

Marten van Schijndel

Curriculum Vitae

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Employment

- 2019-present **Assistant Professor**, *Department of Linguistics, Cornell University.*
- 2017-2019 **Postdoctoral Fellow (PI: Tal Linzen)**, *Department of Cognitive Science, Johns Hopkins University.*

Education

- 2011-2017 **PhD in Linguistics (Advisor: William Schuler)**, *The Ohio State University.*
Dissertation: *The Influence of Syntactic Frequencies on Human Sentence Processing*
- 2005-2009 **BA in Linguistics**, *Western Washington University.*
Cum Laude

Publications

Journal Articles

- 2021 **Marten van Schijndel** and Tal Linzen, "Single-stage prediction models do not explain the magnitude of syntactic disambiguation difficulty." In *Cognitive Science*, 45(6): e12988.
- 2020 Cory Shain, Idan Blank, **Marten van Schijndel**, William Schuler, and Evelina Fedorenko, "fMRI reveals language-specific predictive coding during naturalistic sentence comprehension." In *Neuropsychologia*, 138 (17). 2020 .
- 2016 Rajakrishnan Rajkumar, **Marten van Schijndel**, Michael White, and William Schuler, "Investigating locality effects and surprisal in written English syntactic choice phenomena." In *Cognition*, 155: 204–232. 2016.
- Alessandra Zarcone, **Marten van Schijndel**, Jorrig Vogels, and Vera Demberg, "Salience and attention in surprisal-based accounts of language processing." In *Frontiers in Psychology*, 7 (844). 2013.
- 2013 **Marten van Schijndel**, Andy Exley, and William Schuler, "A model of language processing as hierarchic sequential prediction." In *Topics in Cognitive Science*, 5 (3): 522–540. 2013.

Peer-Reviewed Proceedings

- 2021 William Timkey and **Marten van Schijndel**, "All Bark and No Bite: Rogue Dimensions in Transformer Language Models Obscure Representational Quality." In *Proceedings of the 2021 Conference on Empirical Methods in Natural Language Processing (EMNLP 2021)*, (9% oral).

- Forrest Davis and **Marten van Schijndel**, "Uncovering Constraint-Based Behavior in Neural Models via Targeted Fine-Tuning." In *Proceedings of the 59th Annual Meeting of the Association for Computational Linguistics and the 11th International Joint Conference on Natural Language Processing (ACL-IJCNLP 2021)*, (21% accept).
- Matt Wilber, William Timkey, and **Marten van Schijndel**, "To Point or Not to Point: Understanding How Abstractive Summarizers Paraphrase Text." In *Findings of the Association for Computational Linguistics: ACL-IJCNLP 2021*, (15% accept).
- Samuel Ryb and **Marten van Schijndel**, "Analytical, Symbolic and First-Order Reasoning within Neural Architectures." In *Proceedings of the 2021 Workshop on Computing Semantics with Types, Frames and Related Structures*.
- 2020 Forrest Davis and **Marten van Schijndel**, "Recurrent neural network language models always learn English-like relative clause attachment." In *Proceedings of the 58th Annual Meeting of the Association for Computational Linguistics (ACL 2020)*. (23% accept)
- Forrest Davis and **Marten van Schijndel**, "Interaction with context during recurrent neural network sentence processing" In *Proceedings of the 42nd Annual Virtual Meeting of the Cognitive Science Society (CogSci 2020)*. (23% oral)
- Debasmita Bhattacharya and **Marten van Schijndel**, "Filler-gaps that neural networks fail to generalize" In *Proceedings of the SIGNLL Conference on Computational Natural Language Learning (CoNLL 2020)*. (23% accept)
- Forrest Davis and **Marten van Schijndel**, "Discourse structure interacts with reference but not syntax in neural language models" In *Proceedings of the SIGNLL Conference on Computational Natural Language Learning (CoNLL 2020)*. (23% accept)
- 2019 **Marten van Schijndel** and Tal Linzen, "Quantity doesn't buy quality syntax with neural language models" In *Proceedings of the 2019 Conference on Empirical Methods in Natural Language Processing (EMNLP)*. (24% accept)
- Grusha Prasad, **Marten van Schijndel**, and Tal Linzen, "Using Priming to Uncover the Organization of Syntactic Representations in Neural Language Models" in *Proceedings of the 2019 Conference on Computational Natural Language Learning (CoNLL)*. (2% oral)
- Marten van Schijndel** and Tal Linzen, "Can Entropy Explain Successor Surprisal Effects in Reading?" In *Proceedings of the Society for Computation in Linguistics (SCiL)*. 2019. (23% oral)
- 2018 **Marten van Schijndel** and Tal Linzen, "A Neural Model of Adaptation in Reading." In *Proceedings of the 2018 Conference on Empirical Methods in Natural Language Processing (EMNLP)*. 2018. (10% oral)

