

CONTACT INFORMATION	mobile: (954) 401-1400 e-mail: kmahowald@gmail.com web: http://web.stanford.edu/~kylemahoe/
RESEARCH INTERESTS	Computational psycholinguistics, cognitive science, NLP, statistical methods in the sciences, language and communication, language neuro-imaging, historical English, literature, meta-analysis
ACADEMIC WORK	Stanford University , Palo Alto, CA USA Postdoctoral Researcher, Computer Science 2019- <ul style="list-style-type: none">• Advisors: Dan Jurafsky, Dan McFarland
EDUCATION	Massachusetts Institute of Technology , Cambridge, MA USA Ph.D., Brain and Cognitive Sciences 2011-16 <ul style="list-style-type: none">• Advisor: Edward Gibson• Committee: Edward Gibson, Nancy Kanwisher, Joshua Tenenbaum• GPA: 5.0/5.0• Thesis: <i>Cognitive and Communicative Pressures in Natural Language</i> University of Oxford , Oxford, England UK M.Phil with Distinction, General Linguistics and Comparative Philology 2009-11 Marshall Scholar <ul style="list-style-type: none">• Advisors: Mary Dalrymple, Aditi Lahiri• Areas of Study (all with Distinction): history and structure of English, morphology, computational linguistics, general linguistics• Thesis: <i>An LFG Approach to Old English Constituent Order</i> (with Distinction) Harvard University , Cambridge, MA USA A.B. Summa Cum Laude, English 2005-09 <ul style="list-style-type: none">• Advisors: Daniel Donoghue, Marjorie Garber• GPA: 3.96/4.00• Thesis: <i>A Fairy's Tale: Queen Mab's Journey from Shakespeare to Modernity</i>
INDUSTRY EXPERIENCE	Algorithm Developer, Hudson River Trading , New York, NY USA 2016-2019 <ul style="list-style-type: none">• Performed research in natural language processing and quantitative finance, wrote production code for low latency trading algorithms in C++ and Python
FELLOWSHIPS AND GRANTS	<ul style="list-style-type: none">• NSF Doctoral Dissertation Improvement Grant (\$12,000) 2015-16• National Defense Science and Engineering Graduate Fellowship 2012-15• Henry E. Singleton Fund Fellowship 2011-12• Marshall Scholarship (1 of 40 selected nationally) 2009• Harvard College Research Fellowship 2008• National Merit Scholarship 2005-09• Robert Byrd Scholarship 2005-09

AWARDS

- Graduate Student Council Travel Grant 2014
- Angus MacDonald Award for Excellence in Undergraduate Teaching 2014
- AAAS/Science Program for Excellence in Science 2014
- CUNY 2013 Travel Award 2013
- Sigma Xi Scientific Research Society 2012
- Harvard Bowdoin Prize (Undergraduate Essay), \$10,000 2009
- Harvard Phi Beta Kappa Junior Electee, 1 of 24 elected as junior 2008
- John Harvard Scholar, top 5% in class 2006-09
- United States Presidential Scholar, 1 of 2 selected from each state 2005
- Youngest Sunday New York Times crossword constructor 2004

