

John T. Hale

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Education

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|------|--|----------------|
| 2003 | Ph.D. in Cognitive Science from the Johns Hopkins University
Thesis: “Grammar, Uncertainty and Sentence Processing”
Advisors: Paul Smolensky, Edward P. Stabler, Jr., Edward A.F. Gibson | Baltimore, MD |
| 2000 | M.A. in Cognitive Science from the Johns Hopkins University
Thesis: “Dynamical Parsing and Harmonic Grammar”
Advisor: Paul Smolensky | Baltimore, MD |
| 1998 | Sc.B. in Cognitive Science & Computer Science from Brown University
Thesis: “Getting Useful Gender Statistics from English Text”
Advisor: Eugene Charniak | Providence, RI |

Employment History

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| 2025–present | Professor, Department of Cognitive Science, Johns Hopkins University. Secondary appointment in the Department of Computer Science |
| 2024–2025 | Research Professor, Department of Cognitive Science, Johns Hopkins University |
| 2025–present | Adjunct Professor, Department of Linguistics, University of Georgia |
| 2018–2025 | Arch Professor, Department of Linguistics, University of Georgia |
| 2017–present | Research Scientist, Google DeepMind |
| 2008–2018 | Associate Professor, Department of Linguistics, Cornell University (tenure awarded 2011) |
| 2014–2015 | Visiting Scholar, Center for Cognitive Brain Imaging, Carnegie Mellon University |
| Spring 2012 | Guest Professor, University of Potsdam (Germany) |
| Fall 2006 | Visiting Professor, Department of Linguistics, Stanford University |
| 2005–2008 | Assistant Professor, Department of Computer Science and Engineering,
Michigan State University |
| 2003–2008 | Assistant Professor, Department of Linguistics and
Germanic, Slavic, Asian and African Languages, Michigan State University |

Grants Awarded

- 2022—2025 NSF Division of Behavioral and Cognitive Sciences
“Endangered languages in contact” role: co-PI. \$449,712.
- 2022—2023 UGA Center for Teaching and Learning
“Incorporating Experiential Learning into the Language and Linguistics Curriculum”
role: co-director. \$23,845.
- 2016—2023 NSF Collaborative Research in Computational Neuroscience
“Neuro-computational Models of Natural Language” role: PI. ~\$1M
- 2018 UGA Center for Teaching and Learning
“Natural Language Corpora at UGA” \$23,565
with ~\$4K/year continuing funding from on-campus partners
- 2016 Jeffrey Sean Lehman Fund for Scholarly Exchange with China.
“Neural Mechanisms of Relative Clause Processing in Chinese and English” \$13,000
- 2009 Cornell Institute for the Social Sciences Small Grant program
“What are the Pieces of Language Knowledge?” \$6000
- 2008—2015 National Science Foundation CAREER Award
“Automaton theories of human sentence processing” \$504,370
- 2004—2005 Michigan State University Intramural Research Grant Program
“Grammar and Algorithms for Disfluency” \$50,000.

Grant Proposals in Preparation

- Understanding the Cross-Linguistic Brain Basis of Sentence Processing through Interpretable Language Technology
- with Lars Meyer (Johannes Gutenberg-Universität Mainz. Deutsche Forschungsgemeinschaft Priority Programme “Robust Assessment & Safe Applicability of Language Modelling: Foundations for a New Field of Language Science & Technology (LaSTing)”)

Prizes, awards and other honors

- 2023 Top Cited Article for “Modeling Structure-Building in the Brain With CCG Parsing and Large Language Models”
- 2018 Best Paper Award, Association for Computational Linguistics. Shared with Chris Dyer, Adhiguna Kuncoro and Jonathan Brennan for “Finding syntax in human encephalography with beam search”
- 2018 UGA Franklin College International Faculty Exchange. Reciprocal exchange with Lars Meyer of the Max Planck Institute, Leipzig
- 2011 Cornell Robert and Helen Appel Fellowship “recognizing excellence in teaching, scholarly promise and dedication to advancing knowledge”
- 2003 E.W. Beth Dissertation Prize given by the European Association for Language, Logic, and Information for “the best dissertation which resulted in a PhD in the year 2003”

- 2002 Jerrold J. Katz Young Scholar Award “awarded for the paper or poster presented at the CUNY [City University of New York] Sentence Processing Conference which best exemplifies the qualities of intellectual rigor, creativity, and independence of thought which were exemplified in Dr. Katz’ life and work”

Publications

In Preparation

Jonathan Brennan, Michael Wolfman, Miloš Stanojević, Donald Dunagan and John Hale. A hierarchical bias in neural language models improves brain alignment.

