

## **LANGUAGE, CATEGORIES, AND COGNITION**

### **HONORS SEMINAR 01:090:293:01**

**Instructor**    **PROF. KRISTEN SYRETT**                    (k-syrett (at) ruccs.rutgers.edu)  
**Day/Time**     9:50-11:10 pm Tuesdays, Fridays  
**Location**     Brett Hall Seminar Room (CAC)    (RUID card required for access)  
**Office Hours** Tuesdays 11:30-12:15 pm (sign up through Sakai) and by appointment

#### **CORE CURRICULUM GOALS**

This course satisfies the SAS Core Goal: WCd (Discipline-Based Writing and Communication)  
Upon completion of this course, you will be able to

- (t) communicate effectively in modes appropriate to a discipline or area of inquiry [WCd]
- (u) evaluate and critically assess sources and use the conventions of attribution and citation correctly
- (v) analyze and synthesize information and ideas from multiple sources to generate new insights

#### **COURSE LEARNING GOALS**

The goals of the course are to

- Engage you in a central debate at the heart of research in linguistics, cognitive psychology, and infant and child development
- Equip you with arguing points on both side of the debate based on empirical research in these fields
- Hone your skills in critiquing research, taking apart and delivering an argument, presenting research, and writing a review of research

#### **COURSE OVERVIEW**

How does the world we live in shape the language we acquire? What role does language play in shaping the way we think about the world? Does it lead us to inescapably conceptualize the world in a particular way, or does it serve as a guide, interacting with universal tendencies? How do linguistic, cognitive, and social processes constrain and affect each other throughout development and across language and cultures?

In the early part of the 20<sup>th</sup> century, Edward Sapir argued that humans are “at the mercy” of their “language habits.” His student Benjamin Lee Whorf picked up on this idea and claimed that the concepts we acquire *depend* on our linguistic knowledge and practices. These claims stand in stark contrast to Noam Chomsky’s claim that language is a “mirror of the mind” and therefore that speakers across languages and cultures should converge upon similar representations.

In this honors seminar, we will explore the relationship between language, thought, and cognition. We will review findings from a number of groundbreaking studies with children and their adult counterparts, shedding light on the degree of continuity or variation cross-linguistically. These studies will allow us to investigate

- how aspects of our environment influence the language we acquire
- how the acquisition of language as a child shapes our speech perception and our cognition
- how aspects of our language influence the way we perceive and think about the world

Topics will include color, number, spatial orientation and object relations, time, word learning, and theory of mind. Our data will cover a wide range of languages, societies, and cultures. No prior knowledge of experimental methodology or linguistic theory will be assumed.

## COURSE FORMAT

This course is an SAS Honors Interdisciplinary Seminar. As such, it will require active participation and engagement on your part. Each week will be devoted to a topic addressing the relation between language, thought, and cognitive development. **On Tuesdays**, we will typically begin with an introduction to the topic, the linguistic issues related to it, and some review of the experimental work done on this topic, including a critique of the findings based on theoretical assumptions and methodology. **On Fridays**, we will examine the experimental studies and claims in detail, and engage in a discussion of the readings and research. For the first couple of weeks, I will lead us in the “Friday Breakdown.” After this, you all will each take a turn leading.

## ASSESSMENT AND REQUIREMENTS

Your grade will be based on the following components:

Attendance and Participation	15%
In-class Presentation	25%
Paper (including all paper-related assignments below)	50%
Peer Feedback Workshop Participation	10%

### **Attendance and Participation (15%)**

This class is inherently participatory. Each week, by Thursday evening at 5 pm, you will be required to post something (at least 1 paragraph) to the online discussion forum based on the week’s reading and course content. I encourage you to raise questions, pose comments, offer alternative interpretations of the data, and relate the material to other courses and your own linguistic and cultural experiences. I will count on you to have done the readings, to participate in class, and to complete your assignments in a timely manner. Late assignments will not be accepted!

### **In-class Presentation (25%)**

Each of you will deliver an oral presentation on material covering one of the assigned topics, leading a discussion through. These presentations will begin in early February, after we have covered some course content. To select a date, use the Sign-Up function on the Sakai course site. You should coordinate with me a week before your presentation (e.g., during office hours) so that I can be a resource and provide support for you.

### **Paper (50%)**

The largest percentage of your grade in this class is based on a paper. Specifications: 15 pages, double spaced, 12-point Times New Roman font, 1” margins. Papers not meeting these specifications will not be accepted or read!

You will work towards completing your paper in stages.

Friday, Feb. 21	Proposal due (2 pages)
Friday, March 14	Bibliography due (5-10 annotated references, APA style)
Friday, April 11	Draft 1 of paper due
Friday, April 25	In-class Peer Review Workshop
Friday, May 9	Final draft of paper due

### **Peer Feedback Workshop (10%)**

As part of your paper, you will work together for in-class peer review workshop. You will read another student’s paper in advance, and share feedback with them in class. If you are absent for this class, you will receive a 0 on this component!

