

Syllabus

Evolution of Language PSYCH/CogSt 4270/6270 – Fall 2009 Uris 205 - Tuesdays, 1:25-4:00PM <http://courses.cit.cornell.edu/psych427>

Instructor: Dr. Morten H. Christiansen

Office: Uris 228

Phone: 255-3570

Office Hours: Tuesdays 12Noon–1:25PM and by appointment

Email: christiansen@cornell.edu

Required Text: Christiansen, M.H. & Kirby, S. (2003). *Language evolution*. New York: Oxford University Press.

The study of the origin and evolution of language must necessarily be an interdisciplinary endeavor. Only by amassing evidence from many different disciplines can theorizing about the language evolution be sufficiently constrained to remove it from the realm of pure speculation and allow it to become an area of legitimate scientific inquiry. Fueled by theoretical constraints derived from recent advances in the brain and cognitive sciences, the last decade of the twentieth century saw a resurgence of scientific interest in the evolution of language.

This seminar will survey a cross-section of modern theories, methods, and research pertaining to the origin and evolution of language. We will consider evidence from psychology, the cognitive neurosciences, theoretical biology, comparative psychology, and computational modeling of evolutionary processes. Topics for discussion may include: What does the fossil record tell us about language evolution? What can we learn from comparative perspectives on neurobiology and behavior? Can apes really learn language? Did language come about through natural selection? What were the potential preadaptations for language? What is the relationship between phylogeny and ontogeny?

Dr. Christiansen has worked extensively on the evolution of language and has edited a book (with Dr. Simon Kirby, University of Edinburgh) entitled *Language Evolution*, which serves as the textbook for the seminar. Dr. Christiansen is also working on a book (with Dr. Nick Chater, University College London) on the evolution, acquisition and processing of language.

Course Requirements

1. Complete **ALL** assigned readings.
2. Lead discussion on one or more occasions (the exact number will depend on number students registered for the class). Joint presentations are acceptable.
3. Discussion leaders should only briefly summarize the reading(s). The leader should assume that everyone has read the reading(s), and does not need to have it repeated in great detail. The discussion should focus on your elaborations of the reading(s). This involves clarifying the reading(s) (guided in part by questions submitted by other class members), critiquing the research, and *including other material/viewpoints from additional articles*.
4. Formulate three questions for the day's discussion leader. These are to be submitted by email to the presenter **before 10:00AM on Mondays before class**. A copy of the questions must also be emailed to the instructor (christiansen@cornell.edu).
5. Participate in the discussions. Grades will in part be based on discussion participation. Sitting silently through every class is **NOT** acceptable.
6. Write a final 15-20-page (4270) or 25-30-page (6270) double-spaced paper focusing on several of the topics discussed in class. This paper will require some research, and must include additional articles not discussed in class. A one-page synopsis outlining a proposed paper must be submitted to the instructor at the start of class November 10 and the full paper is due December 1.

Grading

Grades will be based on class presentations, discussion participation, email questions, and the final paper.

Class presentation	20%
Discussion participation	25%
Email questions	25%
Final paper	30%

Academic Integrity

Each student in this course is expected to abide by the Cornell University Code of Academic Integrity. Any work submitted by a student in this course for academic credit will be the student's own work. For this course, collaboration is allowed in the following instances: Leading discussions. Failure to adhere to the Code of Academic Integrity will result in an F in the course.

Course Outline

** indicates extra readings for presenters and psych 6270 students*

Week	Dates	Topics	Readings
Week 1	9/1	<i>Organizational Meeting</i>	
Week 2	9/8	<i>On language and evolution</i>	Christiansen & Kirby (2009) Ch. 4 (Newmeyer) Bernstein Ratner, Berko Gleason & Narasimhan (1998)
Week 3	9/15	<i>Language as a biological adaptation</i>	Ch. 2 (Pinker) Ch. 5 (Bickerton) * Számadó & Szathmáry (2006)
Week 4	9/22	<i>Symbols, grammar and conceptual complexity</i>	Ch. 6 (Tomasello) Schoenemann (in press) * Ch. 7 (Deacon)
Week 5	9/29	<i>Possible stages in language evolution</i>	Ch. 3 (Hurford) Ch. 8 (Davidson) * Johansson (2006)
Week 6	10/6	<i>Vocal or gestural origin of language?</i>	Ch. 11 (Corballis) Ch. 12 (Dunbar) * Ch. 14 (Lieberman)
	10/13	Fall Break	
Week 7	10/20	<i>What's special about language?</i>	Hauser, Chomsky & Fitch (2002) Pinker & Jackendoff (2009) * Everett (2005)
Week 8	10/27	<i>Computational models of language evolution</i>	Jäger et al. (in press) Ch. 16 (Briscoe) * Ch. 15 (Kirby & Christiansen)
Week 9	11/3	<i>Language universals?</i>	Evans & Levinson (in press) Kirby, Cornish & Smith (2008) * Müller (2009)

Week	Dates	Topics	Readings
Week 10	11/10	<i>Genes, language and evolution</i> 1-page synopsis due	Fisher & Marcus (2006) Dediu & Ladd (2007) * Enard et al. (2009)
Week 11	11/17	<i>Language as shaped by the brain I: Evolution</i>	Christiansen & Chater (2008)
Week 12	11/24	<i>Language as shaped by the brain II: Acquisition</i>	Chater & Christiansen (in press) Christiansen & Dale (2004)
Week 13	12/1	<i>Language as shaped by the brain III: Processing</i>	Christiansen & MacDonald (in press) Misyak, Christiansen & Tomblin (2009)
	12/1	Final paper due (before noon)	

Note: Changes may be made to the readings and their order but this will be announced in class and on the course web site. Chapter numbers refer to the chapters in the required textbook.