Book

- 2014 *Automaton Theories of Human Sentence Comprehension*. CSLI Publications.
A [review](#) appears in the December 2016 issue (92.4) of the journal *Language*

Journal articles (refereed)

- 2025 Donald Dunagan, Liina Pyllkkänen, Tyson Jordan, John Hale and Dustin Chacón. Evaluating the timecourses of morpho-orthographic, lexical, and grammatical processing following rapid parallel visual presentation: an EEG investigation in English. *Cognition* volume 257 106080 doi:10.1016/j.cognition.2025.106080
- 2024 Mohammad Momenian, Zhengwu Ma, Shuyi Wu, Chengcheng Wang, Jonathan Brennan, John Hale, Lars Meyer and Jixing Li. Le Petit Prince Hong Kong (LPPHK): Naturalistic fMRI and EEG data from older Cantonese speakers. *Scientific Data* volume 11, page 992 doi:10.1038/s41597-024-03745-8
- 2023 Miloš Stanojević, Jonathan R. Brennan, Donald Dunagan, Mark Steedman and John Hale. Modeling neural structure-building with CCG parsing and large language models. *Cognitive Science* volume 47 issue 7 page e13312 doi:10.1111/cogs.13312 A Top Cited Article for calendar year 2023.
- 2023 Donald Dunagan, Miloš Stanojević, Maximin Coavoux, Shulin Zhang, Shohini Bhattasali, Jixing Li, Jonathan Brennan and John Hale. Neural correlates of object-extracted relative clause processing across English and Chinese. *Neurobiology of Language* volume 4 number 3 pages 455–473. doi:10.1162/nol_a_00110
- 2022 Jixing Li, Shohini Bhattasali, Shulin Zhang, Berta Franzluebbbers, Wen-Ming Luh, R. Nathan Spreng, Jonathan R. Brennan, Yiming Yang, Christophe Pallier, John Hale. Le Petit Prince multilingual naturalistic fMRI. *Scientific Data* volume 9, page 530–545. doi:10.1038/s41597-022-01625-7.
- 2022 Donald Dunagan, Shulin Zhang, Jixing Li, Shohini Bhattasali, Christophe Pallier, John Whitman, Yiming Yang, John Hale. Neural correlates of semantic number: a cross-linguistic investigation. *Brain and Language* volume 229 article 05110 doi:10.1016/j.bandl.2022.105110
- 2022 Shulin Zhang, Jixing Li, Yiming Yang and John Hale. Decoding the silence: Neural bases of zero pronoun resolution in Chinese. *Brain and Language* volume 224 article 105050 doi:10.1016/j.bandl.2021.105050
- 2021 Zhong Chen and John T. Hale. Quantifying Structural and Non-structural Expectations in Relative Clause Processing. *Cognitive Science* volume 45 page e12927. doi:10.1111/cogs.12927

- 2020 Jonathan R. Brennan, Chris Dyer, Adhiguna Kuncoro and John T. Hale. Localizing syntactic predictions using recurrent neural network grammars. *Neuropsychologia* volume 146 article 107479 doi:10.1016/j.neuropsychologia.2020.107479
- 2019 Jonathan R. Brennan and John T. Hale. Hierarchical structure guides rapid linguistic predictions during naturalistic listening. *PLoS-1* volume 14 number 1 page e0207741 doi:10.1371/journal.pone.0207741.
- 2018 Shohini Bhattachali, Murielle Fabre, Wen-Ming Luh, Hazem Al Saied, Mathieu Constant, Christophe Pallier, Jonathan R. Brennan, R. Nathan Spreng and John Hale. Localising memory retrieval and syntactic composition: an fMRI study of naturalistic language comprehension. *Language, Cognition and Neuroscience* volume 34 number 4 pages 491–510 doi:10.1080/23273798.2018.1518533
- 2018 Jonathan R. Brennan, Renee Lajiness-O’Neill, Susan Bowyer, Ioulia Kovelman and John T. Hale. Predictive sentence comprehension during story-listening in autism spectrum disorder. *Language, Cognition and Neuroscience* volume 34 number 4 pages 428–439 doi:10.1080/23273798.2018.1560483
- 2017 Matthew Nelson, Sydney Cash, Lionel Naccache, Imen El Karoui, Kristof Giber, Laurent Cohen, Stanislas Dehaene, Xiaofang Yang, Hilda Koopman, John Hale, and Christophe Pallier. Neurophysiological dynamics of phrase-structure building during sentence processing. *Proceedings of the National Academy of Sciences (USA)* volume 114 number 18 pages E3669–E3678. doi:10.1073/pnas.1701590114
- 2016 Jonathan R. Brennan, Edward P. Stabler, Jr, Sarah E. Van Wagenen, Wen-Ming Luh and John Hale. Abstract Linguistic Structure Correlates with Temporal Activity during Naturalistic Comprehension. *Brain and Language*, volume 157–158, pages 81–94. doi:10.1016/j.bandl.2016.04.008
- 2016 John Hale. Information-theoretical complexity metrics. *Language and Linguistics Compass*, volume 10, issue 9. pages 397–412. doi:10.1111/lnc3.12196
- 2015 Jiwon Yun, Zhong Chen, Tim Hunter, John Whitman and John Hale. Uncertainty in processing relative clauses across East Asian languages. *Journal of East Asian Linguistics* volume 24 issue 2 pages 113–148. doi:10.1007/s10831-014-9126-6
- 2013 John Hale and David Reitter. Introduction to the Issue on Computational Models of Natural Language. *TopICS in Cognitive Science* volume 5 issue 3. pages 388–391. doi:10.1111/tops.12038
- 2011 Christina Kim, Gregory Kobele, Jeffrey Runner and John Hale. The acceptability cline in VP ellipsis. *Syntax: a journal of theoretical, experimental and interdisciplinary research*, volume 14, issue 4, pages 318–354. doi:10.1111/j.1467-9612.2011.00160.x
- 2011 John Hale. What a rational parser would do. *Cognitive Science*, volume 35, number 3. pages 399–443. doi:10.1111/j.1551-6709.2010.01145.x
- 2010 Marisa Ferrara Boston, John Hale, Shravan Vasishth and Reinhold Kliegl. Parallel processing and sentence comprehension difficulty. *Language and Cognitive Processes*, volume 26, issue 3. pages 301–349. doi:10.1080/01690965.2010.492228
- 2008 Marisa Ferrara Boston, John Hale, Reinhold Kliegl, Umesh Patil and Shravan Vasishth. Parsing costs as predictors of reading difficulty: An evaluation using the Potsdam Sentence Corpus. *Journal of Eye Movement Research*, volume 2, number 1. pages 1–12. doi:10.16910/jemr.2.1.1

