

# Tal Linzen

Room 243 Krieger Hall  
Cognitive Science Department  
Johns Hopkins University  
3400 N. Charles Street  
Baltimore, MD 21218

Email: [tal.linzen@jhu.edu](mailto:tal.linzen@jhu.edu)  
Website: <http://tallinzen.net>  
Last updated: April 11, 2018

## ACADEMIC EMPLOYMENT

---

- 2017-present    **Assistant Professor**  
Department of Cognitive Science  
Affiliated faculty, Center for Language and Speech Processing  
Johns Hopkins University, Baltimore, MD
- 2015-2017    **Postdoctoral researcher**  
Laboratoire de Sciences Cognitives et Psycholinguistique & Institut Jean Nicod  
Ecole Normale Supérieure, Paris

## EDUCATION

---

- 2010-2015    New York University, Ph.D., Linguistics  
*Thesis title:* Probabilistic linguistic representations: Between learning and processing  
*Committee:* Alec Marantz (chair), Gillian Gallagher, Maria Gouskova, Liina Pytkänen, Florian Jaeger
- 2008-2010    Tel Aviv University, M.A., Linguistics, *summa cum laude*  
*Thesis title:* Hebrew Possessive Datives: The effects of affectedness  
*Advisor:* Mira Ariel
- 2005-2010    Tel Aviv University, B.Sc., Mathematics & Linguistics, *summa cum laude*

### *Other courses:*

- 2016    Machine Learning Summer School, Cádiz, Spain  
2008    Spring School on Linguistic Diversity, Leipzig, Germany

## PEER-REVIEWED JOURNAL ARTICLES

---

- 2017    Tal Linzen & Gillian Gallagher. Rapid generalization in phonotactic learning.  
*Laboratory Phonology: Journal of the Association for Laboratory Phonology* 8(1): 24, 1–32.

- 2016 Tal Linzen, Emmanuel Dupoux & Yoav Goldberg. Assessing the ability of LSTMs to learn syntax-sensitive dependencies. *Transactions of the Association for Computational Linguistics* 4, 521–535.
- 2016 Einat Shetreet, Tal Linzen & Naama Friedmann. Against all odds: Exhaustive activation in lexical access of verb complementation options. *Language, Cognition & Neuroscience* 31(9), 1206–1214.
- 2016 Tal Linzen. The diminishing role of inalienability in the Hebrew Possessive Dative. *Corpus Linguistics and Linguistic Theory* 12(2), 325–354.
- 2016 Tal Linzen & Florian Jaeger. Uncertainty and expectation in sentence processing: Evidence from subcategorization distributions. *Cognitive Science* 40(6), 1382–1411
- 2015 Joseph Fruchter\*, Tal Linzen\*, Masha Westerlund & Alec Marantz. Lexical preactivation in basic linguistic phrases. *Journal of Cognitive Neuroscience* 27(10), 1912–1935. (\* indicates equal contribution.)
- 2015 Maria Gouskova & Tal Linzen. Morphological conditioning of phonological regularization. *The Linguistic Review* 32(3), 427–473.
- 2015 Mira Ariel, Elitzur Dattner, John W. Du Bois & Tal Linzen. Pronominal datives: The royal road to argument status. *Studies in Language* 39(2), 257–321.
- 2014 Tal Linzen. Parallels between cross-linguistic and language-internal variation in Hebrew possessive constructions. *Linguistics* 52(3), 759–792.
- 2014 Allyson Ettinger, Tal Linzen & Alec Marantz. The role of morphology in phoneme prediction: Evidence from MEG. *Brain and Language* 129, 14–23.
- 2013 Tal Linzen, Alec Marantz & Liina Pykkänen. Syntactic context effects in single word recognition: An MEG study. *The Mental Lexicon* 8(2), 117–139.
- 2013 Tal Linzen, Sonia Kasyanenko & Maria Gouskova. Lexical and phonological variation in Russian prepositions. *Phonology* 30(3), 453–515.

