

Jon A. Willits

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Citizenship USA

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1. Education

2012 Ph.D. Psychology. University of Wisconsin Madison

2002 B.S. Computer Science, Psychology, University of Nebraska Omaha

2. Research Interests

Experimental, Computational, and Neurobiological Examination of Language Development
Theories and Models of Learning, Knowledge Acquisition, and Knowledge Representation
The Interaction of Word Meaning and Linguistic Structure in Language Acquisition and Usage
Big Data Analyses of Language Development and Use

3. Professional Experience

2015-present Assistant Professor. Department of Psychology. University of California Riverside.

2014-2015 Assistant Research Scientist. Department of Psychological and Brain Sciences. Indiana University.

2012-2014 Postdoctoral Trainee. Department of Psychological and Brain Sciences. Indiana University.
Supervisors Dr. Michael Jones & Dr. David Pisoni.

2010-2012 Graduate Trainee. Waisman Center. University of Wisconsin Madison.
Supervisors Dr. Jenny Saffran.

2006-2012 PhD Student. Department of Psychology. University of Wisconsin Madison.
Supervisors Dr. Mark Seidenberg and Dr. Jenny Saffran.

2002-2005 Masters Student. Department of Psychology. University of California Riverside.
Supervisor Dr. Curt Burgess

2000-2002 Research Assistant. Endocrine Bioservices Lab. University of Nebraska Omaha.
Supervisor Dr. Jeffrey French

1999-2000 Programmer. Peter Kiewit Institute. Supervisor: Ted Plugge

1997-2002 Programmer. A Big Lime. Supervisor: Josh Andrews.

4. Funding and Awards

4.1. Research Funding

F31 DC009936 06/01/09-10/31/11 NIDCD

“Structural and semantic cues for the acquisition of linguistic regularities.” The goal of this individual pre-doctoral training grant is to determine the role of similarity structure, including semantics and distributional information, in early learning.

Entrepreneurial Grant 01/01/00-01/01/01 Peter Kiewit Institute

“Navigation Builder.” The goal of this entrepreneurial grant is develop a piece of commercial software designed to facilitate the design and implementation of website navigation systems.

4.2. Academic Awards

University of Wisconsin Graduate Student Peer Mentor Award (2011)

CUNY Conference on Sentence Processing Student Travel Award (2010)

University of Madison Wisconsin Travel Award (2007-2011)

Cognitive Science Society Travel Award (2009)

Cognitive Science Society Travel Award (2007)

University of Madison Wisconsin Graduate Student Collaboration Award (2007)

University of California Riverside Graduate Fellowship (2002)

University of Nebraska Omaha Undergraduate Fellowship (1997-2001)

5. Research Dissemination

5.1. Refereed Publications

- 1.) Baayen, R. H., Shaoul, C., **Willits, J. A.** and Ramscar, M. (in press). Comprehension without segmentation: A proof of concept with naive discrimination learning. *Language, Cognition, and Neuroscience*.
- 2.) **Willits, J. A.**, Amato, M. S., & MacDonald, M. C. (21015). Verb knowledge and event knowledge in language processing. *Cognitive Psychology*, 78, 1-27.
- 3.) **Willits, J. A.**, Seidenberg, M. S., & Saffran, J. R. (2014). Statistical structure in language: Contributions to noun-verb differences in acquisition. *Cognition*, 132, 429-436.
- 4.) Rubin, T., Kievit-Kylar, B., **Willits, J. A.**, & Jones, M. N. (2014). Organizing the space and behavior of semantic models. In P. Bello, M. Guarini, M. McShane, & Scassellati (Eds.), *Proceedings of the 32nd Annual Conference of the Cognitive Science Society* (pp. X-X). Austin, TX: Cognitive Science Society.
- 5.) Jones, M. N., **Willits, J.**, & Dennis, S. (2014). Models of semantic memory. In J. R. Busemeyer & J. T. Townsend (Eds.) *Oxford Handbook of Mathematical and Computational Psychology*.
- 6.) **Willits, J. A.** (2013). Nonadjacent dependencies in language and thought: Not so difficult after all. In N. Taatgen, H. van Rijn, L. Schomaker, & J. Nerbonne (Eds.), *Proceedings of the 31st Annual Conference of the Cognitive Science Society* (pp. 2570-2575). Austin, TX: Cognitive Science Society.

