Linguistics 696b
Fall '00
Hammond

Probability & Grammar

Course description

This course will focus on the relationship between probability theory and grammatical theory, with an eye toward trying to understand whether linguists should be incorporating aspects of probability into our grammatical formalisms. We'll begin with a brief (and gentle!) overview of probability theory. We'll next turn to some of the empirical and theoretical evidence that statistical variation should be captured by our theories. We'll then turn to some of the models that have been developed.

Requirements

What	When
Probability exercise	Sept. 20
Paper prospectus	Oct. 18
Presentation I	Nov. 15 or Nov. 22
Presentation II	Nov. 29 or Dec. 6
Final paper	Dec. 13

The paper topic is up to you, though you should discuss it with me before you commit yourself to any particular idea. Though the examples I discuss will be drawn mostly from the phonological and psychophonological domains, the paper can be in any domain of linguistics, as long as it addresses—at least indirectly—the central question of how probability theory might inform linguistics.

Office hours etc.

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Office hours: Wednesday 2:00–3:00 & Thursday 11:00–12:00

Schedule

Week	Date	Topic	Reading	Due
1	Aug. 23	Overview		
2	Aug. 30	Probability	[Wea63, pp.43-113]	
3	Sept. 6	Probability	[Wea63, pp.114-203]	
4	Sept. 13	Probability	[Wea63, pp.204-277]	
5	Sept. 20	Psycholinguistics	[CP97]	quiz
6	Sept. 27	Psycholinguistics	[F$^+$00]	
7	Oct. 4	Sociolinguistics	[CS74, KM79]	
8	Oct. 11	Sociolinguistics	[NR97]	
9	Oct. 18	Meter/OT	[HM98, Gol98]	prospectus
10	Oct. 25	OT	[Boe97, Ant95]	
11	Nov. 1	Computational	[Abn96, Sup70]	
12	Nov. 8	Lexical frequency	[Ham99]	
13	Nov. 15	presentations		
14	Nov. 22	presentations		
15	Nov. 29	presentations		
16	Dec. 6	presentations		
17	Dec. 13	no class		final paper

References

[Abn96] Steven Abney. Statistical methods and linguistics. In Judith Klavans and Philip Resnik, editors, *The balancing act*, pages 1–26. MIT Press, Cambridge, 1996.

[Ant95] Arto Anttila. Deriving variation from grammar: a study of Finnish genitives. ROA, 1995.

[Boe97] Paul Boersma. How we learn variation, optionality, and probability. ROA, 1997.

[CP97] John Coleman and Janet Pierrehumbert. Stochastic phonological grammars and acceptability. In *Computational Phonology: Third meeting of the ACL special interest group in computational phonology*, pages 49–56. Association for Computational Linguistics, Somerset, 1997.

[CS74] Henrietta Cedergren and David Sankoff. Variables rules: performance as a statistical reflection of competence. *Language*, 50:333–355, 1974.

[F$^+$00] Stephan Frisch et al. Perception of wordlikeness: effects of segment probability and length on the processing of nonwords. *Journal of Memory and Langauge*, 42, 2000. to appear.

[Gol98] C. Golston. Constraint-based metrics. *Natural Language and Linguistic Theory*, 16:719–770, 1998.

[Ham99] Michael Hammond. Lexical frequency and rhythm. In M. Darnell et al., editors, *Functionalism and Formalism in Linguistics*, pages 329–358. John Benjamins, Amsterdam, 1999.

[HM98] Bruce Hayes and Margaret MacEachern. Folk verse form in English. *Language*, 74:473–507, 1998.

[KM79] Paul Kay and Chad K. McDaniel. On the logic of variable rules. *Language in Society*, 8:151–187, 1979.

[NR97] Naomi Nagy and Bill Reynolds. Optimality Theory and variable word-final deletion in Faetar. *Language Variation and Change*, 9:37–55, 1997.

[Sup70] P. Suppes. Probabilistic grammars for natural languages. *Synthèse*, 22:95–116, 1970.

[Wea63] Warren Weaver. *Lady Luck*. Dover, New York, 1963.