## PEER-REVIEWED PROCEEDINGS PAPERS

---

- 2018 Kristina Gulordava, Piotr Bojanowski, Edouard Grave, Tal Linzen & Marco Baroni. Colorless green recurrent networks dream hierarchically. To appear in *Proceedings of the 16th Annual Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies (NAACL)*.
- 2018 Laura Gwilliams, David Poeppel, Alec Marantz & Tal Linzen. Phonological (un)certainly weights lexical activation. In *Proceedings of the 2018 Workshop on Cognitive Modeling and Computational Linguistics (CMCL)*, pages 29–34.
- 2017 Émile Enguehard, Yoav Goldberg & Tal Linzen. Exploring the syntactic abilities of RNNs with multi-task learning. In *Proceedings of the SIGNLL Conference on Computational Natural Language Learning (CoNLL)*, pages 3–14.
- 2017 Tal Linzen, Noam Siegelman & Louisa Bogaerts. Prediction and uncertainty in an artificial language. In *Proceedings of the 39th Annual Conference of the Cognitive Science Society*, pages 2592–2597.
- 2017 Gaël Le Godais, Tal Linzen & Emmanuel Dupoux. Comparing character-level neural language models using a lexical decision task. In *Proceedings of the 15th Conference of*

*the European Chapter of the Association for Computational Linguistics (EACL): Volume 2, Short Papers*, pages 125–130.

- 2016 Tal Linzen. Issues in evaluating semantic spaces using word analogies. In *Proceedings of the First Workshop on Evaluating Vector Space Representations for NLP (RepEval)*, pages 13–18.
- 2016 Allyson Ettinger & Tal Linzen. Evaluating vector space models using human semantic priming results. In *Proceedings of the First Workshop on Evaluating Vector Space Representations for NLP (RepEval)*, pages 72–77.
- 2016 Tal Linzen, Emmanuel Spector & Benjamin Spector. Quantificational features in distributional word representations. In *Proceedings of the Fifth Joint Conference on Lexical and Computational Semantics (\*SEM 2016)*, pages 1–11.
- 2015 Tal Linzen & Timothy J. O’Donnell. A model of rapid phonotactic generalization. In *Proceedings of Empirical Methods in Natural Language Processing (EMNLP 2015)*, pages 1126–1131.
- 2014 Tal Linzen & Florian Jaeger. Investigating the role of entropy in sentence processing. In *Proceedings of the 2014 ACL Workshop on Cognitive Modeling and Computational Linguistics (CMCL)*, pages 10–18.
- 2014 Tal Linzen & Gillian Gallagher. The timecourse of generalization in phonotactic learning. In *Proceedings of Phonology 2013*. (Only the abstract was peer-reviewed.)

## INVITED PRESENTATIONS

---

- 2018 *On the syntactic abilities of recurrent neural networks*. Joint Linguistics and CLIP (Computational Linguistics and Information Processing) Colloquium, University of Maryland, College Park, April 11.
- 2018 *Hierarchical behavior without explicit hierarchical representations?* Common Ground Seminar at the University of Pennsylvania, Philadelphia, February 7.
- 2017 *Structure-sensitive dependency learning in recurrent neural networks*:  
Cognitive Science Colloquium, Indian Institute of Technology, Delhi, October 12 (via video conference).  
Colloquium at the Department of Linguistics, Stony Brook University, September 29.  
Center for Language and Speech Processing Seminar, Johns Hopkins University, September 22.  
TLP seminar at LIMSI (Computer Science Laboratory for Mechanics and Engineering Sciences), Paris-Sud University, June 20.  
Institute for Language, Cognition and Computation (ILCC) seminar, The University of Edinburgh, June 8.  
Colloquium at Tilburg center for Cognition and Communication (TiCC), Tilburg University, The Netherlands, May 31.
- 2017 *Cognitive science and neural network models of language*. Workshop on Deep Learning in Computational Cognitive Science at the 39th Annual Meeting of the Cognitive Science Society, London, July 26.