PUBLISHED JOURNAL ARTICLES

- E. Gibson, R. Futrell, S.T. Piantadosi, I. Dautriche, K. Mahowald, L. Bergen, R. Levy. 2019. How efficiency shapes human language. *Trends in Cognitive Science*.
- K. Mahowald, I. Dautriche, E. Gibson, S.T. Piantadosi. 2018 . Word forms are structured for efficient use. *Cognitive Science*. doi: 10.1111/cogs.12689.
- Z. Mineroff, I.A. Blank, K. Mahowald, E. Fedorenko. 2018. A robust dissociation among the language, multiple demand, and default mode networks: evidence from inter-region correlations in effect size. *Neuropsychologia*. doi: 10.1016/j.neuropsychologia.2018.09.011
- I. Dautriche*, K. Mahowald*, E. Gibson, S.T. Piantadosi. 2017. Words cluster phonetically beyond phonotactic regularities. *Cognition* 163: 128-145. doi: 10.1016/j.cognition.2017.02.001.
*co-first authors
- E. Gibson, C. Tan, R. Futrell, K. Mahowald, L. Konieczny, B. Hemfroth, E. Fedorenko. 2017. Dont underestimate the benefits of being misunderstood. *Psychological Science*: 1-10. doi: 10.1177/0956797617690277.
- E. Gibson, R. Futrell, J. Jara-Ettinger, K. Mahowald, L. Bergen, S. Ratnasingam, M. Gibson, S.T. Piantadosi, B.R. Conway. 2017. Color naming across languages reflects color use. *Proceedings of the National Academy of Sciences*. 114(40): 10785-10790.
- S. Ratnasingam, E. Gibson, R. Futrell, J. Jara-Ettinger, K. Mahowald, L. Bergen, S.T. Piantadosi, B. Conway. 2017. Statistical variations in the power spectrum of daylight over a day predict communicative efficiency of color-language. *Journal of Vision*. 17(10): 1171-1171.
- K. Mahowald, A. James, R. Futrell, E. Gibson. 2016. Structural priming is most useful when the conclusions are statistically robust. *Behavioral and Brain Sciences*, E302.
- I. Dautriche, K. Mahowald, E. Gibson, S.T. Piantadosi. 2016. Wordform similarity increases with semantic similarity: an analysis of 100 languages. *Cognitive Science*. doi: 10.1111/cogs.12453
- K. Mahowald, A. James, R. Futrell, E. Gibson. 2016. A meta-analysis of syntactic priming. *Journal of Memory and Language*, 91, 5-27.
- K. Mahowald, E. Fedorenko. 2016. Reliable individual-level neural markers of highlevel language processing: A necessary precursor for relating neural variability to behavioral and genetic variability. *Neuroimage*, 139, 74-93. doi: 10.1016/j.neuroimage.2016.05.073.
- I. Blank, E. Fedorenko, Z. Balewski, and K. Mahowald. 2016. Syntactic processing is distributed across the language network. *Neuroimage*, 127, 307-323.
- K. Mahowald, P. Graff, J. Hartman, and E. Gibson. 2016. SNAP Judgments: A Small N Acceptability Paradigm (SNAP) for Linguistic Acceptability Judgments. *Language*, 92 (3), 619-635.

R. Futrell, K. Mahowald, E. Gibson. 2015. Large-Scale Evidence of Dependency Length Minimization in 37 Languages. *Proceedings of the National Academy of Sciences*. 112 (33), 10336-10341. doi: 10.1073/pnas.1502134112

R. Singh, E. Fedorenko, K. Mahowald, E. Gibson. 2015. Presupposition accommodation is costly only in implausible contexts. *Cognitive Science*. Published online before print July, 2015. doi: 10.1111/cogs.12260

E. Gibson, P. Jacobson, P. Graff, E. Fedorenko, K. Mahowald, S.T. Piantadosi. 2014. A pragmatic account of complexity in definite Antecedent-Contained-Deletion relative clauses. *Journal of Semantics*. 32 (4): 579-618.

K. Mahowald and E. Gibson. 2013. Short, frequent words are more likely to appear genetically related by chance. Letter to *Proceedings of the National Academy of Sciences*.

K. Mahowald, E. Fedorenko, S.T. Piantadosi, and E. Gibson. 2013. [Info/information theory: speakers choose shorter words in predictive contexts](#). *Cognition*, 126, 313-318.

K. Mahowald. 2012. [A Naive Bayes Classifier for Shakespeare's second person pronoun](#). *Literary and Linguistic Computing*. 27 (1): 17-23. doi:10.1093/lle/fqr045

K. Mahowald. 2010. It may nat be: Chaucer, Derrida, and the Impossibility of the Gift. *Studies in the Age of Chaucer*. 32:129-150.

JOURNAL ARTICLES IN PROGRESS Mahowald, K., Isola, P., Fedorenko, E., Gibson, E., and Oliva, A. 2018. Memorable words are monogamous: The role of synonymy and homonymy in word recognition memory. PsyArXiv. 10.31234/osf.io/p6kv9.

CONFERENCE PROCEEDINGS R. Futrell, K. Mahowald, E. Gibson. 2015. Quantifying Word Order Freedom in Dependency Corpora. Proceedings of *Depling 2015*.

K. Mahowald. 2011. [An LFG Account of Word Order Freezing](#). In M. Butt and T. H. King, eds., Proceedings of the LFG11 Conference. Hong Kong: CSLI Publications: <http://www-csli.stanford.edu/publications>.

THESES K. Mahowald. 2011. An LFG Approach to Old English. Master's thesis. Oxford University.

K. Mahowald. 2009. A Fairy's Tale: Queen Mab's Journey from Shakespeare to Modernity. Harvard College.

REFEREED PRESENTATIONS K. Mahowald, A. James, R. Futrell, E. Gibson. 2016. A meta-analysis of syntactic priming in language production. Annual CUNY Conference on Human Sentence Processing, CUNY 2016. Gainesville, FL. March 3-5, 2016.