Readings

- Bernstein Ratner, N., Berko Gleason, J. & Narasimhan, B. (1998). Introduction to psycholinguistics: What do language users know? In J. Berko Gleason & N. Bernstein Ratner (Eds.), *Psycholinguistics* (2nd ed., pp. 1-40). Orlando, FL: Harcourt Brace.
- Chater, N. & Christiansen, M.H. (in press). Language acquisition meets language evolution. *Cognitive Science*.
- Christiansen, M.H. & Chater, N. (2008). Language as shaped by the brain. *Behavioral & Brain Sciences*, 31, 489-558.
- Christiansen, M.H. & Dale, R. (2004). The role of learning and development in the evolution of language. A connectionist perspective. In D. Kimbrough Oller & U. Griebel (Eds.), *Evolution of communication systems: A comparative approach. The Vienna Series in Theoretical Biology* (pp. 90-109). Cambridge, MA: MIT Press.
- Christiansen, M.H. & Kirby, S. (2009). Language evolution. In L.R. Squire (Ed.), *New encyclopedia of neuroscience, Vol. 5* (pp. 321-327). Oxford, U.K.: Elsevier.
- Christiansen, M.H. & MacDonald, M.C. (in press). A usage-based approach to recursion in sentence processing. *Language Learning*.
- Dediu, D. & Ladd, D.R. (2007). Linguistic tone is related to the population frequency of the adaptive haplogroups of two brain size genes, *ASPM* and *Microcephalin*. *Proceedings of the National Academy of Sciences*, 104, 10944-10949.
- * Enard, W. et al. (2009). A humanized version of *FOXP2* affects cortico-basal ganglia circuits in mice. *Cell*, 137, 961-971.
- Evans, N. & Levinson, S. (in press). The myth of language universals: language diversity and its importance for cognitive science. *Behavioral & Brain Sciences*.
- * Everett, D.L. (2005). Cultural constraints on grammar and cognition in Pirahã. *Current Anthropology*, 46, 621-646.
- Fisher, S.E., & Marcus, G.F. (2006). The eloquent ape: genes, brains and the evolution of language. *Nature Reviews Genetics*, 7, 9-20.
- Hauser, M.D., Chomsky, N. and Fitch, W.T. (2002) The faculty of language: what is it, who has it, and how did it evolve? *Science*, 298, 1569-1579.
- * Johansson, S. (2006). Working backwards from modern language to proto-grammar. In A. Cangelosi, A.D.M. Smith, & K. Smith (Eds.), *The Evolution of Language* (pp. 160-167). Singapore: World Scientific.
- Jäger, H., Baronchelli, A., Briscoe, E., Christiansen, M.H., Griffiths, T., Jäger, G., Kirby, S., Komarova, N., Richerson, P.J., Steels, L. & Triesch, J. (in press). What can mathematical, computational and robotic models tell us about the origins of syntax? In D. Bickerton & E. Szathmáry (Eds.), *Biological foundations and origin of syntax. Strüngmann Forum Reports, Vol. 3*. Cambridge, MA: MIT Press.
- Kirby, S., Cornish, H. & Smith, K. (2008). Cumulative cultural evolution in the laboratory: an experimental approach to the origins of structure in human language. *Proceedings of the National Academy of Sciences*, 105, 10681-10686.

- Misyak, J.B., Christiansen, M.H. & Tomblin, J.B. (2009). Statistical learning of nonadjacencies predicts on-line processing of long-distance dependencies in natural language. In N. Taatgen, H. van Rijn, J. Nerbonne & L. Schomaker (Eds.), *Proceedings of the 31st Annual Cognitive Science Society Conference* (pp. 177-182). Austin, TX: Cognitive Science Society.
- * Müller, R.-A. (2009). Language universals in the brain: How linguistic are they? In M.H. Christiansen, C. Collins & S. Edelman (Eds.), *Language universals* (pp. 224-252). New York: Oxford University Press.
- Pinker, S. & Jackendoff, R. (2009). The components of language: What's specific to language, and what's specific to humans? In M.H. Christiansen, C. Collins & S. Edelman (Eds.), *Language universals* (pp. 126-151). New York: Oxford University Press.
- Schoenemann, P.T. (in press). Evolution of brain and language. *Language Learning*.
- * Számadó, S. & Szathmáry, E. (2006). Competing selective scenarios for the emergence of natural language. *Trends in Ecology and Evolution*, 21, 555-561.