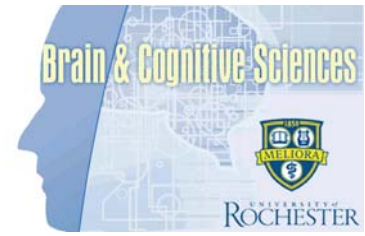


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**Jessica F. Cantlon**

Department of Brain & Cognitive Science  
University of Rochester  
Box 270268, Meliora Hall  
Rochester, NY 14627  
Phone: (585) 275-1844  
Fax: (585) 442-9216  
E-mail: [jcantlon@bcs.rochester.edu](mailto:jcantlon@bcs.rochester.edu)



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**Laboratory Website**

<http://caoslab.bcs.rochester.edu/>

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**Education****Duke University**, Durham, NC

Ph.D., Psychology, 2007

*Dissertation: The Cognitive and Neural Roots of Mathematical Knowledge*

*Committee: Elizabeth Brannon (chair), Kevin Pelphrey, Amy Needham, Roberto Cabeza*

**Columbia University**, New York, NY

*Continuing Studies 2001-2003*

**Indiana University**, Bloomington, IN

*B.A. Anthropology, focus on non-human primate behavioral ecology, 1999*

*Undergraduate Advisor: Kevin D. Hunt*

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**Academic Employment**

July 2009	--	present	Assistant Professor, University of Rochester, Brain & Cognitive Sciences Department
Oct 2007	--	Aug 2009	Postdoctoral Researcher, Carnegie Mellon University (Kevin Pelphrey) and INSERM, Paris (Stanislas Dehaene)
May 2001	--	Aug 2003	Research Assistant, Department of Psychology, Columbia University (Herb Terrace)
July 1999	--	Sep 2000	Research/Field Assistant, Karisoke Research Center, Rwanda

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**Grants & Awards**

2011	James S. McDonnell Scholar, Understanding Human Cognition, \$150,000 per year, 4 years
2011	NSF REESE, Co-PI, sub-contract \$40,000 direct + \$21,600 indirect per year for 3 years, \$750,000 total award to Alex Pouget, PI
2010	NICHD R01, PI, \$250,000 (direct) + \$140,000 (indirect) per year, 5 years
2008	Biology of Cognition Conference, Cell Press, Travel award
2007-2009	National Research Service Award (NRSA) individual postdoctoral fellowship, NICHD
2007-2008	Elizabeth Munsterberg Koppitz Child Psychology Fellowship, American Psychological Foundation
2007	Duke International Travel Dissertation Research Award
2006-2007	Duke Vertical Integration Mentorship Fellow
2006	Sigma Xi, Sally Hughes-Schrader Award
2005	Dartmouth Summer Institute in Cognitive Neuroscience Fellowship
2004-2007	National Science Foundation (NSF) Graduate Research Fellowship
1997-1999	McNair Scholarship for Underprivileged Groups (US Department of Education)
1994-1996	Indiana Business and Professional Women's Undergraduate Scholarship

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**Publications (in peer-reviewed journals)**

Emerson, R. W., & **Cantlon, J. F.** (in press). Early math achievement and functional connectivity in the fronto-parietal network. *Developmental Cognitive Neuroscience*.

**Cantlon, J. F.**, Davis, S., Libertus, M., Brannon, E. M. & Pelphrey, K. A. (in press). Inter-Parietal White Matter Structure Predicts Numerical Performance in Young Children. *Special Issue on Educational Cognitive Neuroscience. Learning & Individual Differences*.