- 2017 *Information and representations in the neurobiology of morphology*. Workshop on usage statistics, semantic transparency and segmentability in the selection, access and (de)composition of complex words, University of Freiburg, Germany, May 4-6.
- 2017 *Entropy in language comprehension*. Invited talk at the “Information-theoretic modeling of linguistic variation in context” workshop at the 39. Jahrestagung der Deutschen Gesellschaft für Sprachwissenschaft (German Linguistics Society), Saarbrücken, Germany, March 9.
- 2017 *Can recurrent neural networks acquire hierarchical representations from natural texts?* Ling Lunch, Paris Diderot University, January 26.
- 2016 *Using English subject-verb number agreement to evaluate the syntactic capabilities of contemporary neural networks*, Ling Lunch, Queen Mary University of London, November 21.
- 2016 *Can contemporary recurrent neural networks learn syntax-sensitive dependencies?* Language Research Cluster, University of Potsdam, Germany, July 6.
- 2016 *Probabilistic computation and formal representations*. Colloquium given at the Department of Linguistics at UCLA, February 22.
- 2016 *Understanding probabilistic prediction in sentence processing*. Colloquium given at the Cognitive Science Department at Johns Hopkins University, January 6.
- 2015 *Understanding probabilistic prediction in sentence processing*. Language Learning and Processing Lab, The Hebrew University of Jerusalem, Israel, December 27.
- 2015 *How might entropy affect comprehension difficulty?* FEAST (Forum Entwicklung und Anwendung von Sprach-Technologien), Saarland University, Germany, December 7.
- 2015 *Generalization in phonotactic learning:*  
 Linguistics Seminar, Tufts University, February 17.  
 Computational Cognitive Science Group, MIT, February 18.
- 2015 *Probabilistic representations in language: between learning and processing*. Language and Cognition Lab, Stanford University, January 13.
- 2014 *Statistical prediction in language comprehension*. Wohl Institute for Advanced Imaging, Tel Aviv Sourasky Medical Center, Israel, June 2.
- 2014 *Prediction and competition as a window into linguistic representations*. Colloquium given at the Linguistics Department at Tel Aviv University, Israel, May 29.
- 2014 *Competition and prediction in language comprehension*. Language Processing Brown Bag, University of Illinois at Urbana-Champaign, April 10.

#### CONFERENCE AND WORKSHOP PRESENTATIONS WITHOUT PROCEEDINGS

---

- 2018 Tal Linzen & Brian Leonard. Agreement attraction does not depend on time pressure. Poster presentation, *31st Annual CUNY Conference on Human Sentence Processing*, Davis, California, March 15.
- 2018 Robert Frank, Tom McCoy & Tal Linzen. Neural network syntax in the age of deep learning: the case of question formation. Oral presentation, *Society for Computation in Linguistics*, Salt Lake City, Utah, January 5.

- 2018 Tal Linzen & Yohei Oseki. The reliability of acceptability judgments beyond English. Oral presentation at the Symposium “Understanding Judgment Data in Syntax and Semantics: Insights from Experimental Methodologies”, *Linguistic Society of America 2018 Annual Meeting*, Salt Lake City, Utah, January 5.
- 2017 Itamar Kastner and Tal Linzen. A morphosyntactic inductive bias in artificial language learning. Poster presentation, *48th Annual Meeting of the North East Linguistic Society (NELS 48)*, Reykjavík, Iceland, October 27-29.
- 2017 James White, René Kager, Tal Linzen, Giorgos Markopoulos, Alexander Martin, Andrew Nevins, Sharon Peperkamp, Krisztina Polgárdi, Nina Topintzi and Ruben van de Vijver. Preference for locality is affected by the prefix/suffix asymmetry: Evidence from artificial language learning. Oral presentation, *48th Annual Meeting of the North East Linguistic Society (NELS 48)*, Reykjavík, Iceland, October 27-29.
- 2017 Tal Linzen, Yoav Goldberg and Emmanuel Dupoux. Agreement attraction errors in neural networks. Poster presentation, *30th Annual CUNY Conference on Human Sentence Processing*, Cambridge, MA, March 30-April 1.
- 2016 Ewan Dunbar and Tal Linzen. Three important properties of Bayesian inference. Tutorial, *MFM Fringe Workshop on Computational Phonology*, Manchester.
- 2016 Tal Linzen. Variation and Change in the Hebrew Dative. Oral presentation, *The Second Usage-Based Linguistics Conference*, Tel Aviv, Israel, June 16.
- 2016 Tal Linzen, Timothy J. O'Donnell & Gillian Gallagher. Rapid phonotactic generalization: Behavioral evidence and a Bayesian model. Oral presentation, *Linguistic Society of America 2016 Annual Meeting*, Washington, D.C., January 6-10.
- 2016 Tal Linzen & Yohei Oseki. The reliability of acceptability judgments beyond English. Oral presentation, *Linguistic Society of America 2016 Annual Meeting*, Washington, D.C., January 6-10.
- 2015 Tal Linzen & Timothy J. O'Donnell. A model of rapid phonotactic generalization. Poster, *Workshop on Computational Phonology and Morphology at the Linguistic Summer Institute*, Chicago, July 11.
- 2014 Tal Linzen & Gillian Gallagher. The time course of phonotactic learning. Oral presentation, *Eighth Northeast Computational Phonology Meeting*, New York, November 15.
- 2014 Tal Linzen, Phoebe Gaston, Laura Gwilliams & Alec Marantz. Competition and prediction in the auditory processing of morphologically complex words. Poster, *Sixth Annual Society for the Neurobiology of Language Conference*, Amsterdam, August 27-29.
- 2014 Joseph King, Tal Linzen & Alec Marantz. Noun/verb entropy: An MEG study of word-level syntactic category ambiguity. Poster, *Sixth Annual Society for the Neurobiology of Language Conference*, Amsterdam, August 27-29.
- 2014 Tal Linzen & Gillian Gallagher. The time course of generalization in phonotactic learning. Member abstract presented as a poster, *36th Annual Conference of the Cognitive Science Society*, Québec, Canada, July 23-26.
- 2013 Maria Gouskova & Tal Linzen. Less than words: Morphological effects in lexical variation. Poster, *Phonology 2013*, Amherst, MA, November 8-10.