## **POLICIES**

All assignments should be uploaded to the Assignments section of Sakai corresponding to the proper assignment and date. You should not bring hard copies of your assignments to hand in in class. Please do not submit an assignment in the in-text window of the assignments area. You may only upload a Word or pdf file (i.e., NOT Notes, rtf, txt, etc.). Your file should be saved as your last name, first name, and the date (e.g., MANNING PEYTON 2\_2\_14.pdf).

You must to adhere to the Honors Program Academic Integrity Policy (<http://www.sashonors.rutgers.edu/academics/integrity-pledge.html>), the Rutgers University Code of Student Conduct (<http://studentconduct.rutgers.edu>), and Rutgers Academic Integrity Policy (<http://academicintegrity.rutgers.edu>). (Note: the last two links were not working as of the start of classes.)

Any disabilities extenuating circumstances must be discussed with me in advance and handled formally according to University policy (<https://ods.rutgers.edu>).

Absences should be reported through the online system (<https://sims.rutgers.edu/ssra/>) so that I receive official notification, and to me personally in advance of class.

## SCHEDULE

DAY	DATE	TOPIC	READING/ASSIGNMENT
Tuesday	1/21	Introductions, syllabus overview	n/a
Friday	1/24	Language and Thought, view 1	Whorf (1939/1956) Slobin (1996)
Tuesday	1/28	Language and Thought, view 2	Gleitman & Papafragou (2012)
Friday	1/31		
Tuesday	2/4	The Language of Snow	Robson (2013) Martin (1986)
Friday	2/7		
Tuesday	2/11	Speech Perception	Werker & Tees (1984/2002) Kuhl et al. (1992)
Friday	2/14		
Tuesday	2/18	Word Learning	Soja et al. (1991) Gentner & Boroditsky (2009)
Friday	2/21		Proposal due
Tuesday	2/25	Theory of Mind	De Villiers (2007)
Friday	2/28		
Tuesday	3/4	Number	Gordon (2004) Frank et al. (2008)
Friday	3/7		
Tuesday	3/11	Gender	Boroditsky et al. (2003)
Friday	3/14	No Class	Bibliography due
	3/15-3/22	No Classes - Spring Break!	
Tuesday	3/25	Space (Frame of Reference)	Brown & Levinson (1993) Li et al. (2011) Majid et al. (2004)
Friday	3/28		
Tuesday	4/1	Space (Relations)	Hespos & Spelke (2004) Pyers et al. (2010)
Friday	4/4		
Tuesday	4/8	Color (Universalism)	Regier et al. (2005), (2009)
Friday	4/11	No Class	Draft 1 of paper due
Tuesday	4/15	Color (Relativism)	Roberson et al. (2000) Winawer et al. (2007)
Friday	4/18		
Tuesday	4/22	Motion, Time	Papafragou et al. (2002) Boroditsky et al. (2011) Brown (2012)
Friday	4/25	In-class Peer Review Workshop	

Tuesday	4/29	n/a	Class presentations (1)
Friday	5/2	n/a	No Class
Friday	5/9	n/a	Final Draft of Paper Due!

## READINGS

### FOUNDATIONAL READINGS

Economist debate between Lera Boroditsky and Mark Liberman:

<http://www.economist.com/debate/days/view/626>

**Gleitman, Lila, & Papafragou, Anna. (2012).** New perspectives on language and thought. In K. Holyoak & R. Morrison (Eds.), *Cambridge handbook of thinking and reasoning*, 2<sup>nd</sup> ed. Cambridge: Cambridge University Press.

Lucy, John. (1997). Linguistic relativity. *Annual review of anthropology*, 26, 291-312.

**Slobin, Dan. (1996).** From ‘thought and language’ to ‘thinking for speaking’. In J. Gumperz, & S. C. Levinson (Eds.), *Rethinking linguistic relativity* (pp. 70-96). Cambridge: Cambridge University Press.

**Whorf, Benjamin Lee. (1939).** The relation of habitual thought and behavior to language. In S. I. Hayakawa (Ed.), *Language, meaning, and maturity: Selections from Etc., a review of general semantics, 1943-1953* (pp. 197-215). New York: Harper.

In J. B. Carroll (Ed.), *Language, thought, and reality: Selected writings of Benjamin Lee Whorf* (1956, pp. 134-159). Cambridge, MA: MIT Press.

### THE LANGUAGE OF SNOW

**Martin, Laura. (1986).** Eskimo words for snow: A case study in the genesis and decay of an anthropological example. *American Anthropologist*, 88, 418-423.