- 2006 John Hale. Uncertainty about the rest of the sentence. *Cognitive Science*, volume 30, number 4. pages 609–642. doi:10.1207/s15516709cog0000_64
- 2003 John Hale. The information conveyed by words in sentences. *Journal of Psycholinguistic Research*, volume 32, number 2. pages 101–123.

Book chapters (refereed)

- 2019 Jixing Li and John Hale. Grammatical Predictors for fMRI timecourses. Chapter 7 in *Minimalist Parsing* edited by Robert C. Berwick & Edward P. Stabler. Oxford University Press. pages 159–173. doi:10.1093/oso/9780198795087.003.0007
- 2018 Zhong Chen and John Hale. Parsing Chinese relative clauses with structural and non-structural cues. In K. Nishiyama, H. Kishimoto and E. Aldridge eds. *Topics in Theoretical Asian Linguistics: Studies in honor of John B. Whitman*. pages 253–283. doi:10.1075/la.250
- 2012 Gregory M. Kobele, Sabrina Gerth and John Hale. Memory Resource Allocation in Top-Down Minimalist Parsing. In Glyn Morrill and Mark-Jan Nederhof eds. *Proceedings of Formal Grammar 2012/2013*. LNCS volume 8036. pages 32–51. doi:10.1007/978-3-642-39998-5
- 2010 Zhong Chen and John Hale. Deforesting LF. In Christian Ebert, Gerhard Jäger and Jens Michaelis eds., *The Mathematics of Language*. LNCS volume 6149. pages 13–28.
- 2010 Marisa F. Boston, John Hale and Marco Kuhlmann. Dependency Structures Derived from Minimalist Grammars. *ibid*, pages 1–12.
- 2006 John Hale and Paul Smolensky. Harmonic Grammars and Harmonic Parsers for Formal Languages in P. Smolensky and G. Legendre, eds. *The Harmonic Mind: From Neural Computation to Optimality Theoretic Grammar*, chapter 10. MIT Press. pages 393–415.
- 2005 John Hale and Edward P. Stabler, Jr. Strict Deterministic Aspects of Minimalist Grammars in P. Blache, E. Stabler, J. Busquets and R. Moot eds. *Logical Aspects of Computational Linguistics*. Springer Lecture Notes in Artificial Intelligence #3492. pages 162–176.
- 2004 John Hale and Géraldine Legendre. Minimal Links, Remnant Movement, and (Non-)Derivational Grammar in A. Stepanov, G. Fanselow and R. Vogel, eds. *Minimality Effects in Syntax*. Mouton de Gruyter. pages 177–203.

Conference proceedings (refereed)

- 2024 John Hale and Miloš Stanojević. **Do LLMs learn a true syntactic universal?** In *Proceedings of the Conference on Empirical Methods in Natural Language Processing* pages 17106–17119.
- 2024 Michael Wolfman, Donald Dunagan, Jonathan Brennan and John Hale. **Hierarchical syntactic structure in human-like language models**. *Proceedings of the Workshop on Cognitive Modeling and Computational Linguistics (CMCL)* pages 72–80.
- 2024 Berta Franzluebbers, Donald Dunagan, Miloš Stanojević, Jan Buys and John Hale. **Multipath parsing in the brain**. *Annual Meeting of the Association for Computational Linguistics*. Bangkok, Thailand. pages 12215–12229.
- 2024 Shulin Zhang, John Hale, Margaret Renwick, Zvezdana Vrzić and Keith Langston. **An Evaluation of Croatian ASR Models for Čakavian Transcription**. *Proceedings of LREC-COLING*. Turin, Italy. pages 1098–1104.

