

## Curriculum Vitae

Sarah C. Creel

### Address:

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**Citizenship:** United States

**Research Interests:** Language acquisition, word recognition, speech plasticity, speech perception, auditory perception, learning of temporally ordered materials, music cognition, relationship between music and language

### Positions held:

Associate Professor, Dept. of Cognitive Science, UC San Diego 2013-present

Assistant Professor, Dept. of Cognitive Science, UC San Diego 2007-2013

Postdoctoral researcher, Institute for Research in Cognitive Science, University of Pennsylvania 2005-2007

### Education:

Ph.D., University of Rochester, Brain & Cognitive Sciences, August 2005  
*Dissertation:* The role of talker variation in lexical access  
*Advisors:* Richard N. Aslin, Ph. D. & Michael K. Tanenhaus, Ph. D.

BS Experimental Psychology, University of South Carolina, May 1999, *Summa cum laude*  
BA Music, University of South Carolina, May 1999, *Summa cum laude*  
*Honors thesis:* Relationship between music aptitude and prosodic awareness in 6- and 7-year-old children  
*Thesis supervisors:* Wendy Valerio, Ph. D.; A. Rene Schmauder, Ph. D.

### Funding and Awards:

National Science Foundation CAREER Award, Speaker variability and spoken language comprehension, 2011-2016, \$400,000  
National Science Foundation BCS-1230003, Influences of high level knowledge and low level perception in accented-speech processing across development, 2012-2015, \$376,820  
Hellman Foundation Fellowship, 2011-2012, \$14,000

IGERT Postdoctoral Fellow, Institute for Research in Cognitive Science, University of Pennsylvania, 2006

National Science Foundation Graduate Research Fellowship, 1999-2002

Sprull Fellowship, University of Rochester, 1999-2005

University of South Carolina School of Music Outstanding Senior, 1999

University of South Carolina College of Liberal Arts GPA Award, 1999

University of South Carolina School of Music Presser Scholar, 1998-1999

### **Professional Service:**

Co-Chair, Organizing Committee for “BCS Lunch” departmental talk series, 2000-2001

Graduate Student Recruitment Weekend Organizing Committee, 2000, 2002

Organized IRCS “Common Ground” lunch talk series, 2006

Organized seminar on speech and music development, UCSD, Spring 2008

Alternate delegate to Faculty Senate, 2007-2008

Delegate to Faculty Senate, 2008-2009

Member, Center for Human Development Executive Committee, UCSD, 2007-present

Ad hoc reviewer for *Attention, Perception, & Psychophysics*; *Behavior Research Methods, Instruments, & Computers*; *Child Development*; *Cognition*; *Cognitive Science*; *Cortex*; *Developmental Science*; *Frontiers (various)*; *Journal of the Acoustical Society of America*; *Journal of Experimental Psychology: Human Perception and Performance*; *Journal of Experimental Psychology: Learning, Memory, and Cognition*; *Journal of Memory and Language*; *Language*; *Language and Cognitive Processes*; *Memory & Cognition*; *Music Perception*; *Psychonomic Bulletin & Review*; *PLoS ONE*; *Quarterly Journal of Experimental Psychology*

### **Publications:**

#### **Refereed journals (\* senior author; \*\* co-senior author)**

Creel, S. C., Newport, E. L., & Aslin, R. N. (2004). Distant melodies: Statistical learning of non-adjacent dependencies in tone sequences. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *30*, 1119-1130. **Impact factor: 2.85**

Creel, S. C., Aslin, R. N., & Tanenhaus, M. K. (2006). Acquiring an artificial lexicon: segment type and order information in early lexical entries. *Journal of Memory and Language*, *54*, 1-19. **Impact factor (5-year): 4.17**

Creel, S. C., Tanenhaus, M. K., & Aslin, R. N. (2006). Consequences of lexical stress on learning an artificial lexicon. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *32*, 15-32. **Impact factor: 2.85**

Creel, S. C., Aslin, R. N., & Tanenhaus, M. K. (2008). Heeding the voice of experience: The role of talker variation in lexical access. *Cognition*, *106*, 633-664. **5-year impact: 4.16**

