**CURRICULUM VITAE**

**Chantel S. Prat**

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**EDUCATION**

Ph. D. in Cognitive Psychology, University of California, Davis, June 2004

M. A. in Cognitive Psychology, University of California, Davis, September 2001

B. A. in Psychology, University of California, San Diego, June 1997

**ACADEMIC EMPLOYMENT**

September 2010 – Present Assistant Professor, Department of Psychology and Institute for Learning and Brain Sciences, University of Washington, Seattle

July 2008 – August 2010 Special Research Faculty, Department of Psychology, Carnegie Mellon University

June 2005 – June 2008 Postdoctoral Fellow, Center for Cognitive Brain Imaging, Carnegie Mellon University

January 2005 – June 2008 Editorial Assistant, Psychological Bulletin

June 2004 – September 2005 Lecturer, University of California, Davis

January 2005 – June 2005 Instructor, California State University, Sacramento

June 2003 – August 2003 Summer Lecturer, University of California, Davis

June 2001 – September 2003 Research Assistant, University of California, Davis

January 2000 – June 2003 Teaching Assistant, University of California, Davis

September 1997 – June 1999 Staff Research Associate, Center for Research

in Language, University of California, San Diego

September 1996 – 1997 Research Assistant, Center for Research in

Language, University of California, San Diego

**GRANTS**

**Currently Funded**

Cortical Dynamics of Language Processes in Normal and Impaired Individuals, DC009634 (Prat, PI)

$920,645, 9/1/2008 - 12/31/2013, NIH Pathway to Independence Award (K99/R00)

The primary goal of the Pathway to Independence initiative is to support the training of young researchers and their transition to independent research careers. This proposal supported training in and research using converging cognitive neuroscientific methods including fMRI, TMS, and voxel-based lesion symptom mapping. These approaches are being applied to investigate the neural basis of individual differences in language abilities,

with an emphasis on the role of the right hemisphere.

National Institute of Health, Health Disparities Loan Repayment Program, (Prat, PI)

$48,900, 2009-2014

**Under Review**

Modeling the Benefits of Bilingual Development: A Neuro-computational Approach,

NICHD, R01

This proposal investigates the mechanisms by which bilingual development gives rise to improvements in general executive functioning. A detailed characterization of these mechanisms could facilitate the creation of paradigms that train executive processes by emulating the neurocognitive demands of bilingualism. Such training protocols would have broad implications for improving education, for treating special populations with impairments in executive functions, and for sustaining executive functions in aging populations.

CAREER: How Bilingual Language Learning and Language Control Shape Cognition,

NSF CAREER Award

This proposal investigates the neurocognitive mechanisms by which language can influence general cognitive abilities. To do so, it uses predictions based on a neurocomputational model of signal prioritization in the brain, to create a framework for investigating how bilingual language development and control shapes general cognitive abilities. Specifically, a series of investigations are employed to investigate the nature of the information processing benefits observed in bilinguals, the causes of such benefits, and the neural mechanisms that mediate the transfer between language experience and cognitive changes. Ultimately, these results have the potential to provide an important link for bridging theories of language and general executive processes, greatly advancing our understanding of the generalizability of learning and the behavioral implications of neuroplasticity.

**PROFESSIONAL MEMBERSHIPS**

Human Brain Mapping, Society for Text & Discourse, Cognitive Neuroscience Society

**PROFESSIONAL ACTIVITIES**

Editorial Assistant: Psychological Bulletin (2005 – 2008)

Ad Hoc Reviewer: Psychological Bulletin, Journal of Cognitive Neuroscience, Human

Brain Mapping, Cerebral Cortex, Neuropsychologia, NeuroImage, Learning & Individual Differences, PLoS ONE, Physics of Life Reviews, Journal of Experimental Psychology: Learning, Memory, and Cognition, Journal of Neuroscience

Grant Review: NSF, University of Washington Research and Royalty Funds Grant Review

Program Committee: Current Trends in Reading Research Meeting, Madrid, September 2013.

**HONORS AND AWARDS**

Tom Trabasso Young Investigator Award, Society for Text and Discourse, 2011

NIH NRSA Fellowship, Carnegie Mellon University, 2005-2007

Davis Honors Challenge Research Award, $1000, University of California, Davis, March 2004

Davis Honors Challenge Research Award, $1000, University of California, Davis, December 2004

Elliott Fellowship, $15,000, Office of Graduate Studies, University of California, Davis, 2003-2004

Humanities Graduate Research Award, $1,500, University of California, Davis, 2003-2004

**PUBLICATIONS**

**Journal Articles**

Yamasaki, B. Y. & **Prat**, C. S. (under review). The importance of managing interference for second language reading ability: An individual differences investigation. *Discourse Processes*.