- 7.) **Willits, J. A.**, Wojcik, E. H., Seidenberg, M. S., & Saffran, J. R. (2013). Toddlers activate lexical semantic knowledge in the absence of visual referents: evidence from auditory priming. *Infancy, 18*, 1053-1075.
- 8.) **Willits, J. A.**, Seidenberg, M. S., & Saffran, J. R. (2009). Verbs are lookING good in early language acquisition. In N. Taatgen, H. van Rijn, L. Schomaker, & J. Nerbonne (Eds.), *Proceedings of the 31st Annual Conference of the Cognitive Science Society* (pp. 2570-2575). Austin, TX: Cognitive Science Society.
- 9.) **Willits, J. A.**, Amato, M. S., & Sussman, R. S. (2008). Event knowledge versus verb knowledge. In V. Sloutsky, B. Love, & K. McRae (Eds.), *Proceedings of the 30th Annual Conference of the Cognitive Science Society* (pp. 2227-2232). Austin, TX: Cognitive Science Society.
- 10.) **Willits, J. A.**, Duran, N. D., D'Mello, S. K., & Olney, A. (2007). Distributional statistics and thematic role relationships. In D. McNamara, & G. Trafton (Eds.), *Proceedings of the 29th Annual Conference of the Cognitive Science Society* (pp. 707-712). Austin, TX: Cognitive Science Society.

5.2. Manuscripts under review

- 1.) **Willits, J. A.**, Lany, J., & Saffran, J. R. (under review). Infants use meaning to learn higher-order structure in language.
- 2.) **Willits, J. A.**, & Saffran, J. R. (under review). Toddlers use meaning to learn complex mappings between semantic and structural relations in language.
- 3.) **Willits, J. A.**, & Jones, M. N. (under review). What can children learn from six million words?
- 4.) Shaoul, C. **Willits, J. A.**, Ramscar, M., & Baayen, H. (under review). Simulating multiple aspects of childhood language acquisition using naïve discrimination learning.
- 5.) Baayen, H., Milin, P., Shaoul, C., **Willits, J. A.**, & Ramscar, M. (under review). Age of first encounter and age of acquisition norms: What raters do when asked the impossible.

5.3. Manuscripts in Preparation

- 1.) **Willits, J. A.** (in prep). Learning rule-like structural regularities in language using simple recurrent networks.
- 2.) **Willits, J. A.** (in prep). Bootstrapping nonadjacent regularity learning using similarity cues: A computational and experimental analysis.
- 3.) **Willits, J. A.** (in prep). Using language statistics to measure positivity of media coverage positivity of individuals, social groups, and current events.
- 4.) **Willits, J. A.** (in prep). Classical and modern theories of learning and their application to language acquisition.
- 5.) **Willits, J. A.**, & Jones, M. N. (in prep). Developmental trajectories in the distributional semantics of child-directed speech.
- 6.) **Willits, J. A.**, & Jones, M. N. What Units Do Statistical Learners Track?
- 7.) **Willits, J. A.**, & Seidenberg, M. S. (in prep). Language statistics in the media as a predictor of approval ratings and election outcomes.

- 8.) **Willits, J. A.**, Rubin, T., & Jones, M. N. (in prep). Modeling semantic processing in people with schizophrenia.
- 9.) **Willits, J. A.**, Fausey, C., & Jones, M. (in prep). The first principle principal components of speech to children.
- 10.) Fausey, J. A., **Willits, J. A.**, Montag, J., & Smith, L. (in prep). The developmental trajectory of type-token ratios in child-directed speech.
- 11.) **Willits, J. A.**, Jones, M. N., & Landy, D. (under review). Learning that numbers are the same, while learning that they are different.
- 12.) **Willits, J. A.**, Jones, M. N., Pisoni, D., & Kronenberger, W. (under review). Assessing semantic development in profoundly deaf children with cochlear implants.

