# John Sylak-Glassman

#### Curriculum Vitae

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3400 North Charles Street
Baltimore, MD 21218-2608

# **Professional Experience**

Postdoctoral Fellow, Johns Hopkins University

rsity June 2014 - Present

Center for Language and Speech Processing; PI: David Yarowsky

#### Education

Ph.D., Linguistics, University of California, Berkeley

May 2014

Dissertation: Deriving natural classes: The phonology and typology of post-velar consonants Committee: Sharon Inkelas (Chair), Andrew Garrett, Keith Johnson, Darya Kavitskaya

M.A., Linguistics, University of California, Berkeley

May 2010

B.A. with General Honors, Linguistics with Honors, University of Chicago

June 2008

Honors Thesis: Lak verbal morphology. Advisor: Victor Friedman.

Minor: Slavic Languages & Literatures (Russian)

## Awards

Best Student Abstract Award, Linguistic Society of America 2013 Annual Meeting Sept. 2012

National Science Foundation Graduate Research Fellowship Program (NSF GRFP) - Apr. 2010

Honorable Mention

Phi Beta Kappa, Beta Illinois - University of Chicago Chapter (inducted as third-year undergraduate) Apr. 2007

Dean's List, University of Chicago (all years attended) 2004 - 2008

# Grants and Fellowships

Foreign Language and Area Studies Fellowship (stipend plus tuition, fees, and benefits)

June 2013

Robert L. Oswalt Graduate Student Support Endowment for Endangered Language Documentation Dec. 2012

(for Ditidaht Language Documentation Project)

Graduate Division Summer Grant (for Ditidaht Language Documentation Project)

Apr. 2012

Robert L. Oswalt Graduate Student Support Endowment for Endangered Language Documentation Dec. 2011

(for Ditidaht Language Documentation Project)

Dean's Normative Time Fellowship (stipend plus tuition, fees, and benefits)

June 2011

Graduate Division Summer Grant (for Máíjiki Language Documentation Project)

Apr. 2011

Diebold Linguistics Graduate Fellowship (stipend plus non-resident tuition, fees, and benefits for June 2008

first year of graduate school)

Beinecke Brothers Foundation Scholarship (supplemental support for graduate school)

Apr. 2007

Whirlpool Sons & Daughters Scholarship (support for college)

Apr. 2004

#### **Publications**

- RYAN COTTERELL; CHRISTO KIROV; **JOHN SYLAK-GLASSMAN**; DAVID YAROWSKY; JASON EISNER; and MANS HULDEN. 2016. "The SIGMORPHON 2016 Shared Task—Morphological Reinflection." *Proceedings of the 14th Annual SIGMORPHON Workshop on Computational Research in Phonetics, Phonology, and Morphology*, pp. 10-22. Berlin: Association for Computational Linguistics.
- SYLAK-GLASSMAN, JOHN; CHRISTO KIROV; and DAVID YAROWSKY. 2016. "Remote Elicitation of Inflectional Paradigms to Seed Morphological Analysis in Low-Resource Languages." *Proceedings of the 10th International Conference on Language Resources and Evaluation (LREC 2016)*, pp. 3116-3120. Portorož, Slovenia: European Language Resources Association (ELRA).
- KIROV, CHRISTO; **JOHN SYLAK-GLASSMAN**; ROGER QUE; and DAVID YAROWSKY. 2016. "Very-Large Scale Parsing and Normalization of Wiktionary Morphological Paradigms." *Proceedings of the 10th International Conference on Language Resources and Evaluation (LREC 2016)*, pp. 3121-3126. Portorož, Slovenia: European Language Resources Association (ELRA).
- SYLAK-GLASSMAN, JOHN. In press (2016). "Contrastive Morphological Typology and Logical Hierarchies." Proceedings of the 52nd Annual Meeting of the Chicago Linguistic Society. Chicago Linguistic Society.
- Sylak-Glassman, John. In press (2015). "Deriving Natural Classes Using Phonological Entailments." Proceedings of the 51st Annual Meeting of the Chicago Linguistic Society. Chicago: Chicago Linguistic Society.
- SYLAK-GLASSMAN, JOHN and KIROV, CHRISTO; MATT POST; ROGER QUE; and DAVID YAROWSKY. 2015. "A Universal Feature Schema for Rich Morphological Annotation and Fine-Grained Cross-Lingual Part-of-Speech Tagging." Proceedings of the Fourth International Systems and Frameworks for Computational Morphology Conference (SFCM), pp. 72-93. Berlin: Springer.
- SYLAK-GLASSMAN, JOHN; CHRISTO KIROV; DAVID YAROWSKY; and ROGER QUE. 2015. "A Language-Independent Feature Schema for Inflectional Morphology." Proceedings of the 53rd Annual Meeting of the Association for Computational Linguistics and The 7th International Joint Conference of the Asian Federation of Natural Language Processing (ACL-IJCNLP 53), pp. 674-680. Beijing: Association for Computational Linguistics.
- SYLAK-GLASSMAN, JOHN. 2014. "The Effects of Post-Velar Consonants on Vowels in Ditidaht." Papers from the 49th Annual International Conference on Salish and Neighbouring Languages ed. by Natalie Weber, Emily Sadlier-Brown, and Erin Guntly, pp. 17-38. Vancouver: University of British Columbia Working Papers in Linguistics.
- SYLAK-GLASSMAN, JOHN. 2014. "An Emergent Approach to the Guttural Natural Class." In Supplemental Proceedings of Phonology 2013, ed. by John Kingston, Claire Moore-Cantwell, Joe Pater, and Robert Staubs. Washington, DC: Linguistic Society of America.
- SYLAK-GLASSMAN, JOHN. 2013. Review of Writing Quechua: The Case For a Hispanic Orthography by David J. Weber. International Journal of American Linguistics 79(4): 580-582.
- SYLAK-GLASSMAN, JOHN. 2013. "Affix Ordering in Imbabura Quichua." In Structure and Contact in Languages of the Americas, Survey Reports, Vol. 15, ed. by John Sylak-Glassman and Justin Spence, 311-335. Berkeley, CA: Survey of California and Other Indian Languages.