Stocco, A., & **Prat**, C. S. (in press). Bilingualism trains specific brain circuits involved in flexible rule selection and application. *Brain and Language*.

Buchweitz, A. & **Prat**, **C. S**. (in press). The bilingual brain: Flexibility and control in the human cortex, *Physics of Life Reviews*.

Mason, R. A., **Prat**, C. S., & Just, M. A. (in press). Neurocognitive brain response to transient impairment of Wernicke’s area. *Cerebral Cortex*.

Stocco, A., Yamasaki, B., Natalenko, R., & Prat, C. S. (in press). Bilingual brain training: A neurobiological framework of how bilingual experience improves executive function. *International Journal of Bilingualism*.

Prat, C. S., Mason, R. A., & Just, M. A. (2012). Investigating the information processing demands of analogical mapping in metaphor comprehension: The roles of context and individual cognitive capacities. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 38*(2)*,* 282-294.

Prat, C. S., & Stocco, A. (2012). Information routing in the basal ganglia: Highways to abnormal connectivity in autism? Comment on “Disrupted cortical connectivity theory as an explanatory model for autism spectrum disorders” by Kana et al. *Physics of Life Reviews 9:11*(1), 1-2.

Prat, C. S. (2011). The brain basis of individual differences in language comprehension abilities. *Language and Linguistic Compass, 5*(9), 635-649.

Prat, C. S. & Just, M. A. (2011). Exploring the cortical dynamics underpinning individual differences in sentence comprehension. *Cerebral Cortex, 21,* 1747-1760.

Prat, C. S., Mason, R. A., & Just, M. A. (2011). Individual differences in the neural basis of causal inferencing. *Brain and Language, 116,* 1-13.

Long, D. L., Prat, C. S., Johns, C. L., Morris, P. E., & Jonathan, E. (2008). The importance of knowledge in vivid text memory: An individual-differences investigation of recollection and familiarity. *Psychonomic Bulletin and Review, 15*(3), 604-609.

Prat, C. S., & Just, M. A. (2008). Brain bases of individual differences in cognition. *Psychological Science Agenda, 22*(5).

Long, D. L., & **Prat**, C. S. (2008). Individual differences in syntactic ambiguity resolution: Readers vary in their use of plausibility information. *Memory and Cognition, 36*(2),375-391.

Prat, C. S., Keller, T. A., & Just, M. A. (2007). Individual differences in sentence comprehension: An fMRI investigation of syntactic and lexical processing demands. *Journal of Cognitive Neuroscience,* *19*(12), 1950-1963.

Prat, C. S., Long, D. L., & Baynes, K. (2007). The representation of discourse in the two hemispheres: An individual differences investigation. *Brain and Language*, *100*(3), 283-294.

Long, D. L., Wilson, J., Hurley, R., & **Prat**, C. S. (2006). Assessing reader’s text representation with recognition: The interaction of prior knowledge and text coherence. *Journal of Experimental Psychology: Learning, Memory and Cognition, 32*(4),816-827.

Mills, D., Plunkett, K., **Prat**, C. S., & Schaffer, G. (2005). Watching the infant brain learn words: Effects of vocabulary size and experience. *Cognitive Development, 10,* 19-31*.*

Long, D. L., Baynes, K., & **Prat**, C. S. (2005). The propositional structure of discourse in the two cerebral hemispheres. *Brain and Language*, *95*(3), 383-394.

Mills, D. L., **Prat**, C. S., Zangl, R., Stager, C. L., Neville, H. J., & Werker, J. F. (2004). Language experience and the organization of brain activity to phonetically similar words: ERP evidence from 14- and 20-month-olds. *Journal of Cognitive Neuroscience, 16*(8). *1452-1464.*

Long, D. L., & **Prat**, C. S. (2002b). Memory for Star Trek: The role of prior knowledge in recognition revisited. *Journal of Experimental Psychology: Learning, Memory, & Cognition, 28* 1073-1082.

Long, D. L., & **Prat**, C. S. (2002a). Working memory and Stroop interference: An individual differences investigation. *Memory & Cognition, 30*, 294-301.

**Prat**, C. S., Kleinhans, N., & Stocco, A (in preparation). Impaired cortical coordination in autism apectrum disorder is related to abnormal basal ganglia functioning: A dynamic causal modeling investigation.