5.4. Conference Presentations

- 1.) **Willits, J. A.**, & Jones, M. N. (2014, Nov.). *What can children learn from 6 million words?* Poster presented at the 55rd Annual Meeting of the Psychonomic Society: Long Beach, CA.
- 2.) Shaoul, C., & **Willits, J. A.** (2014, Nov.). Modeling multiple aspects of language acquisition using Naïve Discrimination Learning. Talk presented at the 44th Annual Meeting of the Society for Computers in Psychology: Long Beach, CA.
- 3.) **Willits, J. A.**, & Jones, M. N. (2014, Nov.). *What can children learn from 6 million words?* Poster presented at the 39th Annual Boston University Conference on Language Development: Boston, MA.
- 4.) Rubin, T., Kievit-Kylar, B., **Willits, J. A.**, & Jones, M. N. (2014, Jul.). Organizing the space and behavior of semantic models. Talk presented at the 32nd Annual Meeting of the Cognitive Science Society.
- 5.) **Willits, J. A.**, & Jones, M. N. (2014, Jun.). What words do children say first? Factoring inflectional morphology into word statistic-based predictions of age of acquisition Talk presented at the 2014 International Conference on Infant Studies: Berlin, Germany.
- 6.) **Willits, J. A.**, & Jones, M. N. (2013, Nov.). What are the units in statistical learning? The importance of inflectional morphology for learning about verb meaning and verb semantics. Poster presented at the 38th Annual Boston University Conference on Language Development: Boston, MA.
- 7.) **Willits, J. A.**, & Jones, M. N. (2013, Nov.). Children's verb acquisition: What are the units over which statistical learning operates? Talk presented at the 54rd Annual Meeting of the Psychonomic Society: Toronto, CA.
- 8.) **Willits, J. A.** & Seidenberg, M. S. (2013, Nov.). Political attitudes for presidential candidates measured through language statistics in televised news. Talk presented at the 54rd Annual Meeting of the Psychonomic Society: Toronto, CA.
- 9.) **Willits, J. A.**, Kievit-Kylar, B., Rubin, T. N., & Jones, M. N. (2013, Nov.). Semanticore.org: A web-based portal for semantic models and psycholinguistic data. Talk presented at the 43rd Annual Meeting of the Society for Computers in Psychology: Toronto, CA.

- 10.) **Willits, J. A.** (2013). Learning nonadjacent dependencies in thought, language, and action: Not so hard after all. Talk presented at the 35th Annual Meeting of the Cognitive Science Society: Berlin, Germany.
- 11.) **Willits, J. A.** (2013). Learning language's abstract and rule-like structure. Poster presented at the BCBL Workshop on Infant Language Development: San Sebastian, Spain.
- 12.) **Willits, J. A.**, & Jones, M. N. (2013). Factoring morphological statistics into the learning of verbs. Poster presented at the BCBL Workshop on Infant Language Development: San Sebastian, Spain.
- 13.) **Willits, J. A.**, & Saffran, J. R. (2013). Infants can learn nonadjacent dependencies easily with correlated semantic cues. Talk presented at the BCBL Workshop on Infant Language Development: San Sebastian, Spain.
- 14.) **Willits, J. A.**, & Seidenberg, M. S. (2013). Television network attitudes toward political candidates implicit in lexical statistics. Poster presented at the 35th Annual Meeting of the Cognitive Science Society: Berlin, Germany.
- 15.) **Willits, J. A.**, Sibley, D. E., & Seidenberg, M. S. (2012). Learning Nonadjacent Linguistic Dependencies: The Importance of Starting Complex. Poster presented at the 53rd Annual Meeting of the Psychonomic Society: Minneapolis, MN.
- 16.) **Willits, J. A.** (2012) Learning nonadjacent dependencies is easy when you make it realistically complex. Talk presented at the 37th Annual Boston University Conference on Language Development, Boston, MA.
- 17.) **Willits, J. A.**, Wojcik, E., Seidenberg, M. S., & Saffran, J. R. (2012). Lexical semantic knowledge in infants. Talk presented at the 2012 International Conference on Infant Studies: Minneapolis, MN.
- 18.) **Willits, J. A.**, & MacDonald, M. C. (2010). Linguistic knowledge, world knowledge, and "semantic" effects on language processing. Talk presented at the 23rd Annual CUNY conference on sentence processing: New York, NY.
- 19.) Goldwater, M., & **Willits, J. A.** (2010). The linguistic distribution of relational categories. In R. Camtrabone. & S. Ohlsson (Eds.), Poster presented at the 32nd Annual Conference of the Cognitive Science Society: Portland, OR.
- 20.) **Willits, J. A.**, Seidenberg, M. S., & Saffran, J. R. (2010). What Do Infants Really Want (to Count)? The Role of Morphosyntactic Statistics in Early Noun and Verb Learning. Talk presented at the 2010 International Conference on Infant Studies: Baltimore, MD.
- 21.) **Willits, J. A.**, Seidenberg, M. S., & Saffran, J. R. (2009). Verbs are lookING good in early language acquisition. Talk presented at the 31st Annual Meeting of the Cognitive Science Society: Amsterdam, Netherlands.
- 22.) Amato, M. S., **Willits, J. A.**, & MacDonald, M. C. (2009). Verb knowledge versus event knowledge in language processing. Talk presented at the 23rd Annual CUNY conference on sentence processing: Davis, CA.
- 23.) **Willits, J. A.**, & Seidenberg, M. S. (2008). Semantic priming: Distributional versus normative association strength. Poster presented at the 49th Annual Meeting of the Psychonomic Society: Chicago, IL.

