# Ethan Gotlieb Wilcox

wilcoxeg.github.io semantic scholar ethan.wilcox@inf.ethz.ch

### **EMPLOYMENT**

Assistant Professor of Computational Linguistics, Georgetown University

Department of Linguistics

Washington, D.C. starting 8/2024

ETH Postdoctoral Fellow, ETH Zürich

Department of Computer Science, Institute of Machine Learning

Zürich, Switzerland 9/2022 - present

# RESEARCH AND TEACHING AREAS

- Computational and information-theoretic models of sentence processing and language aguisition
- Natural language processing and computational linguistics
- Experimental psycholinguistics including syntactic processing, reading, experimental methods

### EDUCATION

### Ph.D. in Linguistics, Harvard University

Cambridge, MA

Dissertation Title: "Informative Presupposition and Accommodation"

9/2017 - 5/2022

• Visiting student, Ecole Normale Supérieure, Department of Cognitive Science (Summer 2018)

### B.A.S., Stanford University

Stanford, CA

Degree in in Symbolic Systems and Slavic Languages and Literature with Honors

9/2011 - 8/2015

# JOURNAL ARTICLES

- [1] Anna A. Ivanova, Aalok Sathe, Benjamin Lipkin, Unnathi Kumar, Setayesh Radkani, Thomas H. Clark, Carina Kauf, Jennifer Hu, R. T. Pramod, Gabriel Grand, Vivian Paulun, Maria Ryskina, Ekin Akyürek, Ethan Gotlieb Wilcox, Nafisa Rashid, Leshem Choshen, Roger Levy, Evelina Fedorenko, Joshua Tenenbaum, Jacob Andreas. "Elements of World Knowledge (EWOK): A cognition-inspired framework for evaluating basic world knowledge in language models", Under Review, Transactions of the Association for Computational Linguistics, 2024
- [2] Ethan Gotlieb Wilcox, Michael Y. Hu, Alex Warstadt, Aaron Mueller, Leshem Choshen, Chengxu Zhuang, Adina Williams, Ryan Cotterell, Tal Linzen. "Bigger is not always better: The importance of human-scale language modeling for psycholinguistics", under review, Journal of Memory and Language
- [3] Ethan Gotlieb Wilcox, Cui Ding, Mrinmaya Sachan, Lena Jäger. "Mouse Tracking while Reading (MoTR): A New Incremental Processing Measurement", Journal of Memory and Language, 2024
- [4] Ethan Gotlieb Wilcox, Tiago Pimentel, Clara Meister, Ryan Cotterell. "An Information-Theoretic Analysis of Targeted Regressions During Reading", Cognition, 2024.
- [5] Ethan Gotlieb Wilcox, Tiago Pimentel, Clara Meister, Ryan Cotterell, Roger Levy. "Testing the Predictions of Surprisal Theory in 11 Languages," Transactions of the Association for Computational Linguistics, 2023.
- [6] Alexandre Cremers, **Ethan Gotlieb Wilcox**, Benjamin Spector. "Exhaustivity and Anti-Exhaustivity in the RSA Framework: Testing the Effect of Prior Beliefs", *Cognitive Science*, 2023.

- [7] Tiago Pimentel, Clara Miester, **Ethan Gotlieb Wilcox**, Roger Levy and Ryan Cotterell. "On the Effect of Anticipation on Reading Times", Transactions of the Association for Computational Linguistics, 2023.
- [8] Ethan Gotlieb Wilcox, Richard Futrell and Roger Levy. "Using Computational Models to Test Syntactic Learnability", Linguistic Inquiry, 2023.