- 2022 Shulin Zhang, Jixing Li and John Hale. Quantifying Discourse Support for Omitted Pronouns. *Proceedings of the Fourth Workshop on Computational Models of Reference, Anaphora and Coreference*. pages 1–12.
- 2021 Miloš Stanojević, Shohini Bhattachali, Donald Dunagan, Luca Campanelli, Mark Steedman, Jonathan Brennan and John Hale. Modeling Incremental Language Comprehension in the Brain with Combinatory Categorical Grammar. *Proceedings of the Workshop on Cognitive Modeling and Computational Linguistics*. doi:10.18653/v1/2021.cmc1-1.3
- 2020 Shohini Bhattachali, Jonathan R. Brennan, Wen-Ming Luh, Berta Franzluebbers and John T. Hale. The Alice Datasets: fMRI & EEG Observations of Natural Language Comprehension. *Proceedings of the Language Resources and Evaluation Conference*. Marseille, France. pages 120–125.
- 2019 John Hale, Adhiguna Kuncoro, Keith Hall, Chris Dyer and Jonathan Brennan. Text Genre and Training Data Size in Human-Like Parsing. *Proceedings of the 2019 Conference on Empirical Methods in Natural Language Processing (EMNLP) and 9th International Joint Conference on Natural Language Processing (IJCNLP)*. doi:10.18653/v1/D19-1594
- 2019 Shohini Bhattachali and John Hale. *Diathesis alternations and selectional restrictions: A fMRI Study*. *Proceedings of the Annual Meeting of the Chicago Linguistic Society, Volume 55, Number 1*. pages 33–43.
- 2018 Shohini Bhattachali, Murielle Fabre and John Hale. *Processing MWEs: Neurocognitive Bases of Verbal MWEs and Lexical Cohesiveness within MWEs*. *Proceedings of the Joint Workshop on Linguistic Annotation, Multiword Expressions and Constructions (COLING 2018)*. pages 6–17.
- 2018 John Hale, Chris Dyer, Adhiguna Kuncoro and Jonathan Brennan. Finding syntax in human encephalography with beam search. *Proceedings of the 56th Annual Meeting of the Association for Computational Linguistics*. pages 2727–2736. Best paper award. doi:10.18653/v1/P18-1254
- 2018 Adhiguna Kuncoro, Chris Dyer, John Hale, Dani Yogatama, Stephen Clark and Phil Blunsom. LSTMs Can Learn Syntax-Sensitive Dependencies Well, But Modeling Structure Makes Them Better. *Proceedings of the 56th Annual Meeting of the Association for Computational Linguistics*. pages 1426–1436. doi:10.18653/v1/P18-1132
- 2018 Shohini Bhattachali, John Hale, Christophe Pallier, Jonathan Brennan, Wen-Ming Luh and Nathan R. Spreng. Differentiating Phrase Structure Parsing and Memory Retrieval in the Brain. *Proceedings of the Society for Computation in Linguistics volume 1, article 9*. pages 74–80. doi:10.7275/R5FF3QJ2
- 2017 Matthew Nelson, Stanislas Dehaene, Christophe Pallier and John Hale. Entropy Reduction correlates with Temporal Lobe Activity. *Proceedings of the 2017 Workshop on Cognitive Modeling and Computational Linguistics, European Chapter of the Association for Computational Linguistics, Valencia*. doi:10.18653/v1/W17-0701
- 2016 Jixing Li, Jonathan Brennan, Adam Mahar and John Hale. *Temporal Lobes as Combinatory Engines for both Form and Meaning*. *Workshop on Computational Linguistics for Linguistic Complexity at COLING 2016, Osaka*.
- 2015 John T. Hale, David E. Lutz, Wen-Ming Luh and Jonathan R. Brennan. Modeling fMRI time courses with linguistic structure at various grain sizes. *Proceedings of the 2015 Workshop on Cognitive Modeling and Computational Linguistics, North American Association for Computational Linguistics, Denver, CO*. doi:10.3115/v1/W15-1110

- 2014 Zhong Chen, Jiwon Yun, Tim Hunter and John Hale. [Modeling sentence processing difficulty with a conditional probability calculator](#). Proceedings of the Annual Meeting of the Cognitive Science Society, pages 1856–1857.
- 2010 Jiwon Yun, John Whitman and John Hale. [Subject-Object Asymmetries in Korean sentence comprehension](#). Proceedings of the Annual Meeting of the Cognitive Science Society. pages 2152–2157.
- 2009 John Hale. [Heuristic search in a cognitive model of human parsing](#). Proceedings of the International Workshop on Parsing Technologies. pages 230–234.
- 2007 John Hale. Deforesting LF. UCLA Working Papers in Linguistics: Proceedings of Mathematics of Language 10. doi:10.1007/978-3-642-14322-9
- 2006 John Hale, Izhak Shafran, Lisa Yung, Bonnie Dorr, Mary Harper, Anna Krasnyanskaya, Matthew Lease, Yang Liu, Brian Roark, Matthew Snover and Robin Stewart. PCFGs With Syntactic and Prosodic Indicators of Speech Repairs. In Proceedings of the Joint Conference of the International Committee on Computational Linguistics and the Association for Computational Linguistics (COLING-ACL). pages 161–168. doi:10.3115/1220175.1220196
- 2006 Brian Roark, Yang Liu, Mary Harper, Robin Stewart, Matthew Lease, Matthew Snover, Izhak Shafran, Bonnie Dorr, John Hale, Anna Krasnyanskaya and Lisa Yung. Reranking for Sentence Boundary Detection in Conversational Speech. In Proceedings of the IEEE International Conference on Acoustics, Speech and Signal Processing. Toulouse, France. doi:10.1109/ICASSP.2006.1660078
- 2005 Andrew Cooper and John Hale. [Promotion of Disfluency in Syntactic Parallelism](#). Proceedings of Disfluency in Spontaneous Speech '05. pages 59–63.
- 2004 John Hale. [The Information-processing Difficulty of Incremental Parsing](#). Proceedings of the ACL04 Workshop entitled Incremental Parsing: Bringing Engineering and Cognition Together. pages 58–65.
- 2001 John Hale. [A Probabilistic Earley Parser as a Psycholinguistic Model](#). In Proceedings of the Second Meeting of the North American Chapter of the Association for Computational Linguistics. pages 159–166.
- 2001 John Hale and Paul Smolensky. A Parser for Harmonic Context-Free Grammars. In [Proceedings of the 23rd Annual Conference of the Cognitive Science Society](#). pages 427–432.
- 1998 Niyu Ge, John Hale and Eugene Charniak. [A Statistical Approach to Anaphora Resolution](#). In Proceedings of the Sixth Workshop on Very Large Corpora (held at COLING/ACL-98). pages 161–170.

