

## Bozena Pajak

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Citizenship: Polish; U.S. Permanent Resident

### Professional Positions

2015– Learning Scientist, Duolingo, Inc.

2014–2015 Research Associate & Lecturer, Department of Linguistics, Northwestern University

2012–2014 Postdoctoral Fellow, Center for Language Sciences, Department of Brain & Cognitive Sciences, University of Rochester

### Education

Ph.D. Linguistics, University of California, San Diego, 2012  
*Thesis:* Inductive Inference in Non-Native Speech Processing and Learning  
*Committee:* Eric Baković (co-chair), Roger Levy (co-chair), Sarah C. Creel, Victor Ferreira, Tamar Gollan, Sharon Rose

Linguistic Society of America Summer Institute, University of California, Berkeley, 2009

M.A. Linguistics, University of California, San Diego, 2008

M.A. Sociology, Jagiellonian University (Kraków, Poland), 2006

M.A. International Relations, Jagiellonian University (Kraków, Poland), 2005

### Honors and Awards

University of Rochester Center for Language Sciences NIH Post-Doctoral Fellowship: 2012-2013, 2013-2014

UC San Diego Center for Research in Language NIH Pre-Doctoral Fellowship: 2010-2011, 2011-2012

E. Bates Graduate Research Award from the UC San Diego Center for Research in Language: 2011

UC San Diego Dean of Social Sciences Travel Fund Award: 2010, 2011

UC San Diego Department of Linguistics TA Excellence Award: 2009, 2010

Linguistic Society of America Summer Institute Fellowship: 2009

UC San Diego Department of Linguistics Research and Travel Grant Award: 2007-2012 (yearly award)

Jagiellonian University Scholarship to complete a study abroad program at L'Institut d'Études Politiques de Bordeaux: 2005

Sapere Auso Foundation Award for exceptional educational activity: 2004

Antioch College & Jagiellonian University Scholarship to complete a study abroad program at Antioch College: 2002

Jagiellonian University Scholarship for excellent academic achievements: 2001-2004

### Publications

- submitted **Pajak, Bozena**, Clinton Bicknell, & Roger Levy. “Analogical reuse of newly learned phonetic categories: a computational model and experimental investigation.” Submitted to *Cognitive Science*.
- 2016 **Pajak, Bozena**, Sarah C. Creel, & Roger Levy. “Difficulty in learning similar-sounding words: a developmental stage or a general property of learning?” *Journal of Experimental Psychology: Learning, Memory, and Cognition*.
- 2016 **Pajak, Bozena**, Alex B. Fine, Dave Kleinschmidt, & T. Florian Jaeger. “Learning additional languages as hierarchical inference: insights from first language processing.” *Language Learning*.
- 2014 **Pajak, Bozena** & Roger Levy. “The role of abstraction in non-native speech perception.” *Journal of Phonetics*, 46. 147–160.
- 2013 **Pajak, Bozena**, Clinton Bicknell, & Roger Levy. “A model of generalization in distributional learning of phonetic categories.” In *Proceedings of the 4th Workshop on Cognitive Modeling and Computational Linguistics* (CMCL 2013). Sofia, Bulgaria: Association for Computational Linguistics.
- 2013 **Pajak, Bozena**. “Non-intervocalic geminates: typology, acoustics, perceptibility.” In L. Carroll, B. Keffala, & D. Michel (Eds.), *San Diego Linguistics Papers 4* (pp. 2–27). San Diego, CA: UC San Diego.
- 2012 **Pajak, Bozena**, Sarah C. Creel, & Roger Levy. “Can native-language perceptual bias facilitate learning words in a new language?” In N. Miyake, D. Peebles, & R. P. Cooper (Eds.), *Proceedings of the 34th Annual Conference of the Cognitive Science Society* (pp. 2174–2179). Austin, TX: Cognitive Science Society.
- 2012 **Pajak, Bozena** & Roger Levy. “Distributional learning of L2 phonological categories by listeners with different language backgrounds.” In A. K. Biller, E. Y. Chung, & A. E. Kimball (Eds.), *Proceedings of the 36th Boston University Conference on Language Development* (BUCLD) (pp. 400–413). Somerville, MA: Cascadilla Press. (18% acceptance rate)
- 2011 **Pajak, Bozena** & Roger Levy. “How abstract are phonological representations? Evidence from distributional perceptual learning.” In *Proceedings of the 47th Annual Meeting of the Chicago Linguistic Society* (CLS). Chicago, IL: University of Chicago. (22.5% acceptance rate)
- 2011 **Pajak, Bozena** & Roger Levy. “Phonological generalization from distributional evidence.” In L. Carlson, C. Hölscher, & T. Shipley (Eds.), *Proceedings of the 33rd Annual Conference of the Cognitive Science Society* (pp. 2673–2678). Austin, TX: Cognitive Science Society. (32% acceptance rate)
- 2010 **Pajak, Bozena** & Eric Baković. “Assimilation, antigemination, and contingent optionality: the phonology of monoconsonantal proclitics in Polish.” *Natural Language and Linguistic Theory*, 28(3). 643–680.
- 2010 **Pajak, Bozena**. “Perceptual advantage from generalized linguistic knowledge.” In S. Ohlsson & R. Catrambone (Eds.), *Proceedings of the 32nd Annual Conference of the Cognitive Science Society* (pp. 369–374). Austin, TX: Cognitive Science Society.
- 2010 **Pajak, Bozena**. “Contextual constraints on geminates: the case of Polish.” In *Proceedings of the 35th Annual Meeting of the Berkeley Linguistics Society* (BLS) (pp. 269–280). Berkeley, CA: University of California, Berkeley.

