetzee and Kawahara (2013) Tily and Kuperman (2012)
	<i>Grammar and perceptual illusions</i>
20 Oct	Moreton (2002) Breen et al. (2013)
	<i>Malleability</i>
	Whalen and Dell (2006)
27 Oct	Kaschak and Glenberg (2004) Rossi et al. (2013) TBD: adaptation
	<i>Connectionism</i>
3 Nov	Rumelhart and McClelland (1986)
	<i>Analogical Models</i>
10 Nov	sections of Skousen (1989) Eddington (2000)
	<i>Evidence for two systems</i>
17 Nov	Guion et al. (2003) Prasada and Pinker (1993)
	<i>Sublexicons?</i>
1 Dec	Becker and Gouskova Moore-Cantwell and Staubs (2014)
8 Dec	<i>Final paper presentations</i>

## References

- Paul Boersma and Bruce Hayes. Empirical tests of the gradual learning algorithm. *Linguistic Inquiry*, 32:45–86, 2001. doi: 10.1162/002438901554586.
- Mara Breen, John Kingston, and Lisa D. Sanders. Perceptual representations of phonotactically illegal syllables. *Attention, Perception, and Psychophysics*, 75(1):101–120, 2013.
- Henrietta J. Cedergren and David Sankoff. Variable rules: Performance as a statistical reflection of competence. *Language*, 50:333–355, 1974.
- Andries W. Coetzee and Shigeto Kawahara. Frequency biases in phonological variation. *Natural Language and Linguistic Theory*, 31:47–89, 2013.
- Andries W. Coetzee and Joe Pater. The place of variation in phonological theory. In John A. Goldsmith, Jason Riggle, and Alan C. Yu, editors, *Handbook of Phonological theory*, pages 401–434. Wiley-Blackwell, 2 edition, 2009.
- David Eddington. Spanish stress assignment within the analogical modeling of language. *Language*, 76(1):92–109, March 2000.
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- Susan G. Guion, J.J. Clark, Tetsuo Harada, and Rtree P. Wayland. Factors affecting stress placement for English nonwords include syllabic structure, lexical class, and stress patterns of phonologically similar words. *Language and Speech*, 46(4):403–427, December 2003. doi: 10.1177/00238309030460040301.
- Gregory R. Guy. *Competence, performance, and the generative grammar of variation*, pages 125–143. John Benjamins, Amsterdam, 1997.
- M.P. Kaschak and A.M. Glenberg. This construction needs learned. *Journal of Experimental Psychology: General*, 133(3):450, 2004.
- Claire Moore-Cantwell and Robert Staubs. Modeling morphological subgeneralizations. In John Kingston, Claire Moore-Cantwell, Joe Pater, and Robert Staubs, editors, *Proceedings of the 2013 meeting on phonology*, Linguistic Society of America, Washington DC, 2014.
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- Sandeep Prasada and Steven Pinker. Generalization of regular and irregular morphological patterns. *Language and Cognitive Processes*, 8:1–56, 1993.
- Sonja Rossi, Tobias Hartmuller, Micol Vignotto, and Hellmuth Obrig. Electrophysiological evidence for modulation of lexical processing after repetitive exposure to foreign phonotactic rules. *Brain and Language*, 127:404–414, 2013.

- D. E. Rumelhart and J. L. McClelland. *On Learning the past tenses of English verbs*, chapter 18, pages 216–271. MIT press, 1986.
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- Christine A. Whalen and Gary S. Dell. Speaking outside the box: learning of non-native phonotactic constraints is revealed in speech errors. In *Proceedings of the 28th annual conference of the cognitive science society*, pages 2371–2374, 2006.
- Kie Zuraw. A model of lexical variation and the grammar with application to tagalog nasal substitution. *Natural Language and Linguistic Theory*, 28(2):417–472, 2010.