

# Gabriel Doyle

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## Research Interests

My research focuses on incompletely understood processes in language learning and processing. How do humans learn language, how do they represent it in their minds, and how do they use these representations? Should language be viewed as a natural outgrowth of humans' general cognitive abilities, or are there processes specific to language at work? I investigate these questions by building computational models of acquisition and usage as well as performing experimental and corpus-based studies on processing and production. I also apply such methods to questions in natural language processing, such as topic modelling or multimodal learning.

## Education

Ph.D. Linguistics, UC San Diego, 2014 (expected).

Dissertation: *Rational learner models for two problems in language acquisition*

Committee: Roger Levy (chair), Andrew Kehler, Rachel Mayberry, Charles Elkan, Dave Barner

C. Phil., Linguistics, UC San Diego, 2011.

M.A., Linguistics, UC San Diego, 2011.

Thesis: *Determinants of variation in the "needs doing" alternation*

Committee: Roger Levy (chair), Grant Goodall, Andrew Kehler

A.B., Mathematics, Princeton University, 2005.

Dissertation: *Calculating the Knot Floer Homology of  $(1,1)$  Knots*

Advisor: Jacob Rasmussen

## Research

### Peer-Reviewed Publications and Proceedings

Doyle, G. (2014). Mapping dialectal variation by querying social media. To appear in the *Proceedings of the 14th Conference of the European Chapter of the Association for Computational Linguistics*. [[pdf](#)]

Doyle, G. and Levy, R. (2013). Combining multiple information types in Bayesian word segmentation. *Proceedings of the 2013 Human Language Technology Conference of the North American Chapter of the Association for Computational Linguistics (NAACL-HLT)*. [[pdf](#)]

Costa Pereira, J., Coviello, E., Doyle, G., Rasiwasia, N., Lanckriet, G., Levy, R., and Vasconcelos, N. (2013). On the role of correlation and abstraction in cross-modal multimedia retrieval. To appear in *IEEE Transactions on Pattern Analysis and Machine Intelligence*. [[doi](#)]

Rasiwasia, N., Costa Pereira, J., Coviello, E., Doyle, G., Lanckriet, G., Levy, R., and Vasconcelos, N. (2010). A new approach to cross-modal multimedia retrieval. *ACM Proceedings of the 18th International Conference on Multimedia*, 251–260. [[pdf](#)]

Doyle, G. and Elkan, C. (2009). Financial topic models. *Working Notes of the NIPS-2009 Workshop on Applications for Topic Models: Text and Beyond*. [[pdf](#)]

Doyle, G. and Elkan, C. (2009). Accounting for burstiness in topic models. *Proceedings of the 26th International Conference on Machine Learning*. [pdf]

Doyle, G. and Levy, R. (2008). Environment prototypicality effects on syntactic alternation. *Proceedings of the 34th Annual Meeting of the Berkeley Linguistics Society*. [pdf]

### *Papers Under Review*

Doyle, G., Bicknell, K., and Levy, R. Nonparametric learning of phonological constraints in Optimality Theory. Submitted to the *52nd Annual Meeting of the Association for Computational Linguistics*. [pdf]

### *Peer-Reviewed Presentations*

Doyle, G. (2014). Mapping linguistic phenomena on Twitter and other “big data” sources. Talk at the *2014 Annual Meeting of the Linguistic Society of America*.

Doyle, G. and Levy, R. (2012). Word-order uncertainty induces alternative, non-veridical structures in online comprehension. Poster at the *2012 CUNY Conference on Human Sentence Processing*.

Doyle, G. and Levy, R. (2011). A log-linear model of language acquisition with multiple cues. Talk at the *2011 Annual Meeting of the Linguistic Society of America*.

Doyle, G. and Levy, R. (2010). A puzzle regarding relative pronoun choice: when frequency and difficulty disagree. Poster at the *2010 CUNY Conference on Human Sentence Processing*.

Doyle, G. and Levy, R. (2008). Mixed categories and gradient grammatical constraints. Poster at the *2008 Annual Meeting of the Linguistic Society of America*.

Loomis, G., and Doyle, G. (2007). Durational differences of /s/ at prosodic boundaries. Talk at the *2007 Western Conference on Linguistics*.

## Fellowships and Awards

Vandeloise Fellowship, UCSD Linguistics, 2013

Best Student Paper, ACM Multimedia Conference, 2010

Pre-Doctoral Fellowship, UCSD Center for Research in Language, 2008

TA Excellence Award, UCSD Linguistics, 2008

## Teaching Experience

Teaching Assistant, Linguistics 17: Making and Breaking Codes (Prof. Andrew Kehler), UCSD, Winters 2008 & 2012

Teaching Assistant, Linguistics 110: Phonetics (Prof. Amalia Arvaniti), UCSD, Fall 2007

Math Tutor, Bellevue Learning Center, 2006

Grader, Math 204: Adv. Linear Algebra with Applications, Princeton U., Spring 2003

## Professional Activities

At-large Reviewer for:

Journal of Zhejiang University, Science A

18th International Congress of Linguists (CIL18)

## Professional Activities (continued)

### Departmental service:

Faculty Meeting Representative, 2009–2010

Admissions Committee, 2008–2009

Organizing Committee for Western Conference on Linguistics, 2007

External Relations Committee, 2006–2008

### Memberships:

Linguistic Society of America, 2007–present

American Association for the Advancement of Science, 2008–present

Association for Computational Linguistics, 2013–present