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### Publications (continued)

- 2007 **Pajak, Bozena**. “Polish clitics: consequences for the analysis of optionality in OT.” In *Proceedings of the 37th Western Conference on Linguistics (WECOL)* (pp. 173–188). San Diego, CA: University of California, San Diego. (26% acceptance rate)
- 2006 Rubio, Manuel & **Pajak, Bozena**. “Fibonacci numbers using mutual recursion.” In *Proceedings of Koli Calling 2005: 5th Annual Finnish/Baltic Sea Conference on Computer Science Education* (pp. 174–177). Finland: TUCS General Publications.

### Invited Presentations

- 2016 Invited keynote talk at the Vanderbilt University Fall Orientation Event. Nashville, TN. (August)
- 2015 “Phonetic category learning with implicit expectations about analogous categories.” Invited talk at the University of Pittsburgh Linguistics Colloquium. Pittsburgh, PA. (November)
- 2015 “Second language acquisition: generalization in morphological learning” Invited talk at the Northwestern University Undergraduate Research Forum. Chicago, IL. (May)
- 2014 “Phonetic category learning with implicit expectations about analogous categories.” Invited talk at the Northwestern University Linguistics Colloquium. Chicago, IL. (November)
- 2014 “Phonetic category learning with implicit expectations about analogous categories.” Invited talk at the Stanford Psychology Cognitive Area talk series. Palo Alto, CA. (May)
- 2013 “Modeling generalization in distributional learning of phonetic categories.” Invited talk at the UCLA Psycholinguistics Seminar (PsychoBabble). Los Angeles, CA. (January)
- 2012 “The role of inductive inference in non-native speech processing.” Invited talk at the Center for Language Sciences (CLS), University of Rochester. Rochester, NY. (April)

### Conference Presentations

- 2015 **Pajak, Bozena**. “Analogy in learning second-language phonetic categories.” Oral presentation at the 37th Annual Meeting of the Cognitive Science Society. Pasadena, CA. (July)
- 2014 **Pajak, Bozena**, Page Piccinini, & Roger Levy. “Perceptual warping of phonetic space applies beyond known phonetic categories: evidence from the perceptual magnet effect.” Poster presentation at the 168th Meeting of the Acoustical Society of America (ASA). Indianapolis, IN. (October)
- 2013 K. Michael Brooks, **Bozena Pajak**, & Eric Baković. “Learning biases for phonological interactions.” Poster presentation at Phonology 2013. Amherst, MA. (November)
- 2013 **Pajak, Bozena**, Clinton Bicknell, & Roger Levy. “A computational model of generalization in phonetic category learning.” Oral presentation at the 38th Boston University Conference on Language Development (BUCLD). Boston, MA. (November)
- 2013 **Pajak, Bozena**, Clinton Bicknell, & Roger Levy. “A model of generalization in distributional learning of phonetic categories.” Oral presentation at the 4th Workshop on Cognitive Modeling and Computational Linguistics (CMCL 2013). Sofia, Bulgaria. (August)