Reviews

- 2022 John Hale, Luca Campanelli, Jixing Li, Shohini Bhattachali, Christophe Pallier, Jonathan Brennan. “Neuro-computational models of language processing.” Annual Review of Linguistics volume 8 doi:10.1146/annurev-linguistics-051421-020803
- 2018 John Hale. “Computational Psycholinguistics.” Oxford Research Encyclopedia of Linguistics. doi:10.1093/acrefore/9780199384655.013.377
- 2007 John Hale. Review of S. Fulop, “On the Logic and Learning of Language.” Journal of Logic, Language & Information, volume 16. pages 217–220.

Selected Conference presentations

- 2023 Luca Campanelli, Klara Martin, John T. Hale and Julie Van Dyke. How memory retrieval and prediction shape sentence processing. Talk given at the American Speech-Language-Hearing Association convention, Boston MA.
- 2021 Luca Campanelli and John Hale. Word predictability in context reduces retrieval interference during natural reading. Poster presented virtually at the Association for Psychological Science annual convention.
- 2020 Donald Dunagan, Shulin Zhang, Christophe Pallier, John Whitman and John Hale. Grammatical number in French and Chinese brains. Poster presented at Neurobiology of Language, Philadelphia PA.
- 2020 Shohini Bhattasali, Murielle Popa-Fabre and John Hale. Probing the neural correlates of argument structure: A fMRI study of naturalistic language. Poster presented at the 33rd CUNY Human Sentence Processing Conference. Amherst, MA. <https://osf.io/ed357/>
- 2020 Miloš Stanojević, John Hale and Mark Steedman. Predictive Processing of Coordination in CCG. Poster presented at the 33rd CUNY Human Sentence Processing Conference. Amherst, MA. <https://osf.io/2xjgn>
- 2019 Shulin Zhang, Jixing Li, Wen-Ming Luh and John Hale. Neural correlates of semantic role processing in naturalistic language comprehension: an fMRI study. Poster presented at Neurobiology of Language. Helsinki, Finland.
- 2019 Jonathan Brennan, Andrea Martin, Donald Dunagan, Lars Meyer and John Hale. Resolving dependencies during naturalistic listening. **Poster** presented at Neurobiology of Language. Helsinki, Finland.
- 2018 Jixing Li, Murielle Fabre, Wen-Ming Luh and John Hale. fMRI evidence for binding theory during anaphora resolution in naturalistic listening. Poster presented at Neurobiology of Language, Quebec City, QC.
- 2018 Murielle Fabre, Shohini Bhattasali and John Hale. Dissociating prediction and constituent-structure during sentence-structure building. Poster presented at Neurobiology of Language. Quebec City, QC.
- 2018 Shohini Bhattasali, Murielle Fabre and John Hale. Right Lateralization of Verbal Collocations. Poster presented at Architectures and Mechanisms of Language Processing. Berlin, Germany.
- 2017 John Hale, Shohini Bhattasali, Jonathan Brennan, Jixing Li, Wen-Ming Luh, Christophe Pallier, R. Nathan Spreng. Localizing Structure-building and Memory Retrieval in Naturalistic Language Comprehension. Poster presented at Neurobiology of Language. Baltimore MD.
- 2016 Jonathan Brennan, Max Cantor, Rachel Eby and John Hale. EEG correlates of syntactic expectation reflect both word-to-word and hierarchical dependencies. Talk presented at the 29th CUNY Human Sentence Processing Conference. Gainesville FL.
- 2015 John Hale. Analyzing fMRI time courses with Minimalist Grammars. Talk given at the **First Workshop on Minimalist Parsing**, MIT.
- 2015 Jonathan Brennan, Edward P. Stabler, Sarah E. VanWagenen, Wen-Ming Luh and John Hale. Abstract Linguistic Structure Correlates with Anterior Temporal Activity during Naturalistic Comprehension. Poster presented at Neurobiology of Language. Chicago IL

- 2013 Hale, J. Integrating Language and Cognitive Architecture. Panel at the AAAI Fall Symposium on **Integrated Cognition**, Arlington VA. with David Reitter (PSU), Richard L. Lewis (Michigan), Chung-Chieh Shan (Indiana) and Sashank Varma (UMN).
- 2012 Kobele, G., Lagrou, E., Engelmann, F., von der Malsburg, T., Musa, R., Gerth, S., van de Vijver, R. and Hale, J. Incremental Processing Difficulty in Cross-serial and Nested Verb Clusters. **Poster** presented at Architectures and Mechanisms of Language Processing. Riva del Garda, Italy.
- 2009 Hale, J. Heuristic search in a cognitive model of human parsing. International Conference on Parsing Technologies. Paris, France.