- Mahon, B.Z., & **Cantlon, J. F.** (in press). Specialization of function: Cognitive and neural perspectives. *Cognitive Neuropsychology*.
- Cantlon, J. F.**, Pinel, P., Dehaene, S. & Pelphrey, K. A. (2011). Cortical representations of symbols, objects, and faces are pruned back during early childhood. *Cerebral Cortex*, 21(1), 191-199.
- Cantlon, J. F.**, & Safford, K. E., Brannon, E. M. (2010). Spontaneous analog number representations in 3-year-old children. *Developmental Science*, 13(2), 289-297.
- Jones, S. M., **Cantlon, J. F.**, Merritt, D. J., & Brannon, E. M. (2010). Context affects the numerical semantic congruity effect in rhesus monkeys. *Behavioral Processes*, 83(2), 191-196.
- Cantlon, J. F.**, Cordes, S., Libertus, M. E., & Brannon, E. M. (2009). Numerical abstraction: It ain't broke. (commentary). *Behavioral and Brain Sciences*, 32, 331-332.
- Cantlon, J. F.**, Libertus, M. E., Pinel, P., Dehaene, S., Brannon, E.M., & Pelphrey, K. P. (2009). The neural development of an abstract concept of number. *Journal of Cognitive Neuroscience*, 21(11), 2217-2229.
- Cantlon, J. F.**, Platt, M., & Brannon, E.M (2009). Beyond the Number Domain. *Trends in Cognitive Sciences*, 13(2), 83-91.
- Cantlon, J. F.**, Cordes, S., Libertus, M. E., & Brannon, E. M. (2009). Comment on 'Log or Linear? Distinct intuitions of the number scale in Western and Indigene cultures'. *Science*, 323, 38b.
- Hubbard, E. M., Diester, I., **Cantlon, J. F.**, Ansari, D., van Opstal, F., & Troiani, V. (2008). The evolution of numerical cognition: From number neurons to linguistic quantifiers. *Journal of Neuroscience*, 26(46), 11819-11824.
- Cantlon, J. F.**, & Brannon, E. M. (2007). Basic math in monkeys and college students. *PLoS Biology*, 5(12), e328.
- Subiaul, F., Romansky, K., **Cantlon, J. F.**, Klein, T, and Terrace, H. (2007). Cognitive imitation in 2-year-old children: A comparison with rhesus monkeys. *Animal Cognition*, 10(4), 1435-9448.
- Cantlon, J. F.**, Fink, R., Safford, K. E., & Brannon, E. M. (2007). Heterogeneity affects numerical matching but not numerical ordering in preschool children. *Developmental Science*, 10(4), 431-440.
- Cantlon, J. F.**, & Brannon, E. M. (2007). How much does number matter to a monkey? *Journal of Experimental Psychology: Animal Behavior Processes*, 33(1), 32-41.
- Cantlon, J. F.**, & Brannon, E. M. (2007). Adding up the effects of cultural experience on the brain. *Trends in Cognitive Sciences*, 11(1), 1-4.
- Cantlon, J. F.**, Brannon, E. M., Carter, E. J., & Pelphrey, K. P. (2006). Functional imaging of numerical processing in adults and 4-y-old children. *PLoS Biology*, 4(5), e125.
- Cantlon, J. F.**, & Brannon, E. M. (2006). Shared system for ordering small and large numbers in monkeys and humans. *Psychological Science*, 17(5), 401-406.
- Needham, A., **Cantlon, J. F.**, & Ormsbee, S. (2006). Infants' use of category knowledge and object attributes when segregating objects at 8.5 months of age. *Cognitive Psychology*, 53(4), 345-360.
- Cantlon, J. F.** & Brannon, E. M. (2006). The effect of heterogeneity on numerical ordering in rhesus monkeys. *Infancy*, 9(2), 173-189.
- Brannon, E. M., **Cantlon, J. F.**, & Terrace, H. S. (2006). The role of reference points in ordinal numerical comparisons by rhesus macaques. *Journal of Experimental Psychology: Animal Behavior Processes*, 32(2), 120-134.
- Cantlon, J. F.**, & Brannon, E.M. (2005). Semantic congruity affects numerical judgments similarly in monkeys and humans. *Proceedings of the National Academy of Sciences*, 102 (45), 16507-16511.
- Subiaul, F., **Cantlon, J. F.**, Holloway, R., and Terrace, H. S. (2004). Cognitive imitation in rhesus macaques. *Science*, 305(5682), 407-410.

### **Publications (under peer-review)**

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Bonn, C., & **Cantlon, J. F.** (submitted). Developmental Taxonomies of Magnitude Representation. *Cognitive Neuropsychology*.

**Cantlon, J.F.**, & Li, R. (submitted). Children's neural activity while watching Sesame Street predicts their math and verbal abilities.

### **Publications (in prep)**

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**Cantlon, J. F.** (invited). Math, Monkeys, and the Developing Brain. *Proceedings of the National Academy of Sciences*.

### **Book Chapters**

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Brannon, E.M, & **Cantlon, J. F.** (2009). A comparative perspective on the origin of numerical thinking. In *Cognitive Biology: Evolutionary and Developmental Perspectives on Mind, Brain, and Behavior*, Luca Tomasi, Mary A. Peterson, and Lynn Nadel (Eds.). Cambridge: MIT Press.

**Cantlon, J. F.**, & Brannon, E. M. (in press). Animal Arithmetic. *Encyclopedia of Animal Behavior*. Oxford: Elsevier Press.