# Conference Proceedings

- [1] Ethan Gotlieb Wilcox, Clara Meister, Ryan Cotterell, Tiago Pimentel. "Language Model Quality Correlates with Psychometric Predictive Power in Multiple Languages" to appear in *Proceedings of the 2023 Conference on Empirical Methods in Natural Language Processing (EMNLP)*, 2023
- [2] Tiago Pimentel, Clara Meister, **Ethan Gotlieb Wilcox**, Ryan Cotterell, Kyle Mahowald. "Revisiting the Optimality of Word Lengths", in *Proceedings of the 2023 Conference on Empirical Methods in Natural Language Processing (EMNLP)*, 2023
- [3] Lukas Wolf, Tiago Pimentel, Evelina Fedorenko, Ryan Cotterell, Alex Warstadt, **Ethan Gotlieb Wilcox**, Tamar Regev. "Quantifying the redundancy between prosody and text", in *Proceedings of the 2023 Conference on Empirical Methods in Natural Language Processing (EMNLP)*, 2023
- [4] Lukas Wolf, Klemen Kotar, Greta Tuckute, Eghbal Hosseini, Alex Warstadt, Ethan Gotlieb Wilcox, Tamar Regev. "WhisBERT: Multimodal Text-Audio Language Modeling on 100M Words", in Proceedings of the 2023 BabyLM Challenge, 2023
- [5] Alex Warstadt, Aaron Mueller, Leshem Choshen, Ethan Gotlieb Wilcox, Chengxu Zhuang, Juan Ciro, Rafael Mosquera, Adina Williams, Bhargavi Paranjabe, Tal Linzen, Ryan Cotterell. "Findings of the BabyLM Challenge: Sample-efficient Pretraining on Developmentally Plausible Corpora", in Proceedings of the 2023 BabyLM Challenge, 2023
- [6] Clara Meister, Tiago Pimentel, Luca Malagutti, Ethan Gotlieb Wilcox, Ryan Cotterell. "On the Efficacy of Sampling Adapters", in Proceedings of the 61st Annual Meeting of the Association for Computational Linguistics (Volume 1: Long Papers), 2023
- [7] Wangchunshu Zhou, Yuchen Jiang, **Ethan Gotlieb Wilcox**, Ryan Cotterell, Mrinmaya Sachan. "Controlled Text Generation with Natural Language Instructions", in *Proceedings of the International Conference on Machine Learning (ICML)*, 2023
- [8] Thomas Clark, Ethan Gotlieb Wilcox, Edward Gibson, Roger Levy. "Which Evidence for Availability Effects on Speaker Choice in the Russian Comparative Alternation", in *Proceedings of the Annual Meeting of the Cognitive Science Society*, 2022
- [9] Ethan Gotlieb Wilcox, Roger Levy, Kathryn Davidson. "Which Presuppositions are Subject to Contextual Felicity Constraints?", in *Proceedings of the Semantics and Linquistic Theory (SALT)*, 2021
- [10] Ethan Gotlieb Wilcox, Pranali Vani, Roger Levy. "A Targeted Assessment of Incremental Processing in Neural Language Models and Humans", in Proceedings of the 59th Annual Meeting of the Association for Computational Linguistics and the 11th International Joint Conference on Natural Language Processing (Volume 1: Long Papers), 2021
- [11] Pranali Vani, Ethan Gotlieb Wilcox, Roger Levy. "Using the interpolated maze task to assess incremental processing in English relative clauses", in *Proceedings of the Annual Meeting of the Cognitive Science Society*, 2021
- [12] Ethan Gotlieb Wilcox, Jon Gauthier, Jennifer Hu, Peng Qian, Roger Levy. "On the Predictive Power of Neural Language Models for Human Real-Time Comprehension Behavior", in *Proceedings of the Annual Meeting of the Cognitive Science Society*, 2020
- [13] Ethan Gotlieb Wilcox, Peng Qian, Richard Futrell, Ryosuke Kohita, Roger Levy, Miguel Ballesteros. "Structural Supervision Improves Few-Shot Learning and Syntactic Generalization in Neural Language

- Models", in Proceedings of the 2020 Conference on Empirical Methods in Natural Language Processing (EMNLP), 2020
- [14] Tristan Thrush, **Ethan Gotlieb Wilcox**, Roger Levy. "Investigating Novel Verb Learning in BERT: Selectional Preference Classes and Alternation-Based Syntactic Generalization", in *Proceedings of the Third BlackboxNLP Workshop on Analyzing and Interpreting Neural Networks for NLP*, 2020
- [15] Jennifer Hu, Peng Qian, Jon Gauther, **Ethan Gotlieb Wilcox**, Roger Levy. "A Systematic Assessment of Syntactic Generalization in Neural Language Models", in *Proceedings of the 58th Annual Meeting of the Association for Computational Linguistics*, 2020
- [16] Jon Gauther, Jennifer Hu, Ethan Gotlieb Wilcox, Peng Qian, Roger Levy. "SyntaxGym: An Online Platform for Targeted Evaluation of Language Models", in Proceedings of the 58th Annual Meeting of the Association for Computational Linguistics: System Demonstrations, 2020
- [17] Ethan Gotlieb Wilcox, Roger Levy, Richard Futrell. "What syntactic structures block dependencies in RNN language models?", in *Proceedings of the Annual Meeting of the Cognitive Science Society*, 2019
- [18] Richard Futrell, **Ethan Gotlieb Wilcox**, Takashi Morita, Peng Qian, Miguel Ballesteros, Roger Levy. "Neural language models as psycholinguistic subjects: Representations of syntactic state", in *Proceedings of the 2019 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies, Volume 1 (Long and Short Papers), 2019*
- [19] Ethan Gotlieb Wilcox, Peng Qian, Richard Futrell, Miguel Ballesteros, Roger Levy. "Structural Supervision Improves Learning of Non-Local Grammatical Dependencies", in Proceedings of the 2019 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies, Volume 1 (Long and Short Papers), 2019
- [20] Aixiu An, Peng Qian, Ethan Gotlieb Wilcox, Roger Levy. "Representation of Constituents in Neural Language Models: Coordination Phrase as a Case Study", in Proceedings of the 2019 Conference on Empirical Methods in Natural Language Processing and the 9th International Joint Conference on Natural Language Processing (EMNLP-IJCNLP), 2019
- [21] Ethan Gotlieb Wilcox, Roger Levy, Richard Futrell. "Hierarchical Representation in Neural Language Models: Suppression and Recovery of Expectations", in *Proceedings of the 2019 ACL Workshop Black-boxNLP: Analyzing and Interpreting Neural Networks for NLP*, 2019
- [22] Ethan Gotlieb Wilcox, Benjamin Spector. "The Role of Prior Beliefs in The Rational Speech Act Model of Pragmatics: Exhaustivity as a Case Study", in Proceedings of the Annual Meeting of the Cognitive Science Society, 2019
- [23] Ethan Gotlieb Wilcox, Roger Levy, Takashi Morita, Richard Futrell. "What do RNN Language Models Learn about Filler-Gap Dependencies?", in *Proceedings of the 2018 EMNLP Workshop BlackboxNLP: Analyzing and Interpreting Neural Networks for NLP*, 2018.

