Language and Cognition
01:185:410 and 01:615:445
Caveat: some some required readings and topics may change

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Prerequisites: Introduction to Cognitive Science (01:185:201), Introduction to Linguistic Theory (01:615:201)

Course Overview

In this course, we will explore the relationship between language and cognition. The questions that will guide our exploration are

- How do linguistic and cognitive processes interact during the course of human development?
- What role does language play in shaping the way we think and the way we see the world around us (does it determine the way in which we conceptually organize the world, or does it serve more as a guide that with universal constraints)?
- How does acquiring language alter the way we form categories?

We will begin the course by building a foundation in your understanding of language and cognition, drawing on your knowledge of language structure, linguistic and conceptual representations, and cognitive processes. We will then use this knowledge to review key findings from a number of new and groundbreaking studies in this area, in order to better grasp the relationship between language and cognition. Topics covered may include speech perception, language acquisition, priming, disorders, speech errors, sentence processing, memory, color, numerosity, grammatical gender, time and space.

Core Curriculum Learning Goals

This course helps meet the requirement of the "**Quantitative and Formal Reasoning**" goals of the Core Curriculum (w, QQ). In this course, you will Formulate, evaluate, and communicate conclusions and inferences from quantitative information.

Course Learning Goals

The goals of the course are to introduce you to ways in which linguistic and cognitive processes interact, to demonstrate cross-linguistic differences in the way that information is encoded in language, and to help you understand the ways in which linguistic and cognitive resources are recruited as we comprehend language in real time.

Course Format

This course is primarily lecture-based, with components built into the course for student participation. Each week will be devoted to a topic addressing the relation between language and cognition. During the first class, we will get our feet wet with an introduction to the topic of the week and cover foundational concepts that will guide our exploration of the week's topic. During the second class, we will plunge into more in-depth coverage of the week's topic, paying special attention to the assigned reading(s) and going beyond them to related research.

Grading

Your grade will be based on the following components:

Attendance and Participation	15%
Response questions & comments on Sakai	15%
Midterm Exam	30%
Final Exam (cumulative)	40%

A note on the reaction comments: You must post at least one comment each week. These contributions must be substantive! They must be at least a paragraph in length and include a reaction to the reading or in-class content or discussion.

Extra credit

- A number of researchers in Psychology and Linguistics conduct experiments that are relevant to the material covered in this class.
- You have the opportunity to participate in up to 3 experiments from either the Linguistics or the Psychology participant pool to each up to 3 points added onto your final grade.
- Links to each online experiment system and instructions for participation can be found on Sakai.
- All of you are illegible to participate in these experiments, regardless of your gender, race, ethnicity, language status, or impairments, disorders, or disabilities. You cannot be denied participation for any of these reasons.
- You have the right to not participate in experiments to earn extra credit. You may speak with me about possible research alternatives, such as reading a pre-approved scholarly article in linguistics and writing a 2-page paper summarizing it.
- If you are taking multiple courses that allow for experimental participation to count towards extra credit, you are responsible for making sure you have assigned the credit correctly through the experiment system online. This is not your instructor's, the experimenter's or the experiment system administrator's job!
- If you sign up for, but fail to show up for, two or more experiments, you may be barred from further participation, so please note the time and location of your experiments, and take your schedule and transportation time into account. Most labs are on Busch in RuCCS.

Policies

University Policies

- You must to adhere to the Rutgers University Academic Integrity Policies (http://academicintegrity.rutgers.edu/integrity.shtml).
- Any disabilities or extenuating circumstances must be discussed with me in advance and handled formally according to University policy (http://disabilityservices.rutgers.edu/request.html).
- Absences should be reported through the online system (https://sims.rutgers.edu/ssra/).

Classroom Policies

- When you enter the classroom, please turn off your cell phone (or any other handheld device) and put it away. Your final grade may go down 1 point every time your cell phone goes off, or you are seen texting, online chatting, talking on the phone, or emailing in class.
- Slides for each class will not be posted before the class. A version of the slides will be posted after each class or at the end of the week for studying purposes.