### Conference Presentations (continued)

- 2013 **Pajak, Bozena**, Klinton Bicknell, & Roger Levy. "A computational model of generalization in distributional learning: the role of phonetic variability across segment classes." Poster presentation at the 2013 Linguistic Institute Workshop on Variation in the Acquisition of Sound Systems. Ann Arbor, MI. (June)
- 2013 **Pajak, Bozena** & Roger Levy. "Distributional learning of non-native phonetic categories: the role of talker variability." Oral presentation at the 87th Annual Meeting of the Linguistic Society of America. Boston, MA. (January)
- 2013 K. Michael Brooks, **Bozena Pajak**, & Eric Baković. "Learnability of complex phonological interactions: an artificial language learning experiment." Oral presentation at the 87th Annual Meeting of the Linguistic Society of America. Boston, MA. (January)
- 2012 **Pajak, Bozena**, Sarah C. Creel, & Roger Levy. "Can native-language perceptual bias facilitate learning words in a new language?" Poster presentation at the 34th Annual Meeting of the Cognitive Science Society. Sapporo, Japan. (August)
- 2012 **Pajak, Bozena**, Sarah C. Creel, & Roger Levy. "Adults take advantage of fine phonetic detail when learning words in a novel language." Oral presentation at the 86th Annual Meeting of the Linguistic Society of America. Portland, OR. (January)
- 2011 **Pajak, Bozena** & Roger Levy. "Distributional learning of L2 phonological categories by listeners with different language backgrounds." Oral presentation at the 36th Boston University Conference on Language Development (BUCLD). Boston, MA. (November)
- 2011 **Pajak, Bozena** & Roger Levy. "Phonological generalization from distributional evidence." Oral presentation at the 33rd Annual Meeting of the Cognitive Science Society. Boston, MA. (July)
- 2011 **Pajak, Bozena** & Roger Levy. "How abstract are phonological representations? Evidence from distributional perceptual learning." Oral presentation at the 47th Annual Meeting of the Chicago Linguistic Society (CLS). Chicago, IL. (April)
- 2010 **Pajak, Bozena**. "Bilinguals generalize from known phonological contrasts in perception of a novel language." Poster presentation at the 51st Annual Meeting of the Psychonomic Society. St. Louis, MO. (November)
- 2010 **Pajak, Bozena**. "Perceptual advantage from generalized linguistic knowledge." Oral presentation at the 32nd Annual Meeting of the Cognitive Science Society. Portland, OR. (August)
- 2010 **Pajak, Bozena**. "L2 knowledge facilitates perception of L3." Oral presentation at the 84th Annual Meeting of the Linguistic Society of America. Baltimore, MD. (January)
- 2009 **Pajak, Bozena**. "Perception of Moroccan Arabic geminates by native English speakers." Poster presentation at the 2nd Acoustical Society of America Special Workshop on Speech: Cross-language speech perception and variations in linguistic experience. Portland, OR. (May)
- 2009 **Pajak, Bozena**. "Contextual constraints on geminates: the case of Polish." Oral presentation at the 35th Annual Meeting of the Berkeley Linguistics Society (BLS). Berkeley, CA. (February)
- 2009 **Pajak, Bozena**. "Context-dependent perception of geminates." Poster presentation at the 83rd Annual Meeting of the Linguistic Society of America. San Francisco, CA. (January)
- 2008 **Pajak, Bozena**. "Perception of sibilant geminates by non-native listeners." Oral presentation at the Southern California Workshop on Phonetics/Phonology. Pomona College, CA. (November)

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### Conference Presentations (continued)

- 2008 Baković, Eric & **Pajak, Bozena**. “Why and how not to counterbleed.” Oral presentation at the Workshop on Phonological Variation in Voicing. Amsterdam, The Netherlands. (September)
- 2008 Baković, Eric & **Pajak, Bozena**. “Contingent optionality.” Oral presentation at the Annual Meeting of the Linguistic Society of America. Chicago, IL. (January)
- 2007 **Pajak, Bozena**. “Polish clitics: consequences for the analysis of optionality in OT.” Oral presentation at the 37th Western Conference on Linguistics (WECOL). San Diego, CA. (December)

### Teaching Experience

#### *Lecturer*

Cognitive Science Program, Northwestern University	
COGSCI 366: Cognitive Science Proseminar	Spring-15
Department of Linguistics, Northwestern University	
LING 250: Sound Patterns in Human Language	Winter-15
LING 321: Bilingualism	Fall-14
LIGN 111: Phonology	Winter-11