- 2013 Tal Linzen & Florian Jaeger. Uncertainty and surprisal in sentence processing. Poster, *Architectures and Mechanisms for Language Processing 2013*, Marseille, September 5-7.
- 2013 Tal Linzen, Joseph Fruchter, Masha Westerlund & Alec Marantz. Predicting the foreseeable future: MEG evidence for preactivation of predicted words. Poster, *20th Annual meeting of the Cognitive Neuroscience Society*, San Francisco, April 13-16.
- 2013 Allyson Ettinger, Tal Linzen & Alec Marantz. The role of morphology in phoneme prediction: Evidence from MEG. Poster, *20th Annual meeting of the Cognitive Neuroscience Society*, San Francisco, April 13-16.
- 2013 Tal Linzen, Joseph Fruchter, Masha Westerlund & Alec Marantz. Predicting the foreseeable future: MEG evidence for preactivation of predicted words. Oral presentation, *26th Annual CUNY Conference on Human Sentence Processing*, Columbia, SC, March 21-23.
- 2013 Allyson Ettinger, Tal Linzen & Alec Marantz. The role of morphology in phoneme prediction: Evidence from MEG. Poster, *26th Annual CUNY Conference on Human Sentence Processing*, Columbia, SC, March 21-23.
- 2012 Tal Linzen, Alec Marantz, & Liina Pykkänen. Syntactic effects in single word recognition: Evidence from MEG. Oral presentation, *Eighth Mental Lexicon Conference*, Montreal, October 24-26.
- 2012 Tal Linzen & Masha Westerlund. Predicting the foreseeable future: Do readers use collocational transition probability to predict upcoming words? Oral presentation, *Eighth Mental Lexicon Conference*, Montreal, October 24-26.
- 2012 Tal Linzen, Sonia Kasyanenko & Maria Gouskova. Lexical and phonological variation in Russian prepositions. Oral presentation, *Ninth Old World Conference in Phonology*, Berlin, January 18-21.
- 2011 Tal Linzen, Einat Shetreet & Naama Friedmann. Exploring the neural basis of dependency resolution using coordination sentences. Poster, *Third Annual Neurobiology of Language Conference*, Annapolis, MD, November 10-11.
- 2011 Einat Shetreet, Tal Linzen & Naama Friedmann. The effects of complement predictability on the processing of verbs' complementation options. Poster, *Third Annual Neurobiology of Language Conference*, Annapolis, MD, November 10-11.
- 2011 Einat Shetreet, Tal Linzen & Naama Friedmann. Are all complementation options activated when accessing the verb? Oral presentation, *Structuring the Argument*, Paris. September 5-7.
- 2010 Tal Linzen. Tracking the change in Hebrew possessive constructions using a blog corpus. Poster, *New Ways of Analyzing Variation 40*, Washington, D.C., October 27-30.
- 2010 Tal Linzen. Hebrew statistical linguistics using a morphologically analyzed blog corpus. Oral presentation, *Israeli Seminar on Computational Linguistics*, Tel Aviv, June 16.
- 2010 Tal Linzen. The Hebrew possessive dative: From affectedness to possession. Oral presentation, *Variation and Change in Argument Realization*, Naples, May 27-30.