Creel, S. C., & Dahan, D. (2010). The influence of the temporal structure of spoken words on paired-associate learning. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *36*, 110-122. **Impact factor: 2.85**

- \*Creel, S. C., & Bregman, M. R. (2011). How talker identity relates to language processing. *Language and Linguistics Compass*, 5(5), 190-204.
- Creel, S. C. (2011). Specific previous experience affects perception of harmony and meter. In press, *Journal of Experimental Psychology: Human Perception and Performance*, 37(5), 1512-1526. **Impact factor: 3.06**
- \*Creel, S. C., & Tumlin, M. A. (2011). On-line acoustic and semantic interpretation of talker information. *Journal of Memory and Language*, 65(3), 264-285. **Impact factor (5-year): 4.17**
- Creel, S. C., & Tumlin, M. A. (2012). On-line recognition of music is influenced by relative and absolute pitch information. *Cognitive Science*, 36, 261-285. **Impact factor: 2.38**
- Creel, S. C. (2012). Looking ahead: Comment on Morgante, Zolfaghari, and Johnson. *Infancy*, 17(2), 141-158. **Impact factor: 1.73**
- Creel, S. C., Aslin, R. N., & Tanenhaus, M. K. (2012). Word learning under adverse listening conditions: Context-specific recognition. *Language and Cognitive Processes*, 27(7), 1021-1038. **Impact factor (5-year): 2.14**
- Creel, S. C. (2012). Similarity-based restoration of metrical information: different listening experiences result in different perceptual inferences. *Cognitive Psychology*, 65(2), 321-351. **Impact factor (5-year): 5.06**
- Creel, S. C. (2012). Preschoolers' use of talker information in on-line comprehension. *Child Development*, 83(6), 2042-2056. **Impact factor: 4.72**
- Creel, S. C. (2012). Phonological similarity and mutual exclusivity: On-line recognition of atypical pronunciations in 3-5-year-olds. *Developmental Science*, 15(5), 697-713. **Impact factor: 3.89**
- \*Creel, S. C., & Jiménez, S. J. (2012). Differences in talker recognition by preschoolers and adults. *Journal of Experimental Child Psychology*, 113, 487-509. **Impact factor (5-year): 3.19**
- Muench, K. L., & \*Creel, S. C. Gradient phonological inconsistency slows vocabulary learning. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 39(5), 1585-1600. **Impact factor: 2.85**
- \*Creel, S. C. Impossible to ignore: minimal phonological inconsistency slows preschool children's word learning. In press at *Language Learning and Development*. **New journal, no impact factor available**
- Bregman, M. R., & \*Creel, S. C. Gradient language dominance affects talker encoding. In press at *Cognition*. **5-year impact: 4.16**
- Borovsky, A., & Creel, S. C. Children and adults integrate talker and verb information in online processing. Accepted pending minor revision at *Developmental Psychology*. **Impact factor: 2.976**

(Continued below)

### Manuscripts under review at refereed journals

- Jiménez, S. R., & \*Creel, S. C. Individual differences in phonological processing predict talker learning. Manuscript under review.
- Creel, S. C. Speak for yourself: Children simultaneously encode word-referent and person-referent associations. Manuscript under revision.
- Creel, S. C. Tipping the scales: Auditory cue weighting changes over development. Manuscript under review.
- Creel, S. C. Ups and downs in auditory development: Preschoolers' short- and long-term memory for pitch contour and timbre. Manuscript under review.
- Quam, C., & \*Creel, S. C. Both lifelong and immediate language context affect interpretation of lexical tone. Manuscript under revision.