- 24.) **Willits, J. A.**, Amato, M. S., & Sussman, R. S. (2008). Event knowledge versus verb knowledge. Poster presented at the 30th Annual Meeting of the Cognitive Science Society: Washington, D. C.
- 25.) **Willits, J. A.**, Duran, N. D., D’Mello, S. K., & Olney, A. (2007). Distributional statistics and thematic role relationships. Talk presented at the 29th Annual Meeting of the Cognitive Science Society: Nashville, TN.
- 26.) **Willits, J. A.**, Hussein, M., & Burgess, C. (2006). Semantic priming and proper names: An alternative to the Implicit Association Test. Poster presented at the 47th Annual Meeting of the Psychonomic Society: Houston, TX.
- 27.) **Willits, J. A.**, & Burgess, C. (2005). Statistical vs. featural semantic priming. Talk presented at the 46th Annual Meeting of the Psychonomic Society: Toronto, ON.
- 28.) **Willits, J. A.**, & Burgess, C. (2005). Predicting word associations and word association effects from language statistics. Talk presented at the 46th Annual Meeting of the Psychonomic Society: Toronto, ON.
- 29.) **Willits, J. A.**, & Burgess, C. (2005). Predicting semantic and associative priming using high-dimensional co-occurrence models. Poster presented at the 45th Annual Meeting of the Psychonomic Society: Minneapolis, MN.
- 30.) **Willits, J. A.**, & Burgess, C. (2005). The connotations of proper names. Poster presented at the 45th Annual Meeting of the Psychonomic Society: Minneapolis, MN.
- 31.) **Willits, J. A.**, Schellin, K., & Burgess, C. (2005). The induction of hierarchical structure from distributional statistics. Poster presented at the 44th Annual Meeting of the Psychonomic Society: Vancouver, BC.

5.5. Invited Talks

- 1.) *What Can Children Learn from 6 Million Words?* (2014, Jun.). Department of Linguistics, Tubingen University.
- 2.) *What Can Children Learn from 6 Million Words?* (2014, Jun.). Frankfurt Institute for Advanced Studies.
- 3.) *What Can Children Learn from 6 Million Words?* (2014, Apr.). Department of Speech and Hearing Sciences, Northwestern University.
- 4.) *Word knowledge vs. World Knowledge in Language Acquisition and Use.* (2014, Apr.). Department of Psychology, University of Illinois Urbana Champaign.
- 5.) *Complexity is not noise: The interaction of multiple sources of information in language learning.* (2013, Jan.). Department of Cognitive Science, University of California San Diego.
- 6.) *Word vs. World Knowledge.* (2011, Jan.). Department of Psychology, Northwestern University.
- 7.) *Learning semantic categories from linguistic distributions: Supervised and unsupervised approaches.* (2010, Sep.). Human, Animal and Machine Learning: Experiments and Theory Group, University of Wisconsin Madison.
- 8.) *Word vs. World Knowledge in Language Representation and Processing.* (2010, Jul.). Haskins Laboratories, Yale University.

7. Service Activities

7.1. Professional Affiliations

American Psychological Society
Cognitive Science Society
Psychonomic Society
Society for Computers in Psychology
Society for Research in Child Development

7.2. Ad Hoc Reviewing

Annual Conference of the Cognitive Science Society
Annual Meeting of the Florida Intelligence Research Society
Cognitive Science: A Multidisciplinary Journal
Journal of Experimental Psychology: General
Language Learning
Neural Networks
Psychological Review
Biannual Meeting for the Society for Research in Child Development

7.3. External Service

Society for Computers in Psychology Steering Committee Member (2014-2016)
Cognitive Science Society Annual Conference Program Committee (2015-Present)