Yamasaki, B. Y., Prat, C. S. & Stocco, A. (in preparation). Investigating the shared neural mechanisms underpinning language and task switching in bilingual individuals.

Book Chapters

**Prat**, C. S., Seo, R., & Yamasaki, B. Y. (under review). The role of individual differences in working memory capacity on reading comprehension ability. To appear in P. Afflerbach (Ed), *Handbook of Individual Differences in Reading: Text and Context*.

**Prat**, C. S., & Yamasaki, B. Y. (under review). The cognitive and neural correlates of individual differences in inferential processes. A. Cook, B. Lorch, & E. O’Brien (Eds). *Inferences during Reading*

**Prat**, C. S. (2012). The neural basis of language faculties. In I. B. Weiner (Ed), *Handbook of Psychology, Volume Three: Biological Psychology and Neuroscience*. Wiley.

Long, D. L., Baynes, K., & **Prat**, C. S. (2003). Sentence and discourse representation in the two cerebral hemispheres. In C. Perfetti & F. Schmalhofer (Eds.), *Higher-level language processes in the brain.* Erlbaum: NJ.

**INVITED PRESENTATIONS**

**International Colloquia**

**Prat**,C. S. *Understanding the shared neural computations underpinning language and executive functioning*. Keynote Address delivered at the Association for Computational Linguistics, Sofia, Bulgaria, August 9, 2013

**Prat**, C. S. *Individual differences in right hemisphere contributions to discourse*. Tom Trabasso Award Recipient Address at the annual meeting for the Society for Text and Discourse, Montreal, Canada, July 11-13, 2012

**Prat**, C. S. *Individual differences in language experience and working memory capacity in the dynamic brain*. Address at the annual meeting for Multilingual Individuals in Multilingual Societies. Hamburg, Germany, October 2010.

**Domestic Colloquia and Courses**

**Prat**, C. S. (2013). *Current directions in neuroimaging of language and language-related disorders*. Morning workshop at the annual meeting for the Organization for Human Brain Mapping, Seattle, WA.

**Prat**, C. S. *Bilingual brain training: A window into the shared neural substrates of language and executive functioning*. Department of Speech and Hearing Sciences, University of Washington, Seattle, WA, January 18, 2012.

**Prat**, C. S. *Individual differences in the neural basis of language and general comprehension abilities*. Educating Diverse Minds conference, Boston, MA, November 16-18, 2012.

**Prat**, C. S. *Bilingual brain training: How bilingual development gives rise to improved executive functioning*. Department of Linguistics, University of Hawaii, HI, April 16, 2012.

**CONFERENCE PRESENTATIONS**

(asterisks indicate presentations made by trainees)

**\***Alvarez, R.**,** Stocco, A., & **Prat**, C. S. & Kleinhans, N. (2013). *The correlation between the basal ganglia and the autism spectrum disorder triad*. Poster to be presented at the National Society for advancing Hispanics, Chicanos, and Native Americans in Science (SACNAS) conference in San Antonio, TX.

**\***Yamasaki, B. L., & **Prat**, C. S. (2013). *Individual differences in executive functioning and language control indices predict second language reading ability*. Poster presentation at the annual meeting of the Society for Text and Discourse, Valencia, Spain.

**\***Alvarez, R., Stocco, A., & **Prat**, C. S. (2013). *The role of the basal ganglia in autism spectrum disorder*. Poster presentation at the Mary Gates Research Symposium, University of Washington, Seattle, WA.

Stocco, A.,& **Prat**, C. S. (2012). *Bilingualism trains specific brain circuits involved in the rapid reconfiguration of behavior: Evidence from rapid instructed task learning*. Oral presentation given at the Architectures and Mechanisms for Language Processing Conference, Riva del Garda, Italy.

**Prat**, C. S, Stocco, A.,& Yamasaki, B. L. (2012). *Bilingual brain training: Investigating the overlap between language switching and general set switching in bilinguals*. Poster presentation given at the Architectures and Mechanisms for Language Processing Conference, Riva del Garda, Italy.

Stocco, A., **Prat**, C. S., Kleinhans, N., & Martin (2012). *Impaired information routing in the basal ganglia in individuals with autism*. Poster presentation at the Forum of European Neurosciences Forum of Neuroscience in Barcelona, Spain

\*Eastwood, A., \*Jackson, K., & **Prat**, C. S. (2012) *The effects of theta-burst Transcranial Magnetic Stimulation*. Poster presentation at the Mary Gates Research Symposium, University of Washington, Seattle, WA.