Son, L. K., Kornell, N., Finn, B., & **Cantlon, J. F.** (in press). Metacognition and the social animal. Brinol, P., & De Marree, K. G.,(Eds.). *Social Metacognition*. New York, NY: Psychology Press.

### **Invited Talks**

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NAS Sackler Colloquia, National Academy of Sciences, Irvine, CA January 2011  
Columbia University, University Seminar: Psychology, New York, December 2011  
UCSB, Summer Institute in Cognitive Neuroscience, Santa Barbara, CA July 2011  
Utah State University, Psychology Colloquium, Logan, UT March 2011  
RIT, Psychology Colloquium, Rochester, New York, March, 2010  
Neurocog Collective, Bocas del Toro, Panama, January 2010  
Cognitive Development Society (CDS), San Antonio, October 2009  
UCSB, Summer Institute in Cognitive Neuroscience, Santa Barbara, CA June 2009  
Cognitive Neuroscience Society (CNS), San Francisco, March 2009.  
AAAS Annual Meeting, Chicago, IL, March 2009  
The LOVE Conference, Niagara Falls, CA, February 2009  
Society for Neuroscience (SFN), Washington D.C, November 2008  
University of Iowa, Psychology Colloquium, April 2008  
University of Wisconsin, Psychology Colloquium, April 2008  
Harvard University, Psychology Colloquium, March 2008  
University of Rochester, Brain & Cognitive Science Colloquium, March 2008  
Stanford University, Psychology Colloquium, January 2008  
University of Wisconsin, Psychology Colloquium, December 2007  
Carnegie Mellon University, Developmental Brownbag Series, November 2007  
APA, San Francisco, August 2007  
Yale University, Developmental Brownbag Series, November 2006  
Duke University, Cognitive Neuroscience Series, August 2006  
Duke University, Developmental Series, November 2004

### **Posters & Conference Papers**

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Emerson, R., & **Cantlon, J.F.** Early math achievement and functional connectivity in the fronto-parietal network (2012). Talk presented at Cognitive Neuroscience Society, Chicago.

Li, R. & **Cantlon, J.F.** Children's neural activity while watching Sesame Street predicts their math and verbal abilities (2011). Poster presented at the annual meeting of the SRCD, Montreal.

**Cantlon, J.F.** & Li, R. Children's neural activity while watching Sesame Street predicts their math and verbal abilities (2010). Poster presented at the annual Attention & Performance Workshop, Paris, France.

Emerson, R. & **Cantlon, J.F.** Probabilistic IPS responses reveal the gradual emergence of children's number concepts (2010). Poster presented at the annual Workshop on Concepts, Actions, and Objects, Rovereto, Italy.

Li, R. & **Cantlon, J.F.** Children's neural activity while watching Sesame Street predicts math and verbal abilities (2010). Poster presented at the annual Workshop on Concepts, Actions, and Objects, Rovereto, Italy.

**Cantlon, J. F.**, & Pelphrey, K. A.. Cortical organization of visual categories in preschool children (2009). Poster presented at the annual meeting of the SRCD, Denver.

**Cantlon, J. F.**, & Pelphrey, K. A.. Cortical organization of visual categories in preschool children (2008). Poster presented at the annual meeting of the APA, Boston.

**Cantlon, J. F.**, Brannon, E. M., & Pelphrey, K. A.. Cortical organization of visual categories in preschool children (2008). Poster presented at the annual Concepts Objects and Actions meeting, Rovereto, Italy.

**Cantlon, J. F.**, Davis, S. W., Libertus, M. E., Brannon, E. M., & Pelphrey, K. A. The integrity of white matter pathways and numerical cognition in adults and young children. Poster presented at Human Brain Mapping, June 2007.

**Cantlon, J. F.**, Libertus, M. E., Brannon, E. M., & Pelphrey, K. A. Symbolic & Non-symbolic Number in the Developing Brain. Poster presented at Cognitive Neuroscience Society, May 2007.

**Cantlon, J. F.**, Libertus, M. E., Brannon, E. M., & Pelphrey, K. A. The development of abstract numerical processing in parietal cortex. Poster presented at Vision Science Society, May 2007.

Brannon, E.M., **Cantlon, J.F.**, Cordes, S., Jordan, K.E., Libertus, M., MacLean, E., & Suanda, U. (2006). Comparative and developmental approach to studying nonverbal numerical cognition. Paper presented at the annual meeting of the Psychonomic Society, Houston, TX.

**Cantlon, J. F.**, Ormsbee, S., & Needham, A. Object knowledge influences the perception of occluded displays at 8.5 months of age. Poster presented at International Conference on Infant Studies, Kyoto, June 2006.