### Refereed proceedings

- Creel, S. C., & Newport, E. L. (2002, July). Tonal profiles of artificial scales: roles of frequency and recency. *Proceedings of the International Conference on Music Perception and Cognition*, Sydney, Australia.
- Creel, S. C., Aslin, R. N., & Tanenhaus, M. K. (2005, June). The role of consonants and vowels in learning an artificial lexicon: the effects of noise. *Proceedings of the 3<sup>rd</sup> Workshop on Plasticity in Speech Perception*, London, UK.
- Creel, S. C., Dahan, D., & Swingle, D. (2006, September). Effects of featural similarity and overlap position on lexical confusions and overt similarity judgments. *Proceedings of the Ninth International Conference on Spoken Language Processing*, Pittsburgh, PA, US.
- \*Creel, S. C., & Tumlin, M. A. (2009, July). Absolute pitch information affects on-line melody recognition in non-AP perceivers. *Proceedings of the 31<sup>st</sup> annual Cognitive Science Conference*, Amsterdam, NL. 2245-2250. (32% talk acceptance rate)
- \*Creel, S. C., & Tumlin, M. A. (2009, July). Talker variability is intrinsic to word representations: Evidence from on-line processing of spoken words. *Proceedings of the 31<sup>st</sup> annual Cognitive Science Conference*, Amsterdam, NL. 845-850.
- \*Creel, S. C., & Tumlin, M. A. (2010). That doesn't ring a bell: When integrating cues, children's errors reflect more advanced cognitive control. *Proceedings of the 34<sup>th</sup> annual Boston University Conference on Language Development*. Somerville, MA: Cascadilla Press. 90-101. (16% acceptance rate)
- \*Creel, S. C. (2010, August). Considering the source: Preschoolers (and adults) use talker acoustics predictively and flexibly in on-line sentence processing. *Proceedings of the 32<sup>nd</sup> annual Cognitive Science Society Conference*, Portland, OR.
- Quam, C., & \*Creel, S. C. (2012). What's in a rise? Effects of language experience on interpretation of lexical tone. *Proceedings of the 36<sup>th</sup> annual Boston University Conference on Language Development*. (18% acceptance rate)

- Jiménez, S. J., & \*Creel, S. C. (2012). Factors affecting talker recognition in preschoolers and adults. *Proceedings of the 36<sup>th</sup> annual Boston University Conference on Language Development*. (18% acceptance rate)
- Bregman, M. R., & \*Creel, S. C. (2012). Learning to recognize unfamiliar voices: the role of language familiarity and music experience. In N. Miyake, D. Peebles, & R. P. Cooper (Eds.), *Proceedings of the 34th Annual Conference of the Cognitive Science Society* (pp. 144-149). Austin, TX: Cognitive Science Society. (Talk acceptance rate 39%)
- Pajak, B., \*\*Creel, S. C., & \*\*Levy, R. (2012). Can native-language perceptual bias facilitate learning words in a new language? In N. Miyake, D. Peebles, & R. P. Cooper (Eds.), *Proceedings of the 34th Annual Conference of the Cognitive Science Society* (pp. 144-149). Austin, TX: Cognitive Science Society.
- \*Creel, S. C. (2013). Dimensions of specificity in musical memory: Evidence from metrical restoration. *Proceedings of the 2013 Cognitive Science Society conference*.
- Frye, C. I., & \*Creel, S. C. (2013). Emotional speech processing and language knowledge. *Proceedings of the 2013 Cognitive Science Society conference*.

## **Presentations:**

### **Spoken presentations**

- Creel, S. C., & Marvin, E. W. (2000, November). Profiles of Dorian and Lydian modes. Paper presented at the International Conference on Music Perception and Cognition, Toronto, Ontario, CA.
- Creel, S. C., Newport, E. L., & Aslin, R. N. (2003, November). Distant melodies: The role of auditory grouping factors in learning nonadjacent dependencies. Paper presented at the 2<sup>nd</sup> annual Auditory Perception, Cognition & Action Meeting, Vancouver, BC.
- Creel, S. C., Aslin, R. N., & Tanenhaus, M. K. (2005, November). The role of talker variation in lexical access. Paper presented at the 4<sup>th</sup> annual Auditory Perception, Cognition & Action Meeting, Toronto, CA.
- \*Creel, S. C., & Tumlin, M. A. (2008, November). Melody recognition is incremental and absolute. Paper presented at the 7<sup>th</sup> annual Auditory Perception, Cognition & Action Meeting, Chicago, IL.
- \*Creel, S. C., & Tumlin, M. A. (2009, March). Talker information facilitates spoken word recognition in real time. Paper presented at the 22<sup>nd</sup> annual CUNY Conference on Human Sentence Processing, Davis, CA. (10% paper acceptance rate)
- \*Creel, S. C., & Tumlin, M. A. (2009, October). Symposium: Interplay between language development and cognitive control processes. Talk: Cue integration and word recognition: when better cognitive control leads to more errors. Sixth Biennial Meeting of the Cognitive Development Society. San Antonio, TX. (33% acceptance rate).