K. Mahowald, I. Dautriche, E. Gibson, A. Christophe, E. Gibson. 2014. Efficient phonological clustering in the mental lexicon. Ninth International Conference on the Mental Lexicon. Niagara-on-the-Lake, Ontario, Canada. September 30-October 2, 2014.

I. Dautriche, K. Mahowald, E. Gibson, A. Christophe, E. Gibson. 2014. Lexical clustering in efficient language design. AMLaP 2014 (Architectures and Mechanisms for Language Processing). Edinburgh, UK. September 3-6, 2014.

K. Mahowald, P. Graff, J. Hartman, E. Gibson. 2014. SNAP Judgments: Small N Acceptability Paradigm (SNAP) for linguistic judgments. AMLaP 2014 (Architectures and Mechanisms for Language Processing). Edinburgh, UK. September 3-6, 2014.

K. Mahowald, A. Jacobs, A. Fahimipour, M. Kleiman-Weiner. 2013. Measure for Measure: Quantifying Shakespearean Drama. Links 2013. MIT Media Lab. July 22-23, 2013.

K. Mahowald. 2011. An LFG Account of Word Order Freezing. Sixteenth International LFG Conference. Hong Kong. July 16-19, 2011.

REFEREED
POSTERS

- K. Mahowald, M. Kline, E. Fedorenko, E. Gibson. 2015. Informativity and efficient compression of sentences. Annual CUNY Conference on Human Sentence Processing, CUNY 2015. Los Angeles, CA. March 19-21, 2014.
- K. Mahowald, S.T. Piantadosi, M. Alper, E. Gibson. 2015. Lexical items are privileged slots for meaning. Annual CUNY Conference on Human Sentence Processing, CUNY 2015. Los Angeles, CA. March 19-21, 2014.
- R. Futrell, K. Mahowald, E. Gibson. 2014. CLIQS: Cross-Linguistic Investigations in Quantitative Syntax. AMLaP 2014 (Architectures and Mechanisms for Language Processing). Edinburgh, UK. September 3-6, 2014.
- K. Mahowald, P. Isola, E. Fedorenko, A. Oliva, E. Gibson. 2014. An information-theoretic account of word memorability. AMLaP 2014 (Architectures and Mechanisms for Language Processing). Edinburgh, UK. September 3-6, 2014.
- K. Mahowald, E. Fedorenko. Reliable individual-level neural markers of language activity. Neurobiology of Language 2014. Amsterdam. August 27-29, 2014.
- E. Gibson, P. Jacobson, P. Graff, K. Mahowald, E. Fedorenko, S.T. Piantadosi. Pragmatic influences on the processing of ACD relative clauses. 27th Annual CUNY Conference on Human Sentence Processing, CUNY 2014. Columbus, OH. March 13-15, 2014.
- R. Futrell, K. Mahowald, S.T. Piantadosi, E. Gibson. Efficient Communication Forwards and Backwards. 27th Annual CUNY Conference on Human Sentence Processing, CUNY 2014. Columbus, OH. March 13-15, 2014.
- K. Mahowald, S.T. Piantadosi, E. Gibson. 2013. Lexical clustering in efficient language design. 26th Annual CUNY Conference on Human Sentence Processing, CUNY 2013. Columbia, SC. March 22, 2013.
- K. Mahowald, T.J. O'Donnell, and J.B. Tenenbaum. 2013. Filling in the blanks in morphological productivity: a word completion task. 26th Annual CUNY Conference on Human Sentence Processing, CUNY 2013. Columbia, SC. March 23, 2013.
- K. Mahowald, E. Fedorenko, S.T. Piantadosi, E. Gibson. 2012. Info/information theory: speakers actively choose shorter word in predictive contexts. 25th Annual CUNY Conference on Human Sentence Processing, CUNY 2012. New York. March 16, 2012.

INVITED
PRESENTATIONS

- K. Mahowald. 2019. Cognitive and communicative pressures in natural language. Department of Linguistics and Department of Computer Science. McGill University. March 14, 2019.
- K. Mahowald. 2019. Cognitive and communicative pressures in language. School of Philosophy, Psychology, and Language Sciences. Edinburgh University. February 28, 2019.
- K. Mahowald. 2019. Cognitive and communicative pressures in language. Department of Linguistics. University of Florida. February 5, 2019.
- K. Mahowald. 2019. Cognitive and communicative pressures in language. Department of Linguistics. Northwestern University. January 31, 2019.
- K. Mahowald. 2015. Four mini-talks in psycholinguistics. CogLunch. Department of Brain and Cognitive Sciences. MIT. May 12, 2015.
- K. Mahowald. 2014. Efficient structure in the lexicon. Mini-Symposium on the Neural and Cognitive Mechanisms of Language. Department of Psychology. Harvard University. December 4, 2014.