### BOOK CHAPTERS

[1] Ethan Gotlieb Wilcox, Jon Gauthier, Peng Qian, Jennifer Hu and Roger Levy "Learning Syntactic Structures from String Input", Algebraic Structures in Natural Language, 2022 (pp. 113-138). CRC Press.

### Manuscripts and Theses

[1] Ethan Gotlieb Wilcox, Roger Levy, Kathryn Davidson. "Presupposing Novel Information: A Cross-Trigger Experiment in English", under review

- [2] Ethan Gotlieb Wilcox, "Informative Presupposition and Accommodation", Ph.D. Dissertation, Harvard University, 2022.
- [3] Richard Futrell, **Ethan Gotlieb Wilcox**, Takashi Morita, and Roger Levy, "RNNs as psycholinguistic subjects: Syntactic state and grammatical dependency", arXiv preprint, 2018.
- [4] Ethan Gotlieb Wilcox, "Revolutionary Linguistics: The Ideology of the Soviet Esperanto Movement 1917-1938", BA Honors Thesis, Stanford University, 2015

# Invited Presentations

### Invited Conference & Workshop Talks

- "Language Modeling in People and Machines", ICML Workshop on Large Language Models and Cognition, International Conference on Machine Learning, Vienna, Austria (7/24)
- "Using artificial neural networks to study human language processing: Two case studies and a warning", Workshop on Using Artificial Neural Networks for Studying Human Language Learning and Processing, Institute for Language Logic and Computation, University of Amsterdam, The Netherlands (6/24)
- "Language Models as Cognitive Models: The Cases of Syntactic Generalization and Real-Time Language Comprehension", The Fourth International Conference on Theoretical East Asian Psycholinguistics, Seoul Korea (8/23)

### Invited Colloquia

- "Information-Theoretic Perspectives on Language Comprehension", Complex Human Data Hub, University of Melbourne, Australia (10/23)
- "Learning and Processing Linguistic Structure in Humans and Machines", Department of Cognitive Science, Johns Hopkins University, USA. (2/23)
- "Using Computational Models to Test Syntactic Learnability", Department of Linguistics, University of Geneva, Switzerland. (12/22)
- "Structure and Statistical Processing in Humans and Machines", Department of Linguistics, Yale University, USA. (3/22)
- "Using Computational Models to Test Syntactic Learnability", Department of English, Dongguk University, Korea. (1/22)
- "Using Presuppositions to Introduce Novel Information", Department of Linguistics (Universals Colloquium Series), Harvard University, USA. (11/21)
- "How to Evaluate Neural Networks as Models of Linguistic Cognition", Department of English, Dongguk University, Korea. (2/21)

### Lab Talks / Other Invited Presentations

- "Structure and Statistical Processing in Humans and Machines", Language, Logic Learning Lab, UC Davis, USA. (5/22)
- "Neural Network Language Models and the Argument from the Poverty of the Stimulus", Department of Linguistics (Ling Lunch Series), Massachusetts Institute of Technology, USA. (10/19)
- "Using Structure to Predict the next Word: What RNN Language Models Learn about Syntax", Computation and Psycholinguistics Lab, Johns Hopkins University, USA. (2/19)
- "What do RNN Language Models Learn about the Filler-Gap Dependency?", Psycholinguistics and Cognitive Science Laboratory, Ecole Normale Supérieure (Paris), France (8/18)