- \*Creel, S. C., & Tumlin, M. A. (2009, November). That doesn't ring a bell: When integrating cues, children's errors reflect more advanced cognitive control. 34<sup>th</sup> Annual Boston University Conference on Language Development. Boston, MA. (*16% oral presentation acceptance rate*)
- \*Creel, S. C. (2010, January). Melody-specific memory for meter: listeners automatically reinstate metrical context for recently-heard music. Paper presented at WEST 2010 (workshop on studies of timing).
- \*Creel, S. C. (2011, June). Restoration of musical meter from memory: how we represent musical styles. Talk presented at the Conference of the American Association for the Advancement of Science-Pacific Division, San Diego, CA.
- \*Creel, S. C. (2011, August). Melody-specific memory for meter. Talk presented at the Conference of the Society for Music Perception and Cognition, Rochester, NY.
- Quam, C., & \*Creel, S. C. (2011, November). What's in a rise? Effects of language experience on interpretation of lexical tone. Talk presented at the 36<sup>th</sup> annual Boston University Conference on Language Development. (*Talk acceptance rate 18%*)
- Jiménez, S. J., & \*Creel, S. C. (2011, November). Factors affecting talker recognition in preschoolers and adults. Talk presented at the 36<sup>th</sup> annual Boston University Conference on Language Development. (*Talk acceptance rate 18%*)
- Bregman, M. R., & \*Creel, S. C. (2012). Learning to recognize unfamiliar voices: the role of language familiarity and music experience. Talk presented at Cognitive Science Society conference. (*Talk acceptance rate 39%*)
- \*Creel, S. C., & Muench, K. L. (2012). Impossible to ignore: Phonological inconsistency slows vocabulary learning. Spoken paper presented to 37<sup>th</sup> annual Boston University Conference on Language Development. (*Talk acceptance rate 16%*)
- Quam, C., Creel, S. C., Soon, A., & Singh, L. (2013). Evidence for language differentiation in bilinguals' interpretation of lexical tone. Talk presented at Society for Research in Child Development.
- \*Creel, S. C. (2013). Speak for yourself: Simultaneous learning of words and talkers' preferences. Talk to be presented at 38<sup>th</sup> Boston University Conference on Language Development. (*Talk acceptance rate 15%*)

### **Refereed poster presentations**

- Creel, S. C., Aslin, R. N., & Tanenhaus, M. K. (2003, November). The role of metrical stress in learning an artificial lexicon. Poster presented at the 44<sup>th</sup> annual meeting of the Psychonomic Society, Vancouver, BC.
- Creel, S. C., Aslin, R. N., & Tanenhaus, M. K. (2003, November). Two-C but not two-V: Segment similarity in learning an artificial lexicon. Poster presented at the 146<sup>th</sup> biannual meeting of the Acoustical Society of America, Austin, TX.