## AWARDS

---

2012	Dean's Travel Grant, New York University
2010-2015	Henry M. MacCracken Fellowship, New York University
2008-2009	Graduate fellowship, Department of Linguistics, Tel Aviv University
2008	Excellence Prize, School of Mathematics, Tel Aviv University
2007	Excellence Prize, The Adi Lautman Interdisciplinary Program for Outstanding Students, Tel Aviv University
2005-2009	Fellowship, The Adi Lautman Interdisciplinary Program for Outstanding Students, Tel Aviv University

## TEACHING

---

### Classes at Johns Hopkins University:

Spring 2018	AS.050.819: Research Seminar in Psycholinguistics.
Fall 2017	AS.050.101: Cognition. AS.050.819: Research Seminar in Psycholinguistics.

### Classes at New York University:

2013	Psychology and Neural Science: <i>Math Tools for Cognitive Science and Neuroscience</i> . Teaching assistant for Nathaniel Daw.
2012	Linguistics: <i>Language</i> . Teaching assistant for Maria Gouskova.

### Classes at Tel Aviv University:

2008	Linguistics: <i>Foundations of Theoretical Linguistics</i> . Teaching assistant for Aya Meltzer and Lior Laks.
------	--

### Other:

2013	Statistics workshop, NYU Linguistics (six meetings on regression and mixed-effects modeling in R, co-taught with Sean Martin)
------	---

## ADVISING AND MENTORING

---

### Postdoctoral trainees:

2017-	Marten van Schijndel
-------	----------------------

### PhD advisees:

2017-	Grusha Prasad
2017-	Tom McCoy (co-advised with Paul Smolensky)

### PhD committee member:

2018-	Allyson Ettinger (University of Maryland, College Park)
-------	---

## SERVICE

---

### **Departmental committees at Johns Hopkins University:**

- 2017-present      Co-chair, colloquium committee.  
Fall 2017          Brown Bag organizer.

### **JHU Graduate Board Oral exams:**

- 2018              Chenxi Liu (JHU Computer Science)  
2017              Adi Renduchintala (JHU Computer Science)

### **Conference and workshop organizing:**

- 2018              Analyzing and interpreting neural networks for NLP, workshop to be collocated with Empirical Methods in Natural Language Processing (EMNLP), Brussels, Belgium, October 31 or November 1 (co-organizer).  
2018              Cognitive Modeling and Computational Linguistics, workshop co-located with the Society for Computational in Linguistics and the Linguistics Society of America, Salt Lake City, Utah, January 7 (co-organizer).  
2017              Cognitive Modeling and Computational Linguistics, workshop co-located with the Conference of the European Chapter of the Association for Computational Linguistics, Valencia, Spain (co-organizer).

### **Editorial responsibilities for conferences and meetings:**

- 2019              Area Chair (Language and Computation), European Summer School in Logic, Language and Information, Riga, Latvia.  
2018              Technical chair, 2018 Legrain conference: Learning Language in Humans and in Machines, Paris, France.  
2018              Area chair, COLING (International Conference on Computational Linguistics), Santa Fe, New Mexico.

### **Ad-hoc grant reviewing:**

- 2018              National Science Foundation.



**Ad-hoc journal and conference reviewing:**

- 2018 Association for Computational Linguistics (ACL); The CUNY Sentence Processing Conference; *Cognition*.
- 2017 Association for Computational Linguistics (ACL); Computational Natural Language Learning (CoNLL); Empirical Methods in Natural Language Processing (EMNLP); *Journal of Memory and Language*; *Language*; *Language, Cognition & Neuroscience*; *Neuroscience & Biobehavioral Reviews*; *PLOS Computational Biology*; Society for Computation in Linguistics (SCiL); Society for the Neurobiology of Language (SNL).
- 2016 *Brain and Language, Cognition* (x3); Computational Natural Language Learning (CoNLL); CUNY Sentence Processing Conference; Deutsche Gesellschaft für Sprachwissenschaft; Empirical Methods in Natural Language Processing (EMNLP); European Association for Computational Linguistics (EACL); *Frontiers in Human Neuroscience*; International Conference on Computational Linguistics (COLING); *Journal of Neuroscience*; Penn Linguistics Colloquium; Usage-Based Linguistics Conference; Society for the Neurobiology of Language (SNL).
- 2015 *Cortex*; Empirical Methods in Natural Language Processing (EMNLP); *Language, Cognition and Neuroscience, Phonology*; Israeli Association for Theoretical Linguistics.
- 2014 *Cognitive Science*; *Lingua*; Penn Linguistics Colloquium.
- 2013 *Phonology*; *Language and Cognitive Processes*; *The Mental Lexicon*.