Pullum, Geoffrey. (1991). *The great Eskimo vocabulary hoax (and other irreverent essays on the study of language* (Chapter 19). Chicago, IL: The University of Chicago Press.

Pullum, Geoffrey. (1991). Bad science reporting again: The Eskimos are back. Blog entry on Language Log, January 15, 2013.

**Robson, David. (2013).** There really are 50 Eskimo words for ‘snow’. Washington Post article (January 13, 2013).

Woodbury, Anthony. (1991). Counting Eskimo words for snow: A citizen’s guide.

### SPEECH PERCEPTION

Kuhl, Patricia K. (2004). Early language acquisition: Cracking the speech code. *Nature Reviews: Neuroscience*, 5, 831-843

**Kuhl, Patricia K., Williams, Karen A., Lacerda, Francisco, Stevens, Kenneth N., & Lindblom, Björn. (1992).** Linguistic experience alters phonetic perception in infants by 6 months of age. *Science*, 255, 606-608.

Werker, Janet F., & Lalonde, Chris E. (1988). Cross-language speech perception: Initial capabilities and developmental change. *Developmental Psychology*, 24, 672-683.

**Werker, Janet F., & Tees, Richard C. (1984).** Cross-language speech perception: Evidence for perceptual reorganization during the first year of life. *Infant Behavior and Development*, 7, 49-63. Republished (2002) *Infant Behavior and Development*, 25, 121-133.

## WORD LEARNING

- Gentner, Dedre. (1982). Why nouns are learned before verbs: Linguistic relativity versus natural partitioning. In S. A. Kuczaj (Ed.), *Language development: Language, thought, and culture*, Vol. 2 (pp. 301-334). Hillsdale, NJ: Erlbaum.
- Gentner, Dedre, & Boroditsky, Lera. (2009).** Early acquisition of nouns and verbs: Evidence from Navajo. In V. Gathercole (Ed.) *Routes to Language: Studies in honor of Melissa Bowerman* (pp. 5-36). New York, NY: Taylor & Francis.
- Imai, Mutsumi, Li, Lianjing, Haryu, Etsuko, Okada, Hiroyuki, Hirsh-Pasek, Kathy, & Golinkoff, Roberta. (2008). Novel noun and verb learning in Chinese-, English-, and Japanese-speaking children. *Child Development*, 79, 979-1000.
- Imai, Mutsumi, & Gentner, Dedre. (1997). A cross-linguistic study of early word meaning: Universal ontology and linguistic influence. *Cognition*, 62, 169-200.
- Soja, Nancy, Carey, Susan, & Spelke, Elizabeth. (1991).** Ontological categories guide young children's inductions of word meaning: Object terms and substance terms. *Cognition*, 38, 179-211.

## THEORY OF MIND

- De Villiers, Jill. (2007).** The interface of language and Theory of Mind. *Lingua*, 117, 1858-1878.
- De Villiers, Jill G., & de Villiers, Peter A. (2002). Language for thought: Coming to understand false beliefs. *Proceedings of Whither Whorf symposium*, Northeastern University.
- De Villiers, Jill G., & Pyers, Jennie E. (2002). Complements to cognition: a longitudinal study of the relationship between complex syntax and false-belief-understanding. *Cognitive Development*, 17, 1037-1060.

## NUMBER

- Everett, Daniel L. (2005). Cultural constraints on grammar and cognition in Pirahã: Another look at the design features of human language. *Current Anthropology*, 46, 621-646.
- Frank, Michael C., Everett, Daniel L., Fedorenko, Evelina, & Gibson, Edward. (2008).** Number as a cognitive technology: Evidence from Pirahã language and cognition. *Cognition*, 108, 819-824.
- Gordon, Peter. (2004).** Numerical cognition without words: Evidence from Amazonia. *Science*, 306, 496-499. (see also additional supplemental material)
- Nevins, Andrew, Pesetsky, David, & Rodrigues, Celine. (2009). Pirahã exceptionality: A reassessment. *Language*, 85, 355-404.

## GENDER

- Boroditsky, Lera, Schmidt, Lauren A., & Phillips, Webb. (2003).** Sex, syntax, and semantics. In D. Gentner & S. Goldin-Meadow (Eds.) *Language in Mind: Advances in the study of Language and Thought* (pp. 61-79). Cambridge, MA: MIT Press.

## SPACE (FRAME OF REFERENCE)

- Brown, Penelope, & Levinson, Stephen. (1992). 'Left' and 'Right' in Tenejapa: Investigating a Linguistic Conceptual Gap. *Zeitschrift für Phonetik, Sprachwissenschaft und Kommunikationsforschung*, 45, 590-611.
- Brown, Penelope, & Levinson, Stephen. (1993).** Linguistic and non-linguistic coding of spatial arrays: Explorations in Mayan cognition. Cognitive Anthropology Research Group, Max Planck Institute for Psycholinguistics, Working Paper No. 24.
- Levinson, Stephen C., Kita, S., Haun, D. B. M., & Rasch, B. H. (2002). Returning the tables: Language affects spatial reasoning. *Cognition*, 84, 155-188.