Invited talks

- Towards mechanistic explanation of human language processing
Keynote, Fourteenth Workshop on **Cognitive Modeling and Computational Linguistics**
Albuquerque NM, May 3rd 2025
- The Cognitive Side of Charniak
Eugene Charniak Memorial **Symposium** November 9th 2024.
- Incremental parsing in the brain
National Institute of Mental Health, Bethesda MD, October 23th 2024
Max Planck Institute for Human Cognitive and Brain Sciences March 28th 2024
- Cross-linguistic computational neuroscience
UC Irvine Language Science department May 2nd 2023
- Parsing in the brain
Distinguished Computational Linguistics Lecture, Rochester Institute of Technology. March 24th 2023.
Cognitive Science Department, Johns Hopkins University, January 26th 2023
- Word-by-word parsing as it happens in the brain
Stony Brook Linguistics Colloquium December 2nd 2022
- Cross-linguistic computational neuroscience with natural language processing tools
Academy of Aphasia, Philadelphia PA, October 24th 2022
- The brain's language network in typological perspective
SfB 1102 colloquium, Saarbrücken University April 21st 2022
- Grammar, Incrementality and fMRI timecourse
Cognitive Science Program, University of Connecticut February 18th 2022
- Neurocomputational models of language processing: the case of reference and coreference
With Jixing Li. **Leipzig Lectures on Language** – Combinatorics 2021. May 26th 2021
- Neural time series as data for computational linguistics
Eighth Workshop on Cognitive Aspects of Computational Language Learning and Processing, Melbourne Australia July 19th 2018
- Word by word neuro-computational models of human sentence processing
Ninth Annual Meeting for the Neurobiology of Language
Symposium on Computational and Quantitative Methods
Baltimore, November 9th 2017

Modeling fMRI timecourses with linguistic structure

Emory Center for Mind, Brain and Culture, February 4th 2020
Max Planck Institute for Human Cognitive and Brain Sciences, April 30th 2019
Harvard University, February 1st 2019
University of Oxford, February 19th 2018
DeepMind, December 14th 2016
Laboratory of Formal Linguistics, Paris, December 8th 2016
Indiana University, November 14th 2016
University of Georgia, October 8th 2016
Stony Brook University, April 21st 2016
University of Leipzig, January 22nd 2016
Haskins Laboratories, April 30th 2015

Modeling sentence comprehension

Keynote, International Conference on Cognitive Modeling, Penn State, August 5th 2016

Cognitive Models of Language Comprehension

Tufts, January 21st 2015
Carnegie Mellon, January 16th 2015
Johns Hopkins, January 13th 2015
University of Georgia, January 9th 2015

Architectures and Mechanisms

Keynote, AMLaP, Marseille, September 4th 2013

Problem spaces in incremental parsing

Rensselaer Polytechnic Institute, September 25th 2013

Experience as a control strategy for incremental parsing

Saarbrücken, November 5th 2012
UMass Amherst, October 26th 2012
Soar workshop, University of Michigan June 21st 2012

Entropy Reduction and Asian Languages

University of Minnesota, October 3rd 2014
National Institute for Japanese Language and Linguistics, July 29th 2014
Northwestern University, April 25th 2014
University of Michigan October 18th 2013
Laboratoire Parole et Langage, Aix-en-Provence September 25th 2012
University of Texas at Austin, May 17th 2012
Freiburg Center for Cognitive Science, May 2nd 2012
University of Geneva, April 17th 2012

Information-theoretic approaches to syntactic processing

Linguistic Society of America workshop
on information-theoretic approaches to linguistics
Boulder, Colorado July 16th 2011

What a rational parser would do

University of Michigan, April 20th 2010
University of Chicago, October 16th 2009
Yale University, September 28th 2009
New York University, September 18th 2009

Cornell Linguistics Colloquium, September 10th 2009

University of Washington, May 22nd 2009

Dependency Grammar in a Computational Model of Human Sentence Parsing

Cornell Cognitive Science Colloquium, February 6th 2009

Human-like parsing

Cornell AI seminar, November 14th 2008.

Complexity metrics for surface structure parsing

Language Technology and Cognitive Systems Edinburgh 2008

Int'l Research Training Group Annual Meeting MIT 2007

Cognitive Science Colloquium Stanford 2006

Linguistics Colloquium UCLA 2006

Mathematical Linguistics Circle

Teaching

Department of Cognitive Science, Johns Hopkins University

Spring 2025 AS.050.326/626 Foundations of Cognitive Science

Fall 2024 AS.050.813 Grammar Formalisms (class offered under seminar number)

Introduces unification-based and mildly context-sensitive grammars.