#### *Guest Lecturer*

Department of Linguistics, Northwestern University	
LING 334: Introduction to Computational Linguistics	May, 2014
Two lectures on “Good programming practices”	
Department of Brain & Cognitive Sciences, University of Rochester	
BCS 111: Foundations of Cognitive Science	February, 2014
Lecture on “Language acquisition”	
BCS 259: Language Development	April, 2013
Lecture on “Bilingual first language acquisition”	
HLP Lab Undergraduate Research Assistant Reading Group	April, 2013
Lecture on “Second language acquisition”	
BCS 152: Language & Psycholinguistics	November, 2012
Lecture on “Multilingualism”	

#### *Head Teaching Assistant, Linguistics Language Program, UC San Diego*

Developing materials & supervising instructors of	
LISP 1BX: Analysis of Spanish	Fall-08, Fall-09
LISP 1CX: Analysis of Spanish	Winter-09, Spring-09, Winter-10, Spring-10
LISP 1DX: Analysis of Spanish	Fall-08, Spring-09, Fall-09, Spring-10

#### *Teaching Assistant*

Department of Linguistics, UC San Diego	
LIGN 111: Phonology	Winter-10
Antioch College, Yellow Springs, OH	
Spanish	Fall-02

## Teaching Experience (continued)

*Language Instructor*, Linguistics Language Program, UC San Diego

LISP 1BX: Analysis of Spanish

Fall-06, Winter-07

LISP 1CX: Analysis of Spanish

Spring-07, Winter-08

LISP 1DX: Analysis of Spanish

Fall-07, Spring-08

## Academic Service

### Reviewing

#### Journal Papers

*Applied Psycholinguistics*

*Bilingualism: Language and Cognition*

*Cognitive Development*

*Infant and Child Development*

*Journal of Experimental Psychology: Language, Memory, and Cognition*

*Journal of Phonetics*

*Language and Cognitive Processes*

*Language and Speech*

*Lingua*

*Phonology*

#### Conference Papers

*Annual Conference of the Cognitive Science Society*

*Cognitive Modeling and Computational Linguistics Workshop (CMCL)*

*Transactions on Large-Scale Data and Knowledge-Centered Systems (TLDKS)*

#### Abstracts

*Annual Meeting of the Linguistic Society of America*

*Language and Cognitive Processes Special Issue – Laboratory in the Field:*

*Advances in Cross-Linguistic Psycholinguistics*

#### Grant Proposals

*National Science Center, Poland*

*National Science Foundation*

### Conference Organization

2007: Western Conference on Linguistics (WECOL), UC San Diego

## Memberships

Linguistic Society of America, 2006–

Cognitive Science Society, 2010–

Association for Psychological Science, 2012–

Association for Computational Linguistics, 2013–

Acoustical Society of America, 2014–2015

American Association for Applied Linguistics, 2016–

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## Undergraduate Mentorship

Undergraduate Research Assistants, Northwestern University

Alexandra Saldan, Fall 2014 – Winter 2015

Victoria Kuritza, Fall 2014 – Winter 2015

Undergraduate Research Assistants, University of Rochester

Christina Rutherford, Summer 2013 – Fall 2013

Linda Tran, Spring 2013

Donias Doko, Fall 2012 – Spring 2013

Levan Bokeria, Fall 2012

Keyu Song, Fall 2012

Undergraduate Research Assistants, UC San Diego (official supervisors: Eric Baković & Roger Levy)

Hannah Byers-Straus, Fall 2011 – Spring 2012

K. Michael Brooks, Winter 2011 – Spring 2012

Nicole Pyon, Winter 2011 – Spring 2011

Rafi Feliciano, Fall 2010, Fall 2011 – Winter 2012

Annabelle Cadang, Fall 2010

Ryan Short, Spring 2010

Christopher Gaudiot, Fall 2008

Rachel O’Sullivan, Fall 2008

## Computer Skills

R, Python, JavaScript, C, C++, Racket, HTML/CSS, Praat, MATLAB, L<sup>A</sup>T<sub>E</sub>X

## Languages

Polish – native

English – fluent

Spanish – fluent

French – fairly fluent

Italian – conversational

Arabic (Modern Standard & Egyptian) – basic knowledge

German – basic knowledge

Brazilian Portuguese – basic knowledge

Turkish – beginner

Russian – familiarity with the alphabet, basic vocabulary

Somali – field methods research

Last updated: April 19, 2016