\*Yamasaki, B. & **Prat**, C. S. (2012) *Bilingual brain shaping: Mental set shifting and the bilingual brain*. Poster presentation at the Honors Research Symposium, University of Washington, Seattle, WA.

Mason, R. A., **Prat**, C. S., and Just, M. A. (2011). *A concurrent transcranial magnetic stimulation (TMS) and fMRI investigation of cortical adaptation during sentence comprehension*. Poster presentation at the annual meeting of the Cognitive Neuroscience Society, San Francisco, CA.

**Prat**, C. S., Mason, R. A. , and Just, M. A. (2010). *Right hemisphere contributions to reading: A multi-experiment individual differences investigation*. Poster presented at the annual meeting for the Organization for Human Brain Mapping, Barcelona, Spain.

**Prat**, C. S., Schipul, S. E., Keller, T. A., and Just, M. A. (2010). *A diffusion tensor imaging investigation of individual differences in white matter microstructure as a function of reading skill and working memory capacity*. Talk presented at the annual meeting of the Cognitive Neuroscience Society, Montreal, Canada.

**Prat**, C. S. & Mason, R. A. (2009). *An fMRI investigation of individual differences in neural resource allocation during sentence comprehension*. Poster session presented at the annual meeting for the Organization for Human Brain Mapping, San Francisco, CA.

**Prat**, C. S., Mason, R. A., Keller, T. A., & Just, M. A. (2008). *fMRI-based insights into the neural underpinnings of individual differences in reading skill*. Poster session presented at the annual meeting for the Organization for Human Brain Mapping, Melbourne, Australia.

Mason, R. A., **Prat**, C. S., & Just, M. A. (2008). *The components of a theory-of-mind cortical network during narrative comprehension*. Poster accepted for the annual meeting for the Organization for Human Brain Mapping, Melbourne, Australia.

Damarla, S. R., Keller, T. A., Kana, R. K., Williams, D. L., **Prat**, C. S., Minschew, N. J. & Just, M. A. (2008). *Neural correlates of greater dualtasking costs in autism: An fMRI study of two unrelated tasks.* Poster session presented at the annual International Meeting for Autism Research, London, UK.

**Prat**, C. S. & Just, M. A. (2008). *An fMRI Investigation of neural adaptability as a function of individual working memory capacity and task demands during syntactic processing.*Poster session presented at the annual meeting of the Cognitive Neuroscience Society, San Francisco, CA.

**Prat**, C. S., Mason, R., & Just, M. A. (2007). *Individual Differences in the Role of the Right Hemisphere in Causal Inference Comprehension: An fMRI Investigation*. Poster session presented at the annual meeting of the Cognitive Neuroscience Society, New York, NY.

Long, D. L., Baynes, K., & **Prat**, C. S. (2003). *Sentence and discourse representation in the two cerebral hemispheres.* Symposium presented at the Higher Level Language Processes in the Brain: Inference and Comprehension International Conference, Hanse-Advanced Study Institute, Germany.

Adamson, A., & **Prat**, C. S. (1999). *Processing of semantic and syntactic violations in young children: An event-related potential study*. Poster session presented at the biannual meeting of the Society for Research in Child Development, Albuquerque, NM.

**Prat**, C. S., Stager, C., Mitchell, T., Adamson, A., & Sanders, L*.* (1999)*. Semantic processing of phonetically similar words in infants: Indications from event-related potentials*. Poster session presented at the biannual meeting of the Society for Research in Child Development, Albuquerque, NM.

Utman, J., Dick, F., **Prat**, C. S., & Mills, D. (1999). *Effects of acoustic distortion and semantic context on event-related potentials to spoken words*. Poster session presented at the annual meeting of the Cognitive Neuroscience Society, San Francisco, CA.

Mills, D. L., Bellugi, U., Neville, H., Appelbaum, L. G., & **Prat**, C. S. (1998). *Electrophysiological markers of William’s Syndrome*. Poster session presented at the annual meeting of the International Behavioral Neurosciences, San Diego, CA.

Schafer, G., Mills, D. L., Plunkett, K., Appelbaum, L. G., & **Prat**, C. S. (1997). *Rapid word learning: Evidence from electrophysiological studies*. Poster session presented at the biannual meeting of the Society for Research in Child Development, Washington, D.C.

**REFERENCES**

Marcel Just, Ph.D. Debra Long, Ph.D. Eric Wassermann, M.D.

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