Department of Linguistics, University of Georgia

Spring 2024 LING 8580 Seminar on Formalism and Functionalism

Fall 2023 LING4886/6886 Text and Corpus Analysis

Spring 2023 LING/ARTI 4570/6570 Natural Language Processing

Fall 2022 ARTI/LING/PSYC/PHIL3550H Intro to Cognitive Science

Spring 2022 LING/ENGL4886 Text & Corpus Analysis
LING 8580 Computational Linguistics Seminar

Fall 2021 LING/ARTI 4570/6570 **Natural Language Processing**

Spring 2021 LING 4530/6530: A Finite State Introduction to Computational Linguistics
renamed version of same course

Fall 2020 LING/ENGL4886 Text & Corpus Analysis
Computational Linguistics Seminar (offered under provisional course number)

Spring 2020 LING3350 Language, Mind & Brain

Fall 2019 Natural Language Processing (offered under provisional course numbers)
LING/ENGL4886 Text & Corpus Analysis

Spring 2019 Linguistics 4530/6530: Finite State Linguistics
A taste of computational linguistics for beginners that includes corpora, regular
expressions and finite-state transducers.

Fall 2018 Linguistics 3350: Language, Mind & Brain
A no-prerequisites survey of modern neurolinguistics, including machine learning approaches.

Empirical Foundations of Linguistics International Chair Programme, Paris

June 2015 LabEx EFL seminar on Automaton Theories of Human Sentence Comprehension

Linguistic Institute, University of Michigan

June 24–July 19 2013

Computational Psycholinguistics. With special guest Lars Konieczny.

Department of Linguistics, Cornell University

Spring 2017 Linguistics 4424: Computational Linguistics
Linguistics 7710: Neurolinguistics seminar

Fall 2016 First-Year Writing Seminar: biological foundations of language
Linguistics/Cognitive Science 2264: Language, Mind & Brain

Spring 2016 Linguistics/Cognitive Science 2264: Language, Mind & Brain
Linguistics 4429: Grammar Formalisms

Fall 2015 Linguistics 4424: Computational Linguistics
Linguistics 7712: Relative Clause Seminar (with John Whitman)

2014-2015 *on sabbatical at Carnegie Mellon*

Spring 2014 Linguistics 4429: Grammar Formalisms
Linguistics 7710: Seminar: the neural realization of grammatical expectation

Fall 2013 Linguistics 4424: Computational Linguistics
Linguistics 6604: Research Workshop

Spring 2013 Linguistics 1101: Introduction to Linguistics
Linguistics 7710: Incremental Parsing Seminar

2012 *on leave at Potsdam and Oxford*

Fall 2011 Cognitive Science 1101: Introduction to Cognitive Science.

Spring 2011 Linguistics 7720: Grammar Formalisms.
Linguistics 4485: Research Incubator. Yielded the `mcfgcky2` system, which grew into the Cornell Conditional Probability Calculator

Fall 2010 Cognitive Science 1101: Introduction to Cognitive Science. 400+ undergraduates

Spring 2010 Linguistics 1101: Introduction to Linguistics. undergraduates
Linguistics 4476: Statistics for Linguists. mixed graduate and undergraduate

Fall 2009 Linguistics 4424: Computational Linguistics. mixed graduate and undergraduate

Spring 2009 Linguistics 1101: Introduction to Linguistics. undergraduates
Linguistics 7710: Computational Psycholinguistics. graduates

Fall 2008 Linguistics 4424: Computational Linguistics. mixed graduate and undergraduate

Department of Linguistics and Languages, Michigan State University

Spring 2008	Linguistics 875: Statistics and Linguistic Applications. graduates Linguistics 892: Cognitive Science seminar. graduates
Fall 2007	Linguistics 401: Introduction to Linguistic Theory. undergraduates Linguistics/Computer Science 475: Introduction to Computational Linguistics. mixed
Spring 2007	Linguistics/Philosophy/Psychology 463: Introduction to Cognitive Science. undergraduates Linguistics 875: Computational Psycholinguistics. graduates
Fall 2006	<i>on leave at Stanford</i>
Spring 2006	Zoology 867: Nature and Practice of Cognitive Science. graduates Linguistics 875: Statistics and Linguistic Applications. graduates
Fall 2005	Linguistics/Computer Science 475: Introduction to Computational Linguistics. mixed
Spring 2005	Linguistics 875: Computational Psycholinguistics. graduates
Fall 2004	Linguistics/Computer Science 475: Introduction to Computational Linguistics. mixed
Spring 2004	Linguistics/Philosophy/Psychology 463: Introduction to Cognitive Science. undergraduates
Fall 2003	Linguistics 401: Introduction to Linguistic Theory. undergraduates

Advising

The + symbol indicates a female advisee.

Graduated

Cornell	+Marisa F. Boston	→Nuance Communications..Google
Cornell	+Jiwon Yun	→SUNY Stony Brook (tenured)
Cornell	Zhong Chen	→Rochester Institute of Technology (tenured)
Cornell	+Jixing Li	→ City University of Hong Kong (tenure-track)
Cornell	+Shohini Bhattachali	→University of Toronto-Scarborough (tenure-track)
UGA	+Jordan Graham (MA)	→data scientist at political nonprofit in Washington DC
UGA	Narinder Ghuman (MSAI)	→NCR corporation
UGA	+Berta Franzluebbbers (MSAI)	→research at UGA
UGA	+Savannah Jane Williams (MSAI)	→applying to grad school for Fall 2024
UGA	+Shulin Zhang	Regeneron phamaceuticals
UGA	Michael Wolfman (MA)	tech industry
UGA	Jack Settles (MSAI)	applying to PhD programs for Fall 2025
UGA	Donald Dunagan	postdoc at JHU
JHU	Paul Soulos	→ Microsoft Research