**Cantlon, J. F.**, Brannon, E. M., & Pelphrey, K. A. Numerical processing of visual arrays in the brains of adults and four-year-old children. Poster presented at Vision Science Society, May 2006.

**Cantlon, J. F.**, Brannon, E. M., Pelphrey, K. Notation-Independent Number Processing in Adults and Four-year-old Children. Poster presented at Cognitive Neuroscience Society, April 2006.

**Cantlon, J. F.**, & Brannon, E. M. Relative Saliency of Number, Shape, Color, and Surface Area in Rhesus Monkeys. Poster presented at Vision Science Society, May 2005.

**Cantlon, J. F.**, & Brannon, E.M. Shared system for ordering small and large numbers in monkeys and humans. Poster presented at Yale Conference on Object Perception and Looking-Time as a Dependent Measure, April 2005.

**Cantlon, J. F.**, Fink, R., & Brannon, E. M. The effect of heterogeneity on numerical judgments in monkeys and young children. Poster presented at Society for Research on Child Development, April 2005.

**Cantlon, J. F.**, Lewis, K., and Brannon, E. Monkeys count up and count down: Conditional numerical ordering in rhesus monkeys. Poster presented at Comparative Cognition Conference, April, 2004.

Subiaul, F., **Cantlon, J. F.**, Holloway, R., and Terrace, H. Cognitive imitation in rhesus macaques. Poster presented at Comparative Cognition Conference, April, 2004.

Subiaul, F., **Cantlon, J. F.**, Holloway, R., and Terrace, H. (2003). A re-evaluation of human imitation: No statistical difference between monkeys and 2- and 3-year olds on a copying task. *Journal of Cognitive Neuroscience*, Supplement 2003.

Subiaul, F., **Cantlon, J. F.**, Holloway, R., and Terrace, H. (2002). Copying Information: Rhesus macaques learn novel 3-item lists by observing an experienced subject. *Journal of Cognitive Neuroscience*, Supplement 2002, 15.

Subiaul, F., **Cantlon, J.F.**, Holloway, R., and Terrace, H. (2002). Learning by watching: Macaques copy a 3-item list from an experienced model. *American Journal of Physical Anthropology*, Supplement 34, 151-152.

## **Teaching & Mentoring**

Fall 2011 Mentor, Independent Study, (Theresa Kurtz, Tyia Clark, Celia Litovsky)

Fall 2011 Instructor, *Animal Minds*, Undergraduate Lecture, 70 students  
 Summer 2011 Co-Instructor, fMRI workshop, UCSB Summer Institute in Cognitive Neuroscience, 50 students  
 Summer 2011 Mentor, Research Assistantship (Celia Litovsky, Regina Gerhardt)  
 Fall 2010 Instructor, *Cognition*, Graduate Seminar, 25 students  
 Summer 2010 Mentor, Research Assistantship (Theresa Kurtz, Regina Gerhardt, Kathryn Nixon)  
 Spring 2010 Instructor, *Brain & Cognitive Science*, Senior Seminar, University of Rochester, 30 students  
 Spring 2010 Mentor, Independent Study (Theresa Kurtz, Regina Gerhardt, Eshin Jolly)  
 Fall 2009 Mentor, Independent Study (Theresa Kurtz, Eshin Jolly)  
 Fall 2008 Mentor, Intel Science Talent Search Program (Washington, D. C.)  
 Summer 2007 Mentor, Duke Vertical Integration Program Advisor for honors student (Andrew Pelehach)  
 Summer 2007 Instructor, *Developmental Psychology*, Duke University  
 Fall 2006 Instructor, Teaching & Research Ethics, Duke University  
 Summer 2006 Mentor, Duke Vertical Integration Program Advisor for honors student (Jill Kahane)  
 Spring 2006 Teaching Assistant, *Cognitive Psychology*, Roberto Cabeza  
 Fall 2005 Teaching Assistant, *Developmental Psychology*, Amy Needham  
 Spring 2005 Instructor, Teaching & Research Ethics, Duke University  
 Fall 2004 Teaching Assistant, *Developmental Psychology*, Elizabeth Brannon

Guest Lectures: *Animal Minds* (Spring 2010), *Systems Neuroscience* -- Graduate (Spring 2010), *Systems Neuroscience* -- Graduate (Spring 2011)

### **Professional Service**

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NSF Grant Reviewer, Full Panelist  
 2010: NSF REESE program