- Li, Peggy, & Gleitman, Lila. (2002). Turning the tables: Language and spatial reasoning. *Cognition*, 83, 265-294
- Li, Peggy, Abarbanell, Linda, Gleitman, Lila, & Papafragou, Anna. (2011).** Spatial reasoning in Tenejapan Mayans. *Cognition*, 120, 33-53.
- Majid, Asifa, Bowerman, Melissa, Kita, Sotaro, Haun, Daniel B.M., & Levinson, Stephen C. (2004).** Can language restructure cognition? The case for space. *Trends in Cognitive Science*, 8, 108-114.
- Niraula, Shanta, Mishra, Ramesh C., & Dasen, Pierre R. (2004). Linguistic relativity and spatial concept development in Nepal. *Psychology and Developing Societies*, 16, 99-124.
- Wassmann, Jurg, & Dasen, Pierre R. (1998). Balinese spatial orientation: Some empirical evidence for moderate linguistic relativity. *The Journal of the Royal Anthropological Institute*, 4, 689-711.

### **SPACE (RELATIONS)**

- Choi, Soonja, McDonough, Laraine, Bowerman, Melissa, & Mandler, Jean M. (1999). Early sensitivity to language-specific spatial categories in English and Korean. *Cognitive Development*, 14, 241-268.
- Hespos, Susan J., & Spelke, Elizabeth. (2004).** Conceptual precursors to language. *Nature*, 430, 453-456.
- Norbury, Heather M., Waxman, Sandra R., & Song, Hyng-Joo. (2008). *Tight and loose* are not created equal: An asymmetry underlying the representation of *fit* in English- and Korean-speakers. *Cognition*, 109, 316-325.
- Pyers, Jennie E., Shusterman, Anna, Senghas, Ann, Spelke, Elizabeth S., & Emmorey, Karen. (2010).** Evidence from an emerging sign language reveals that language supports spatial cognition. *Proceedings of the National Academy of Sciences (PNAS)*, 107, 12116-12120.

### **COLOR**

- Kay, Paul, & Regier, Terry. (2003). Resolving the question of color naming universals. *Proceedings of the National Academy of Sciences (PNAS)*, 100, 9085-9089.
- Regier, Terry, Kay, Paul, & Cook, Richard S. (2005).** Focal colors are universal after all. *Proceedings of the National Academy of Sciences (PNAS)*, 102, 8386-8391.
- Regier, Terry, Kay, Paul, & Khetarpal. (2009).** Color naming and the shape of color space. *Language*, 85, 884-892.
- Roberson, Debi, Davidoff, Jules, Davies, Ian R., & Shapiro, Laura R. (2004). The development of color categories in two languages: A longitudinal study. *Journal of Experimental Psychology: General*, 133, 554-571.
- Roberson, Debi, Davies, Ian R., & Davidoff, Jules. (2000).** Color categories are not universal: Replications and new evidence from a stone-age culture. *Journal of Experimental Psychology: General*, 129, 369-398.
- Roberson, Debi, & Hanley, J. Richard. (2010). Relatively speaking: An account of the relationship between language and thought in the color domain. In B.C. Malt & P. Wolff (Eds.), *Words and the mind: How words capture human experience* (pp. 183-198). New York: Oxford University Press.
- Winawer, Jonathon, Witthoft, Nathan, Frank, Michael C., Wu, Lisa, Wade, Alex R., & Boroditsky, Lera. (2007).** Russian blues reveal effects of language on color discrimination. *Proceedings of the National Academy of Sciences (PNAS)*, 104, 7780-7785.

## MOTION

**Papafragou, Anna, Massey, Christine, & Gleitman, Lila. (2002).** Shake, rattle ‘n’ roll: The representation of motion in language and cognition. *Cognition*, 84, 189-219.

## TIME

Boroditsky, Lera. (2001). Does language shape thought?: Mandarin and English speakers’ conceptions of time. *Cognitive Psychology*, 43, 1-22.

**Boroditsky, Lera, Fuhrman, Orly, & McCormick, Kelly. (2011).** Do English and Mandarin speakers think about time differently? *Cognition*, 118, 123-129.

Boroditsky, Lera, & Gaby, Alice. (2010). Remembrances of times East: Absolute spatial representations of time in an Australian Aboriginal community. *Psychological Science*, 21, 1635-1639.

**Brown, Penelope. (2012).** Time and space in Tzeltal: Is the future uphill? *Frontiers in Psychology*, 3, 1-11.