- SYLAK, JOHN. 2013. "Pharyngealization in Chechen is Gutturalization." In *Proceedings of the 37th Annual Meeting of the Berkeley Linguistics Society*, ed. by Chundra Cathcart, Shinae Kang, and Clare S. Sandy, pp. 81-95. Berkeley, CA: Berkeley Linguistics Society and Washington, DC: Linguistic Society of America.
- RIGGLE, JASON; MAX BANE; JAMES KIRBY; and **JOHN SYLAK**. 2011. "Multilingual Learning with Parameter Co-occurrence Clustering." In *Proceedings of the 39th Annual Meeting of the North East Linguistic Society (Volume 1)*, ed. by Suzi Lima, Kevin Mullin, and Brian Smith, pp. 67-82. Amherst, MA: GLSA.
- RIGGLE, JASON; MAX BANE; EDWARD KING; JAMES KIRBY; HEATHER RIVERS; EVELYN ROSAS; and **JOHN SYLAK**. 2007. "Erculator: A Web Application for Constraint-Based Phonology." *University of Massachusetts Occasional Papers in Linguistics 36: Papers in Theoretical and Computational Phonology*, ed. by Michael Becker, 135-50. Amherst, MA: GLSA. Note: The Erculator program formed a basis for the current CLML program PyPhon.

#### **Edited Volume**

**JOHN SYLAK-GLASSMAN** and Justin Spence (eds.). 2013. Structure and Contact in Languages of the Americas, Survey Reports, Vol. 15. Berkeley, CA: Survey of California and Other Indian Languages.

# Manuscripts in Preparation

- COTTERELL, RYAN; CHRISTO KIROV; and **JOHN SYLAK-GLASSMAN**. In progress. "Graph-Based Neural Morphological Reinflection Without Lemmatization." 4 pp.
- KIROV, CHRISTO; **JOHN SYLAK-GLASSMAN**; REBECCA KNOWLES; and MATT POST. In progress. "A Rich Morphological Tagger for English." 10 pp.
- SYLAK-GLASSMAN, JOHN; STEPHANIE FARMER; and LEV MICHAEL. In progress. "Nasalization and Nasal Harmony in Máíjiki." 35 pp.