Associate Editor  
 2010-present: *Cognitive Neuropsychology*

Guest Editor  
 2011: Special Issue of *Cognitive Neuropsychology*

### Ad hoc Reviewer:

<i>Animal Cognition</i>	<i>Journal of Cognitive Neuroscience</i>
<i>Cerebral Cortex</i>	<i>Journal of Experimental Psychology</i>
<i>Cognition</i>	<i>Journal of Neuroscience</i>
<i>Cognitive Neuroscience</i>	<i>Memory &amp; Cognition</i>
<i>Current Biology</i>	<i>Neuroimage</i>
<i>Developmental Cognitive Neuroscience</i>	<i>Neuropsychologia</i>
<i>Developmental Neuropsychology</i>	<i>Proceedings of the Royal Society</i>
<i>Developmental Science</i>	<i>Psychological Bulletin &amp; Review</i>
<i>European Journal of Psychology</i>	<i>Psychological Review</i>
<i>Human Brain Mapping</i>	<i>Psychological Science</i>

### **University & Department Service**

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Spring 2012 Co-Organizer, UR, fMRI Reading Group, BCS Department  
 Spring 2012 Speaker, UR, McDonnell Foundation Workshop, Foundation Relations  
 Spring 2011 Committee Member, UR, Graduate Admissions, BCS Department  
 Fall 2011 Committee Member, UR, Faculty Search, BCS Department  
 Spring 2010 Committee Member, UR Music & Language NSF IGERT Training Grant  
 Spring 2006 Representative, Duke, Graduate & Professional Student Council, Psychology

### **Community Service**

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Spring 2012 Speaker, Seneca Park Zoo, Animal Staff Workshop  
 Spring 2011 Speaker & Exhibitor, Rochester Museum & Science Center, Brain: The World inside Your Head

### **Graduate Students**

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2010-present Bobby Emerson  
 2010-present Cory Bonn (NSF Graduate Student Fellowship)

### **Student Committees**

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Spring 2012 Chair, Theresa Kurtz, Honors Thesis  
 Spring 2012 Chair, Celia Litovsky, Honors Thesis  
 Spring 2012 Chair, Tyia Clark, Honors Thesis

Spring 2010 Committee Member, Holly Palmeri, Honors Thesis  
Fall 2010 Committee Member, David Ruskin, Ph.D  
Spring 2010 Committee Member, Katrina Housel, Honors Thesis  
Spring 2010 Committee Member, Natalie Klein, Ph.D.  
Spring 2010 Chair, Eshin Jolly, Honors Thesis

**Lab Alumni in research or academia**

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2011 Rosa Li, Graduate Student, Duke University (former RA)  
2010 Bobby Emerson, Graduate Student, University of Rochester (former RA)  
2010 Eshin Jolly, full-time Research Assistant, Harvard University (former undergraduate)

## References

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Dr. Elizabeth Brannon  
Associate Professor, Duke University  
Center for Cognitive Neuroscience  
Durham, NC 27708  
Tel: 919 668 6201  
E-mail: [brannon@duke.edu](mailto:brannon@duke.edu)

Dr. Kevin Pelphrey  
Associate Professor, Yale University  
Department of Psychiatry  
Baker Hall 342c  
Pittsburgh, PA 15213  
Tel: 412 268-9718  
E-mail: [kevin.pelphrey@yale.edu](mailto:kevin.pelphrey@yale.edu)

Dr. Amy Needham  
Professor, Vanderbilt University  
Department of Psychology  
217B Hobbs Building  
Nashville, TN 37240  
Tel: 615 343-7877  
E-mail: [amy.needham@vanderbilt.edu](mailto:amy.needham@vanderbilt.edu)

Dr. Stanislas Dehaene  
Professor of Psychology, College de France  
Inserm-CEA Cognitive Neuroimaging Unit  
Neurospin CEA/SAC/DSV/I2BM  
Bat 145, Point Courrier 156  
F-91191 GIF/YVETTE, FRANCE  
E-mail: [stanislas.dehaene@cea.fr](mailto:stanislas.dehaene@cea.fr)

Dr. Roberto Cabeza  
Professor, Duke University  
B203 LSRC Building  
Durham, NC 27708  
Tel: 919 660 2926  
E-mail: [cabeza@duke.edu](mailto:cabeza@duke.edu)

Dr. Herbert S. Terrace  
Professor, Columbia University  
Department of Psychology  
406 Schermerhorn Hall  
New York, NY 10027  
Tel: 212 854 4544  
E-mail: [terrace@columbia.edu](mailto:terrace@columbia.edu)