Communication

- Pay attention to the way in which you address people. Your Professor should be addressed as Dr. or Prof. Your TA (who is a graduate student) and other administrative staff should not be, but should still be addressed politely. The same goes for your undergraduate peers.
- Keep register in mind. Emails to your instructors should never take the form of a casual message that resembles texting. Always include a salutation (e.g., Dear Dr. X), and always sign your message along with your name (e.g., Best regards, Sincerely, Thank you, etc.). Do not include texting abbreviations in your messages.
- Be respectful. Frame your questions or requests in the most polite way possible. Do not make demands of your addressee, even if they are preceded by *please*. For example, *Please tell me why I did not get an A on my midterm exam* may still come across as abrupt and offensive. Remember the purpose of your communication: you are probably writing to resolve some issue or receive an answer to a question (quickly). If so, the best way to accomplish this is to be polite and show respect.
- Keep timing in mind. Instructors field a lot of emails each day. They may not be able to respond to your email right away, or respond to a string of emails with little questions. Send your email well in advance. If you do not receive a response within 24 hours time, then politely follow up, referencing your previous message. Do not wait until the last minute, and never send an email the morning of class, expecting a response before the start of class!
- Office hours are there for you! Face-to-face communication is the most efficient and clearest way to address any concerns or questions you have. This is also a good time for us to get to know each other, and for me to learn more about your style of communication (which may benefit you when I am reading your writing).

Readings

- There is no textbook for this class. Instead, the assigned readings are articles from the fields of Linguistics, Cognitive Psychology, and Cognitive Science.
- These readings area available in the Resources folder on Sakai. In some cases, you may only asked to read certain sections of the assigned reading. The schedule in this syllabus will indicate whether a given reading is assigned or optional.
- Do not be fooled by page length; even shorter papers can be tricky! Do not wait until the last minute to do these readings!
- You are not expected to understand everything, but do your best to make it through them, and generate thoughts and questions for me and your peers.

Schedule

Week	Topic	Required Reading	Optional Reading
1	**Cognition: Concepts, Categories**	[37]	[2], [27]
2	**Language: Structure & Meaning**	[18], [39]	
3	**Speech Perception**	[21], [41]	[20]
4	**Word Learning**	[13], [14]	[19]
5	**Category Formation**	[12], [40]	[1]
6	**Syntactic Priming**	[30]	[3]
7	**Language and Memory**	[38]	[26]
8	**Speech Errors & Disfluencies**	[8], [16]	[10], [11]
9	MIDTERM REVIEW & EXAM		
10	**Language and Thought**	[15], [42]	[24], [36]
11	**Color**	[32], [35], [43]	[33], [34]
12	**Space (part 1)**	[23], [25]	[7], [22]
13	**Space (part 2)**	[31]	[29]
14	**Grammatical Gender, Time**	[5], [6]	[4]
15	**Number, Language Universals**	[17], [28]	[9]
	FINAL EXAM		

Readings

[1] **Anggoro, F., Medin, D. & Waxman, S.** (2010). Language and Experience Influence Children's Biological Induction. *Journal of Cognition and Culture, 10*, 171-187.

[2] **Barsalou, L.** (1983). Ad-hoc categories. *Memory and Cognition, 11*, 211-227.

[3] **Blumstein, S. E., Milberg, W. P., Dworetzky, B., Rosen, A., & Gershberg, F.** (1991). Syntactic priming effects in aphasia: An investigation of local syntactic dependencies. *Brain and Language, 40*, 393-421.

[4] **Boroditsky, L.** (2001). Does language shape thought?: Mandarin and English speakers' conceptions of time. *Cognitive Psychology, 43*, 1-22.

[5] **Boroditsky, L., Fuhrman, O., & McCormick, K.** (2010). Do English and Mandarin speakers think about time differently? *Cognition, 118*, 123-129.

[6] **Boroditsky, L., Schmidt, L. A., & Phillips, W.** (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.

[7] **Brown, P., & Levinson, S. C.** (1993). 'Uphill' and 'downhill' in Tzeltal. *Journal of Linguistic Anthropology, 3*, 46-74.

[8] **Clark, H., & Fox Tree, J. E.** (2002). Using *uh* and *um* in spontaneous speaking. *Cognition, 84*, 73-111.

[9] **Everett, D.** (2005). Cultural constraints on grammar and cognition in Pirahã: Another look at the design features of human language. *Current Anthropology, 46*, 621-646.

[10] **Fraundorf, S. H., & Watson, D. G.** (2011). The disfluent discourse: Effects of filled pauses on recall. *Journal of Memory and Language, 65*, 161-175.

[11] **Fromkin, V.** (1971). The non-anomalous nature of anomalous utterances. *Langauge, 47*, 27-52.

[12] **Gelman, S. A., & Markman, E. M.** (1986). Categories and induction in young children. *Cognition, 23,* 183-209.

[13] **Gentner, D.** (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.

[14] **Gleitman, L. R., Cassidy, K., Nappa, R., Papafragou, A., & Trueswell, J.** (2005). Hard words. *Language Learning and Development, 1*, 23-64.

[15] **Gleitman, L., & Papafragou, A.** (2012). New perspectives on language and thought. In K. Holyoak & R. Morrison (Eds.), *Cambridge handbook of thinking and reasoning*, 2nd ed. Cambridge: Cambridge University Press.