Current Graduate Students (Johns Hopkins)

Dylan S. Low	General track
Shisen Yue	Computational Cognitive Science track
Alan Zhou	Computational Cognitive Science track

Postdoctoral sponsor

Donald Dunagan → Johns Hopkins
 Tim Hunter → University of Minnesota (tenure-track) → UCLA (tenured)
 +Murielle Popa-Fabre → Paris
 Luca Campanelli → Medical College of New York

Graduate: External Examiner

John Torr, Edinburgh University. Defended April 26th 2019
 +Chong Zhang, SUNY Stony Brook. Defended May 5th 2017
 +Pegah Faghiri, Université Paris Sorbonne Nouvelle – Paris 3. Defended December 9th 2016
 Michael Shvartsman, University of Michigan. Defended August 15th 2014
 Mattias Nilsson, Uppsala University. Defended March 10th 2012.

Undergraduate: academic advisor (Cornell)

Ben Reich math/linguistics major → quant analysis job
 +Julia Buffinton CS/linguistics major → UMD Baggett Scholar
 Jordan Needle linguistics major → Ohio State
 +Elana Feldman linguistics major → Nuance Communications
 +Katey Huddleston CS/linguistics major

Undergraduate: honors thesis advisor

James H. West UGA Dept of Linguistics 2020 Undergraduate Research Award recipient
 → University of Washington Comp Ling Masters Program
 Adam Mahar Cornell Presidential Research Scholar summa cum laude 2016
 +Jaclyn Jeffrey-Wilensky Cornell Presidential Research Scholar → edu tech company
 Mohan Zhang Cornell Computer Science major magna cum laude in 2009

Undergraduate: in other capacities

Ryan Musa Created a database of bilingual Dutch/German stimuli as well as a German acceptability study.
 → UIUC....Google
 Jeff Shaw MSU College of Arts & Letters Undergraduate Research Initiative.
 Pursued means-ends analysis for parsing English and Japanese.
 Andrew Cooper MSU Honors College Research Assistant.
 Gave talk at the Disfluency in Spontaneous Speech in Aix-en-Provence, France.
 +Kendell Pawelec MSU Honors College Research Assistant. Created a dependency graph visualization tool.

College/University Service**Johns Hopkins University**

2025-2026 Shared Governance Council of the Krieger School of Arts and Sciences
 2024-2025 Director of Graduate Admissions

University of Georgia

2023	Institute for Artificial Intelligence Planning Group, UGA (elected member)
2021	Experimental Linguistics Search Committee Chair, Department of Linguistics
2021–	James L. Carmon Award Committee
2020	Post Tenure Review Committee for Dr. Vera Lee-Schoenfeld
2020–	Graduate Committee, Department of Linguistics
2019–2020	Search Committee, Computer Science Department
2018–2020	Curriculum Committee, Department of Linguistics
2018–	Curriculum Committee, Cognitive Science Program
2018	Tenure Committee, Department of Linguistics

Cornell University

2016–2018	Steering Committee, Cognitive Science Program
2015	Ad Hoc tenure committee, HD and Psychology.
2011	Phonetics Search Committee (selected & recruited Sam Tilsen)
2010	Read freshman applications with Assistant Dean Ken Gabard.
2009	Revamping LING1101 Linguistics Department Committee
2008-2009	Phonetics Search Committee (search postponed)

Professional Activities**Journal Editing**

Editorial Board, *Cognition*

Editorial Board, *Linguistic Issues in Language Technology*

Editorial Board, *Language and Linguistics Compass*

Associate Editor of *Topics in Cognitive Science*. With David Reitter, produced an issue of this based on contributions from the CMCL workshops (11 papers). doi:10.1111/tops.12038

Organizing Meetings

Founder, ACL Cognitive Modeling and Computational Linguistics workshop (CMCL).

Program Committee, Cognitive Science Society Annual Meeting 2014, 2016, 2017

Organizer, Language and Integrated Cognition panel at AAAI Fall Symposium, November 15th–17th 2013

Memberships

Association for Computational Linguistics (ACL)

Cognitive Science Society

Grant proposal reviewing

National Science Foundation 2004—

Oak Ridge Associated Universities 2019

Article reviewing

Cognitive Science 2003—

Cognition 2007—

Language 2023—

Journal of Memory and Language 2023—

Neurobiology of Language 2020—

Journal of Neuroscience 2022—

Journal of Language, Logic and Information 2009—

Nature Scientific Data 2023—

Journal of Cognitive Neuroscience 2023—

Cortex 2024—

Nature Computational Brain and Behavior 2024—

Conference submission reviewing

Association for Computational Linguistics 2003—

International Conference on Computational Linguistics 2003—

International Conference of Language Resources and Evaluation 2023—

International Conference on Cognitive Modeling 2007—

CUNY Human sentence processing conference 2003—

Formal Grammar 2001—

Annual Meeting of the Cognitive Science Society 2005—

Incontro di Grammatica Generativa 2016—

Architectures and Mechanisms of Language Processing 2023—

Ad hoc letter-writing in recent years

Carnegie Mellon University (2X)

University of Oxford

Institute of Science and Technology Austria

NYU

UC-Davis

UT Austin

University of Utah