# Grants and Awards

#### Awards

- Outstanding Paper Award, Conference on Empirical Methods in Natural Language Processing

  Language Model Quality Correlates with Psychometric Predictive Power in Multiple Languages
- Outstanding Paper Award, Conference on Empirical Methods in Natural Language Processing 12/2023

  Revisiting the Optimality of Word Legnths
- Best Honors Thesis, Division of Languages Cultures and Literatures, Stanford University

  Revolutionary Linguistics: The ideology of the Soviet Esperanto movement, 1917-1938

6/2015

#### Grants

- ETH Zurich Postdoctoral Fellowship
   Evaluating Large Language Models with Human Psycholinguistic Data
   Graduate Student Research Grant, Mind Brain Behavior Initiative, Harvard
   Experimental and computational assessment of presuppositions' contextual felicity constraints
- Graduate Student Research Grant, Mind Brain Behavior Initiative, Harvard

  Workshop on linguistics and climate change
- Graduate Student Research Grant, Mind Brain Behavior Initiative, Harvard

  Can neural nets learn linguistic dependencies?

  5/2018

# TEACHING AND ADVISING

### Teaching Experience

- Assistant Head Tutor, Department of Linguistics, Harvard

  —Instructor for honors thesis seminar: co-supervised undergraduate course advising
- "Statistical Methods in Linguistics" (Ling 190), Harvard (TA) 1/2020 5/2020
- "Computational Psycholinguistics" (BCS 9.19), MIT (TA) 1/2020 5/2020
- "Language, Structure and Cognition" (Ling 83), Harvard (TA)

  -Awarded certificate for distinction in teaching

### Theses Supervised

- Cui Ding. "Mouse Tracking for Reading (MoTR): A New Incremental Processing Paradigm", Masters Thesis, University of Zürich, Department of Computational Linguistics, 2023.
  - -Awarded a "Semesterpreis" for outstanding thesis
- Lukas Wolf. "On the Contribution of Prosody to Language Comprehension in Large Language Models", Masters Thesis, ETH Zürich, Department of Computer Science, 2023.

# ACADEMIC SERVICE

### Conference Organization

• Organizing Committee, BabyLM Challenge shared task

2023

- Coordinated publicity and peer-review process for workshop with 30+ submissions
- The BabyLM Challenge was featured in a New York Times article about democratizing AI research

### Departmental Service

• Graduate Student Representative, Department of Linguistics, Harvard University

2020-2022

- Represent departmental graduate student interests to the faculty and university
- Implemented first ever department climate survey; ran graduate portion of new faculty search

# Reviewing

- Journals: Journal of Memory and Language (Elsevier); Open Mind (MIT Press); Behavior Research Methods (Springer); Journal of Linguistics (Cambridge); Language Acquisition (Taylor & Francis)
- Funding Agencies: European Research Commission (Advanced Grant, 2023)
- Conferences: ACL (2020, 2023); EMNLP (2020, 2021, 2022, 2023); ACL Rolling Review (2022, 2023), COLING (2022), CogSci (2021), Meaning in Context Workshop at ICLR (2021)
  - Outstanding reviewer recognition, EMNLP, 2020

# Professional Experience

Transcendent Endeavors Computational Linguist	New York, NY 10/16 -8/17
Carnegie Endowment for International Peace and Freelance Translator and Editor	Moscow and Remote $10/15 - 10/16$
Palantir Product Quality Engineer Intern	Palo Alto, CA 6/14 -9/14

### SELECTED TRANSLATIONS

All work co-translated from Russian with Mikhail Lion

- "Sanctions and Retaliation: Where Russia-U.S. Relations are Headed", Andrey Movchan, Carnegie Center Moscow. 2018.
- "Is Putin Losing Control of Russia's Conservative Nationalists?", Alexander Baunov, Foreign Affairs, 2017
- "The Accidental Formation of Russia's War Coalition", Konstantin Gaaze, Carnegie Center Moscow, 2017
- "Going to the People-and Back Again: The Changing Shape of the Russian Regime" (white paper), Alexander Baunov, Carnegie Center Moscow, 2017
- "The Snow Queen" (stage play), Evgeny Schwartz, produced by Dacha Theater, Seattle WA, 2016

#### References

# Roger Levy

Professor

Department of Brain and Cognitive Science Massachusetts Institute of Technology rplevy@mit.edu

### Richard Futrell

Associate Professor Department of Language Science University of California, Irvine rfutrell@uci.edu

### Kathryn Davidson

Professor

Department of Linguistics

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kathryndavidson@fas.harvard.edu

### Rvan Cotterell

Assistant Professor Department of Computer Science Institute for Machine Learning ETH Zürich ryan.cotterell@gmail.com