[16] **Gollan, T., & Goldrick, M.** (2012). Does bilingualism twist your tongue? *Cognition, 125*, 491-497.

[17] **Gordon, P.** (2004). Numerical cognition without words: Evidence from Amazonia. *Science, 306*, 496-499.   (see also additional supplemental material)

[18] **Hayes, B**. (2009). *Introductory phonology*. Malden, MA: Wiley-Blackwell. (selected material only)

[19] **Imai, M., & Gentner, D.** (1997). A cross-linguistic study of early word meaning: Universal ontology and linguistic influence. *Cognition, 62*, 169-200.

[20]   **Kuhl, P. K.** (2004). Early language acquisition: Cracking the speech code. *Nature Reviews: Neoroscience, 5*, 831-843

[21]   **Kuhl, P. K., Williams, K. A., Lacerda, F., Stevens, K. N., & Lindblom, B.** (1992). Linguistic experience alters phonetic perception in infants by 6 months of age. Science, 255, 606-608.

[22]   **Levinson, S. C., Kita, S., Haun, D. B. M., & Rasch, B. H.** (2002). Returning the tables: Language affects spatial reasoning. *Cognition, 84*, 155-188.

[23]   **Li, P., & Gleitman, L.** (2002). Turning the tables: Language and spatial reasoning. *Cognition, 83*, 265-294

[24]   **Lucy, J.** (1997). Linguistic relativity. *Annual review of anthropology, 26*, 291-312.

[25]   **Majid, A., Bowerman, M., Kita, S., Haun, D., & Levinson, S.** (2004). Can language restructure cognition? The case for space. *Trends in Cognitive Science, 8*, 108-114.

[26]   **McCloskey, M., & Glucksberg, S.** (1979). Decision processes in verifying category membership statements: Implications for models of semantic memory. *Cognitive Psychology, 11*, 1-37.

[27]   **Medin, D.L., & Rips, L.J.** (2005). Concepts and categories: memory, meaning, and metaphysics. In K. Holyoak & R. Morrison (Eds.). *Cambridge handbook of thinking and reasoning* (pp. 37-72). Cambridge: Cambridge University Press.

[28]   **Nevins, A., Pesetsky, D., & Rodrigues, C.** (2009). Pirahã exceptionality: A reassessment. *Language, 85*, 355-404.

[29]   **Niraula, S., Mishra, R. C., & Dasen, P. R.** (2004). Linguistic relativity and spatial concept development in Nepal. *Psychology and Developing Societies, 16*, 99-124.

[30]   **Pickering, M. J., & Branigan, H. P.** (1999). Syntactic priming in language production. *Trends in Cognitive Science, 3*, 136-141.

[31]   **Pyers, J. E., Shusterman, A., Senghas, A., Spelke, E. S., & Emmorey, K.** (2010). Evidence from an emerging sign language reveals that language supports spatial cognition. *Proceedings of the National Academy of Sciences (PNAS), 107*, 12116-12120.

[32]   **Regier, T., Kay, P., & Cook, R. S.** (2005). Focal colors are universal after all. *Proceedings of the National Academy of Sciences (PNAS), 102*, 8386-8391.

[33]   **Regier, T., Kay, P., & Khetarpal, N.** (2009). Color naming and the shape of color space. *Language, 85*, 884-892.

[34]   **Roberson, D., Davies, I. R., & Davidoff, J.** (2000). Color categories are not universal: Replications and new evidence from a stone-age culture. *Journal of Experimental Psychology: General, 129*, 369-398.

[35]   **Roberson, D., & Hanley, J. R.** (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.

[36]   **Slobin, D.** (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.

[37]   **Smith, E. E., & Medin, D. L.** (1981). *Categories and concepts*. Cambridge, MA : Harvard University Press. (Chapters 1-3 only)

[38] **Smith, E. E., Shoben, E.J. & Rips, L.J.** (1974). Structure and process in semantic memory: A featural model for semantic decisions. *Psychological Review*, *81*, 214-241.

[39] **Sportiche, D., Koopman, H., & Stabler, E.** (2013). An introduction to syntactic analysis and theory. Malden, MA: Wiley-Blackwell. (selected material only)

[40] **Waxman, S. R., & Markow, D. B.** (1995). Words as invitations to form categories: Evidence from 12-month-old infants. *Cognitive Psychology, 29*, 257-302.

[41] **Werker, J. F., & Tees, R. C.** (1984/2002). 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.

[42] **Whorf, B. L.** (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.

[43] **Winawer, J., Witthoft, N., Frank, M. C., Wu, L., W., Alex R., & Boroditsky, L.** (2007). Russian blues reveal effects of language on color discrimination. *Proceedings of the National Academy of Sciences (PNAS)*, *104*, 7780-7785.