- Creel, S. C., Aslin, R. N., & Tanenhaus, M. K. (2005, June). The role of consonants and vowels in learning an artificial lexicon: the effects of noise. Poster presented at the 3<sup>rd</sup> Workshop on Plasticity in Speech Perception, London.
- Creel, S. C., Dahan, D., & Swingley, D. (2006, November). Featural similarity and position of overlap in lexical confusions. Poster presented at the 47<sup>th</sup> annual meeting of the Psychonomic Society, Houston, TX.
- \*Creel, S. C., & Tumlin, M. A. (2009, March). Cognitive control difficulty is related to temporary processing difficulty in word recognition. Poster presented at the 22<sup>nd</sup> annual CUNY Conference on Human Sentence Processing, Davis, CA.
- \*Creel, S. C. (2010, March). Children and adults use speaker information to constrain on-line interpretation. Poster presented at the 23<sup>rd</sup> annual CUNY Conference on Human Sentence Processing, New York, NY.
- \*Creel, S. C. (2011, March). Phoneme specificity and accent variability in 3-5-year-olds' word learning. Poster presented at the Society for Research in Child Development.
- \*Creel, S. C. (2011, November). Mutual exclusivity in preschoolers' processing of accented words. Poster at the Boston University Conference on Language Development. (*Overall acceptance rate 34%*)
- Borovsky, A., & \*Creel, S. C. (2012, March). I can tell from your voice: Adults and children use speaker identity to generate predictions during incremental sentence comprehension. Poster presented at the 25<sup>th</sup> annual CUNY Conference on Human Sentence Processing, New York, NY.
- Pajak, B., \*\*Creel, S. C., & \*\*Levy, R. (2012, August). Can native-language perceptual bias facilitate learning words in a new language? Poster presented at the Cognitive Science Society conference.
- Dance, C., Creel, S. C., & Kutas, M. (2012, October). Perception of duration in native and foreign languages: Event-related brain potentials to consonant length. Poster presented at the Neurobiology of Language Conference.
- \*Creel, S. C. (2013, March). Preschool-aged children process words and sentences talker-contingently. Poster presented at the 26<sup>th</sup> annual CUNY Conference on Human Sentence Processing, Columbia, SC.

### **Colloquia and Invited Talks**

- Creel, S. C. (April, 2001). The role of auditory grouping cues in statistical learning of tone sequences. Colloquium given as part of the BCS lunch talk series, Department of Brain and Cognitive Sciences, University of Rochester.

- Creel, S. C. (September, 2002). Thinking outside the music box: or, roles of frequency and recency in judgments of tone prominence. Colloquium given as part of the BCS lunch talk series, Department of Brain and Cognitive Sciences, University of Rochester.
- Creel, S. C., & Newport, E. L. (December, 2002). Thinking outside the music box: or, roles of frequency, recency, and interval simplicity in judgments of tone prominence. Talk given at Eastman/ Rochester/ Cornell Symposium on Music Cognition, Rochester, NY.
- Creel, S. C. (October, 2003). Segment similarity in word learning: Consonants are more \_m\_p\_rt\_nt than vowels...O a\_e \_\_ey? Colloquium given as part of the BCS lunch talk series, Department of Brain and Cognitive Sciences, University of Rochester.
- Creel, S. C. (December, 2006). Temporal interpretation in word recognition. Invited talk given at Psychology Department, Oregon State University, Corvallis, OR.
- Creel, S. C. (January, 2007). Temporal interpretation in word recognition. Invited talk given at Psychology Department, Bowling Green State University, Bowling Green, OH.
- Creel, S. C. (February, 2007). Minding your p's and cues: word learning and recognition from start to finish. Invited talk given at Cognitive Science Department, University of California, San Diego, CA.
- Creel, S. C. (February, 2007). Minding your p's and cues: word learning and recognition from start to finish. Invited talk given at Psychology Department, University of Illinois, Urbana-Champaign, IL.
- Creel, S. C. (April, 2008). Presentation at UCSD Cognitive Science Undergraduate Research Symposium.
- Creel, S. C. (January, 2009). Wait, wait, don't tell me: Developing use of multiple predictive cues in real-time spoken language understanding. Invited talk at Northwestern University Department of Linguistics.
- Creel, S. C. (February, 2009). Music recognition in real time: Using eye tracking to explore the specificity of musical memory. Invited talk at the Interdisciplinary Meeting on Music, Science, & Technology, UC San Diego.
- Creel, S. C. (March 3, 2009). Talker information facilitates word recognition in real time. Invited talk at the UCSD Center for Research in Language talk series.
- Creel, S. C. (May 4, 2010). Considering the source: preschool children and adults use speaker-related acoustic variability to predict upcoming referents. Invited talk at the UCSD Center for Research in Language talk series.
- Creel, S. C. (October, 2010). Sound reasoning: preschoolers attend to nonlinguistic acoustic detail in spoken language. Invited talk at Max Planck Institute for Psycholinguistics.
- Creel, S. C. (October, 2010). Look what I heard: using eye tracking to explore absolute and relative pitch processing. Invited talk at Eastman School of Music/University of Rochester/Cornell Music Cognition Symposium.
- Creel, S. C. (October, 2010). Reinvoking specific musical context during listening. Invited talk at Eastman School of Music/University of Rochester/Cornell Music Cognition Symposium.