- Marten van Schijndel** and Tal Linzen, "Modeling garden path effects without explicit hierarchical syntax." In *Proceedings of the 40th Annual Meeting of the Cognitive Science Society (CogSci)*. 2018.
- Cory Shain, **Marten van Schijndel**, and William Schuler, "Deep syntactic annotations for broad-coverage psycholinguistic modeling." In *Proceedings of the Workshop on Linguistic and Neuro-Cognitive Resources (LiNCR)*. 2018.
- 2017 **Marten van Schijndel** and William Schuler, "Approximations of Predictive Entropy Correlate with Reading Times." In *Proceedings of the 39th Annual Meeting of the Cognitive Science Society (CogSci)*. 2017.
(29% oral)
- 2016 **Marten van Schijndel** and William Schuler, "Addressing surprisal deficiencies in reading time models." In *Proceedings of the Computational Linguistics for Linguistic Complexity Workshop (CL4LC)*. 2016.
(24% oral)
- Cory Shain, **Marten van Schijndel**, Richard Futrell, Edward Gibson, and William Schuler, "Memory access during sentence processing causes reading time latency." In *Proceedings of the Computational Linguistics for Linguistic Complexity Workshop (CL4LC)*. 2016.
(24% oral)
- 2015 **Marten van Schijndel** and William Schuler, "Hierarchic syntax improves reading time prediction." In *Proceedings of the 2015 Conference of the North American Chapter of the Association for Computational Linguistics – Human Language Technologies (NAACL)*. 2015.
(13% oral)
- Marten van Schijndel**, Brian Murphy, and William Schuler, "Evidence of syntactic working memory usage in MEG data." In *Proceedings of the 6th Workshop on Cognitive Modeling and Computational Linguistics (CMCL)*. 2015.
- Evan Jaffe, Lifeng Jin, David King, and **Marten van Schijndel**, "Azmat: Sentence similarity using associative matrices." In *Proceedings of the International Workshop on Semantic Evaluation (Semeval)*. 2015.
- 2014 **Marten van Schijndel** and Micha Elsner, "Bootstrapping into Filler-Gap: An Acquisition Story." In *Proceedings of the 52nd Annual Meeting of the Association for Computational Linguistics (ACL)*. 2014.
(13% oral)
- Marten van Schijndel**, William Schuler, and Peter Culicover, "Frequency Effects in the Processing of Unbounded Dependencies." In *Proceedings of the 36th Annual Meeting of the Cognitive Science Society (CogSci)*. 2014.
- 2013 **Marten van Schijndel** and William Schuler, "An Analysis of Frequency- and Memory-Based Processing Costs." In *Proceedings of 2013 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies (NAACL)*. 2013.
(20% oral)

- Marten van Schijndel**, Luan Nguyen, and William Schuler, "An Analysis of Memory-based Processing Costs using Incremental Deep Syntactic Dependency Parsing." In *Proceedings of the 4th Workshop on Cognitive Modeling and Computational Linguistics (CMCL)*. 2013.
- 2012 Luan Nguyen, **Marten van Schijndel**, and William Schuler, "Accurate Unbounded Dependency Recovery using Generalized Categorical Grammars." In *Proceedings of the 24th International Conference on Computational Linguistics (Coling)*. 2012. (16% oral) **Best Paper Award**.
- Marten van Schijndel**, Andy Exley, and William Schuler, "Connectionist-Inspired Incremental PCFG Parsing." In *Proceedings of the 3rd Workshop on Cognitive Modeling and Computational Linguistics (CMCL)*. 2012.