- K. Mahowald. 2014. Efficient lexical structure. Department of Brain and Cognitive Sciences. Invited Talk. University of Rochester. October 3, 2014.
- K. Mahowald. 2014. Learning and organizational structure of the lexicon. Stanford Language and Cognition Lab Meeting. Stanford University. May 13, 2014.
- K. Mahowald, A. Jacobs, A. Fahimipour, E. Pechenick, M. Kleiman-Weiner. 2013. Measure for Measure: Quantifying Shakespeare. Santa Fe Complex Systems Summer School. Santa Fe Institute. June 28, 2013.
- K. Mahowald. 2013. Finding structure in the lexicon. CogLunch. MIT. April 9, 2013.
- K. Mahowald. 2013. Efficient lexical design. Tedlab Lab Meeting. MIT. April 8, 2013.
- M. Frank, K. Mahowald, and E. Gibson. 2012. Syntactic and lexical alternations in noisy environments. MIT Summer Research Program, 2012.
- K. Mahowald. 2011. Computationally classifying the second person pronoun in Early Modern English. Tedlab Lab Meeting. MIT. October 4, 2011.
- K. Mahowald. 2011. Word order freezing in Old English. Oxford Syntax Working Group. Oxford. February 23, 2011.
- K. Mahowald. 2010. Verb clusters in Old English. 3rd South of England LFG Meeting. SOAS, London. October 23, 2010.

TEACHING

Massachusetts Institute of Technology

- Teaching assistant, MIT 9.59 Lab in Psycholinguistics 2014
 - Received perfect student evaluations.
 - Refined statistics curriculum developed in 2013.
 - Held regular lectures instructing students in R and statistics.
- Teaching assistant, MIT 9.59j Lab in Psycholinguistics 2013
 - Designed and taught data analysis section of lab course. Held regular lectures instructing students in R and statistics.
 - Helped students design, run, and analyze their own psycholinguistics experiments.
 - Won Angus McDonald Award for Undergraduate Teaching.
- Guest lecturer 2011-16
 - ‘Language and information’, MIT 9.012, Spring 2015
 - ‘Sound Structure and Communication’, MIT 9.012 Cognitive Science (graduate class), Spring 2013
 - ‘Language and Information Theory’, MIT 9.59j Lab in Psycholinguistics, Spring 2013
 - ‘Introduction to Language’, MIT 9.65 Cognitive Processes, Spring 2013
- Research supervisor 2011-
 - Supervised student for MIT Summer Research Program, 2012
 - Supervised ~ 5 students for UROP (MIT’s undergraduate research program)
 - Instructed and advised students in research methods, experimental design, and writing.

SERVICES AND ORGANIZATIONS

Fellowship services

- Reader, Marshall Scholarship Selection Committee, Boston Region
- Member, MIT Distinguished Fellowship Committee
- Volunteer fellowships panelist, Harvard Office of Career Services

Invited reviewer

- *Science*
- *Journal of Experimental Psychology: Learning, Memory, and Cognition*

- *Open Mind*
- *Journal of Memory and Language*
- *Topics in Cognitive Science*
- *Cognition*
- *Literary and Linguistic Computing*
- *Cogsci* conference
- *CUNY Sentence Processing Conference 2017, 2018*
- *Events in Language and Cognition 2016*

Department

- 2012-2013 CogLunch Organizer for MIT Brain and Cognitive Sciences

NON-ACADEMIC POSITIONS

- Freelance puzzle construction, published in NYT, WSJ, LA Times, GAMES Magazine, Universal Press Syndicate, Chicago Tribune, etc., 2004-
- Spirit Airlines in-flight crossword constructor, 2004-2010
- Founder and President of Harvard College Crossword Society, 2007-2009
- Co-chair of Boston Crossword Tournament, over 200 participants, 2009
- Co-chair of Harvard Crossword Tournament, over 100 participants, 2009
- Treasurer of Harvard Lifestyle Improvement and Fitness Education, mentored inner-city students in fitness and health, 2007
- Peer Advising Fellow, mentored incoming freshmen, 2006-2007
- Assistant to New York Times crossword editor Will Shortz, 2006
- Research assistant, Advanced Medical Treatment Centers, 2005

COMPUTER EXPERTISE

R, Python, Stan, C++, UNIX tools, Amazon Mechanical Turk, L^AT_EX, git

LANGUAGES

English (native), Spanish (good), French (basic), Middle English (reading), Old English (reading)

REFERENCES

Professor Edward Gibson

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Professor Evelina Fedorenko

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