- Creel, S. C. (November, 2010). Sound reasoning: preschoolers attend to nonlinguistic acoustic detail in spoken language. Invited talk at University of Rochester Department of Brain and Cognitive Sciences.
- Creel, S. C. (February, 2011). Sound reasoning: preschoolers attend to nonlinguistic acoustic detail in spoken language. Invited talk at Johns Hopkins University Department of Cognitive Science.
- Creel, S. C. (May 10, 2011). Neither hear nor there: a “metrical restoration” effect in music. Invited talk at the UCSD Center for Research in Language talk series.
- Creel, S. C. (Sept. 30, 2011). Solving the "buzzle": Similarity, familiarity, and social relevance in preschoolers' spoken language knowledge. Invited talk at University of Iowa Psychology Department and Delta Center.
- Creel, S. C. (Nov. 3, 2011). Solving the "buzzle": Similarity and familiarity in preschoolers' spoken language knowledge. Invited talk at Boston University Department of Speech, Language and Hearing Sciences.
- Creel, S. C. (Nov. 14, 2011). Invited talk at University of Arizona, Speech, Language, and Hearing Sciences Colloquium.
- Creel, S. C. (Nov. 16, 2011). Invited talk at University of California, Riverside Cognitive Psychology Brownbag.
- Creel, S. C. (Jan. 5, 2012). It’s (almost) all in your head: Studies in hallucinatory music perception and implications for the development of speech processing. Invited talk at Auditory Cognitive Neuroscience Society Workshop, Tucson, AZ.
- Creel, S. C. (Apr. 5, 2012). Who hears a who? Recognizing talkers and processing language across development. Invited talk at developmental colloquium at University of Southern California, Los Angeles, CA.
- Creel S. C. (Oct. 1, 2012). Protracted, precise perceptual learning in speech and music across development. Invited talk presented at UC-Merced.
- Creel, S. C. (May 3, 2013). The ups and downs of developmental auditory perception. Invited talk presented at UCSD Psychology Cognitive Brownbag.
- Creel, S. C. (May 23, 2013). Invited speaker to Mental Notes: Music, Cognition, and the Brain symposium (UCLA Psychology).
- Creel, S. C. (March, 2014). Invited speaker at CUNY Sentence Processing Conference, Columbus, OH.

## **Teaching Experience**

### Instructor

*University of California, San Diego:*

COGS 1: Introduction to Cognitive Science (Fall 2008, Fall 2012)

COGS 14: Design and Analysis of Experiments (Fall 2010, Spring 2012)

COGS 101b: Learning, Memory, & Attention (Winter 2008, Spring 2009, Winter 2010-2013)

COGS 156: Language Development (Spring 2008, 2010, 2011, 2013)

COGS 157: Music and the Mind (Fall 2013; as COGS 160, Aug. 2008, Winter 2009, Fall 2009)

COGS 200: Acquiring Sound Patterns: Music, Language, Minds, & Brains (organizer and speaker, graduate guest speaker class, Spring 2008)

COGS 260: Learning in Humans and Machines (Graduate seminar, co-taught with V. de Sa, Fall 2008)

COGS 260: Music and the Mind (Graduate seminar, Fall 2009)

COGS 200: Music Processing (Graduate seminar, co-taught with R. Belew, Spring 2010)

COGS 200: The Musical Brain (Graduate seminar, co-taught with J. Pineda, Spring 2013)

COGS 260: Auditory learning & plasticity (Graduate seminar, Fall 2013)

Teaching Assistant

*University of Rochester:*

BCS 111: Foundations of Cognitive Science, 2000

BCS 172: Development of Mind and Brain, 2001

BCS 152: Language & Psycholinguistics, 2003