Presentations

- 2021 "Language Statistics Won't Solve Language Processing", December 3, 2021. *Invited Talk*, Linguistics, University of Chicago.
- "Language Statistics Won't Solve Language Processing", October 15, 2021. *Invited Talk*, NLP Seminar, Georgia Tech.
- 2020 "Language is not Language Processing", May 13, 2020. *Invited Talk*, Brain and Cognitive Sciences, MIT.
- "The impact of predictability on human reading", February 11, 2019. *Invited Talk*, Cognitive Science Proseminar, Cornell University.
- "Using psycholinguistics to analyze and improve neural network language models", January 31, 2020. *Invited Talk*, AI Seminar, Cornell University.
- 2019 "Quantity doesn't buy quality syntax in neural language models", November 7, 2019. *2019 Conference on Empirical Methods in Natural Language Processing (EMNLP)*, Hong Kong, HK.
- "Model Selection", March 28, 2019. *Invited Talk*, University of Edinburgh.
- "Adaptive Language Modeling for Psycholinguistics", March 28, 2019. *Invited Talk*, University of Edinburgh.
- "Probing Neural Network Representations", February 8, 2019. *Invited Talk*, Cornell University.
- "Garden Pathing Neural Networks", February 7, 2019. *Invited Talk*, Cornell University.
- "Can Entropy Explain Successor Surprisal Effects in Reading?", January 4, 2019. *Proceedings of the Society for Computation in Linguistics (SCiL)*, New York, NY.
- 2018 "A Neural Model of Adaptation in Reading", November 4, 2018. *2018 Conference on Empirical Methods in Natural Language Processing (EMNLP)*, Brussels, BE.
- "Can Entropy Explain Successor Surprisal Effects in Reading?", September 7, 2018. *Architectures and Mechanisms of Language Processing (AMLaP)*, Berlin, DE.
- "A Neural Network Model of Adaptation in Reading", September 6, 2018. *Architectures and Mechanisms of Language Processing (AMLaP)*, Berlin, DE.

- "A Cognitively Plausible Adaptive Neural Language Model", May 12, 2018. *Mid-Atlantic Student Colloquium on Speech, Language and Learning (MASC-SLL)*, Baltimore, MD.
(20% oral)
- 2017 "The Statistics of the Unseen Influence Reading Times", September 8, 2017. *Invited Talk*, Cognitive Science, Johns Hopkins University.
- "The Statistics of the Unseen Influence Reading Times", August 1, 2017. *Invited Talk*, Psychology, University of Essex.
- "Approximations of Predictive Entropy Correlate with Reading Times", July 29, 2017. *39th Annual Conference of the Cognitive Science Society (CogSci 2017)*, London, UK.
- "Approximations of Predictive Entropy Correlate with Reading Times", May 5, 2017. *Midwest Speech and Language Days & Midwest Computational Linguistics Colloquium 2017*, Chicago, IL, USA.
- 2016 "Screening for Alzheimer's with psycholinguistics", March 5, 2016. *CUNY Human Sentence Processing Conference*, Gainesville, FL, USA.
- "Alpha power decreases during center embedding in natural stimuli", March 3, 2016. *CUNY Human Sentence Processing Conference*, Gainesville, FL, USA.
- "Can measures of processing complexity predict progressive aphasia from speech?", March 3, 2016. *CUNY Human Sentence Processing Conference*, Gainesville, FL, USA.
- 2015 "Frequencies that matter in sentence processing", September 7, 2015. *Invited talk*, Institut for Natural Language Processing (Institut für Maschinelle Sprachverarbeitung), University of Stuttgart.
- "Controlling for confounds in online measures of sentence complexity", July 28, 2015. *Invited talk*, Computer Science and Computational Linguistics, University of Saarland.
- "Identifying EEG measures of memory and attentional load in language processing", July 2, 2015. *Invited talk*, Computer Science and Computational Linguistics, University of Saarland.
- "Evidence of syntactic working memory usage in MEG data", June 4, 2015. *6th Workshop on Cognitive Modeling and Computational Linguistics (CMCL 2015)*, Denver, CO, USA.
- "Hierarchic syntax improves reading time prediction", June 3, 2015. *2015 Conference of the North American Chapter of the Association for Computational Linguistics – Human Language Technologies (NAACL 2015)*, Denver, CO, USA.
- "Hierarchic syntax improves reading time prediction", March 21, 2015. *CUNY Human Sentence Processing Conference*, Los Angeles, CA, USA.
- 2014 "Frequency Effects in the Processing of Unbounded Dependencies", July 24, 2014. *36th Annual Conference of the Cognitive Science Society (CogSci 2014)*, Quebec, QC, Canada.

- "Bootstrapping into Filler-Gap: An Acquisition Story", June 24, 2014. *52nd Annual Meeting of the Association for Computational Linguistics (ACL 2014)*, Baltimore, MD, USA.
- "Effects of integration in eye tracking", March 15, 2014. *CUNY Sentence Processing Conference*, The Ohio State University.
- "Bootstrapping into Filler-Gap: An Acquisition Story", March 13, 2014. *CUNY Sentence Processing Conference*, The Ohio State University.
- 2013 "Bootstrapping into Filler-Gap: An Acquisition Story", November 22, 2013. *The Ohio State University Linguistics Colloquium Fest*, The Ohio State University.
- "An Analysis of Memory-based Processing Costs using Incremental Deep Syntactic Dependency Parsing", August 8, 2013. *The 4th Workshop on Cognitive Modeling and Computational Linguistics*, Sofia, Bulgaria.
- "An Analysis of Frequency- and Memory-Based Processing Costs", June 10, 2013. *NAACL 2013*, Atlanta, GA, USA.
- "An Analysis of Frequency- and Memory-Based Processing Costs", May 2, 2013. *Midwest Speech and Language Days*, Toyota Technological Institute of Chicago.
- 2012 "Prediction- and Recall-Defined Online Complexity Metrics", December 5, 2012. *The Ohio State University Linguistics Colloquium Fest*, The Ohio State University.
- "Connectionist-Inspired Incremental PCFG Parsing", June 7, 2012. *The 3rd Workshop on Cognitive Modeling and Computational Linguistics*, McGill University.

Awards / Grants

- 2021 Migrations Initiative grant, *Xenophobia Meter Project: Tracking Xenophobic Twitter Speech to Inform (and Shift) Policy* (\$85,428), Key Collaborator
- Mario Einaudi Center for International Studies seed grant, *Xenophobia Meter Project* (\$10,000), Key Collaborator
- 2020 Central NY Humanities Corridor Working Group: Computational Cognitive Models of Meaning [LIN14] (\$1,500)
- ACL 2020 Outstanding Reviewer
- 2014 Saarland University Visiting Fellowship in Language Science (CRC 1102)
- OSU Targeted Investment in Excellence Grant
- 2013 National Science Foundation Graduate Research Fellowship (DGE-1343012)
- G. Micheal Riley International Travel Award
- OSU Targeted Investment in Excellence Grant
- 2012 Coling 2012 Best Paper Award
- OSU Targeted Investment in Excellence Grant
- 2011 OSU University Fellowship
- 2009 WWU Outstanding Graduate Award

Service

- 2021 **NAACL 2021**, *Area Chair*.

- Glossa: Psycholinguistics**, *Editorial Board Member*.
- Center for Data Science for Enterprise and Society Recruitment Committee**, *Member*, Cornell.
- North American Computational Linguistics Olympiad**, *Organizer*.
- 2020 **Conference on Natural Language Learning (CoNLL) 2020**, *Area Chair*.
- Center for Data Science for Enterprise and Society Recruitment Committee**, *Member*, Cornell.
- Linguistics Tenure-Track Search Committee**, *Member*, Cornell.
- North American Computational Linguistics Olympiad**, *Organizer*.
- 2019 **EMNLP/CoNLL**, *Student/Postdoc Faculty Mentor*.
- Linguistics Tenure-Track Search Committee**, *Member*, Cornell.
- Linguistics Graduate Admissions Committee**, *Member*, Cornell.
- 2018 **8th Workshop on Cognitive Modeling in Computational Linguistics (CMCL)**, *Co-Organizer*.
- Women in Science and Engineering**, *Mentor*, JHU/Garrison Forest.
- Provost's Undergraduate Research Award**, *Reviewer*, JHU.
- 2017 **7th Workshop on Cognitive Modeling in Computational Linguistics (CMCL)**, *Co-Organizer*.
- Funding Your Graduate Education Workshop**, *Panelist*, OSU.
- 2015 **6th Workshop on Cognitive Modeling in Computational Linguistics (CMCL)**, *Co-Organizer*.
- 2014 **North American Computational Linguistics Olympiad**, *Student Organizer*.
- 2013 **NAACL 2013**, *Student Volunteer*.
- 2011–2014 **Laboratory and Computing Committee**, *Member*, OSU.
- 2011–2013 **Speakers Committee**, *Treasurer*, OSU.

Reviewing

- Grants NSERC
- Journal Computational Linguistics; Transactions of the ACL; Language, Cognition and Neuroscience; Philosophical Transactions of the Royal Society B; Cognitive Science; Neuropsychologia; Glossa: Psycholinguistics; Open Mind; Language and Linguistics Compass
- Conference ACL, CMCL (Workshop on Cognitive Modeling in Computational Linguistics), CogSci, COLING, CoNLL, CUNY Sentence Processing Conference, EACL, EMNLP, LREC, NAACL

Teaching

- 2021 **Spring**, LING7710 Computational Seminar.
- Spring**, LING6603/6604 Research Workshop.
- 2020 **Autumn**, LING4434 Computational Linguistics 2.

Spring, LING4424 Computational Linguistics.

Spring, LING6603/6604 Research Workshop.

2019 **Autumn**, LING7710 Computational Seminar.

Autumn, LING1100 Language, Thought, and Reality: The Ethics of Artificial Intelligence.

2014 **Spring**, LING3701/PSYCH3371 Language and the Mind.

2013 **Autumn**, LING3701/PSYCH3371 Language and the Mind.

 Updated

Last updated Dec 14, 2021