#### Conference Presentations

- SYLAK-GLASSMAN, JOHN; CHRISTO KIROV; and DAVID YAROWSKY. 26 May 2016. "Remote Elicitation of Inflectional Paradigms to Seed Morphological Analysis in Low-Resource Languages." Talk given at the 10th International Conference on Language Resources and Evaluation (LREC 2016). Portorož, Slovenia.
- KIROV, CHRISTO; **JOHN SYLAK-GLASSMAN**; ROGER QUE; and DAVID YAROWSKY. 26 May 2016. "Very-Large Scale Parsing and Normalization of Wiktionary Morphological Paradigms." Talk given at the 10th International Conference on Language Resources and Evaluation (LREC 2016). Portorož, Slovenia.
- SYLAK-GLASSMAN, JOHN; and RYAN COTTERELL. 22 Apr. 2016. "Contrastive Morphological Typology and Logical Hierarchies." Talk given at the 52nd Annual Meeting of the Chicago Linguistic Society (CLS 52). University of Chicago, Chicago, IL.
- SYLAK-GLASSMAN, JOHN; CHRISTO KIROV; MATT POST; ROGER QUE; and DAVID YAROWSKY. 17 Sep. 2015. "A Universal Feature Schema for Rich Morphological Annotation and Fine-Grained Cross-Lingual Part-of-Speech Tagging." Talk given at the 4th International Workshop on Systems and Frameworks for Computational Morphology (SFCM). Stuttgart, Germany.
- SYLAK-GLASSMAN, JOHN; CHRISTO KIROV; DAVID YAROWSKY; and ROGER QUE. 3 Aug. 2015. "Typology Enriching NLP: A Universal Feature Schema for Inflectional Morphology." Talk given at the 11th Biennial Conference of the Association for Linguistic Typology (ALT). Albuquerque, NM.
- SYLAK-GLASSMAN, JOHN; CHRISTO KIROV; DAVID YAROWSKY; and ROGER QUE. 28 Jul. 2015. "A Language-Independent Feature Schema for Inflectional Morphology." Poster presented at the 53rd Annual Meeting

- of the Association for Computational Linguistics and The 7th International Joint Conference of the Asian Federation of Natural Language Processing (ACL-IJCNLP 53). Beijing, China.
- SYLAK-GLASSMAN, JOHN. 30 Jun. 2015. "Grounding Typological Variation in Articulatory Reality: Place Features for the Post-Velar Consonants." Poster presented at *Phonetics and Phonology in Europe*. Cambridge, UK.
- SYLAK-GLASSMAN, JOHN. 25 Apr. 2015. "Deriving Natural Classes Using Phonological Entailments." Talk given at the 51st Annual Meeting of the Chicago Linguistic Society (CLS 51). University of Chicago, Chicago, IL.
- SYLAK-GLASSMAN, JOHN; STEPHANIE FARMER; and LEV MICHAEL. 19 May 2014. "An Agreement by Correspondence Analysis of Máíhĩki Nasalization Harmony." Talk given at the *ABC*↔ *Conference*. University of California, Berkeley. (Updated version of work presented at WSCLA 18.)
- SYLAK-GLASSMAN, JOHN. 10 Nov. 2013. "An Emergent Approach to the Guttural Natural Class." Poster presented at *Phonology 2013*. University of Massachusetts, Amherst.
- SYLAK-GLASSMAN, JOHN. 10 Aug. 2013. "The Effects of Post-Velar Consonants on Vowels in Ditidaht." Talk given at the 48th International Conference on Salish and Neighbouring Languages. Victoria, BC, Canada.
- SYLAK-GLASSMAN, JOHN. 5 Apr. 2013. "An Agreement by Correspondence Analysis of Máíhīki Nasalization Harmony." Talk given at the 18th Workshop on Structure and Constituency in Languages of the Americas (WSCLA 18). Berkeley, CA.
- SYLAK-GLASSMAN, JOHN. 3 Jan. 2013. "The Phonetic Properties of Voiced Stops Descended from Nasals in Ditidaht." Talk given at the 87th Annual Meeting of the Linguistic Society of America. Boston, MA.
- MICHAEL, LEV; STEPHANIE FARMER; and **JOHN SYLAK**. 26 Apr. 2012. "La nasalidad silábica y la armonía nasal en Máíhiki [Syllabic Nasality and Nasal Harmony in Máíhiki]." Talk given at *Amazonicas 4*. Lima, Perú.
- SYLAK, JOHN. 9 Jan. 2012. "Pharyngealization in Chechen is Gutturalization." Poster presented at the 86th Annual Meeting of the Linguistic Society of America. Portland, OR.
- SYLAK, JOHN. 12 Feb. 2011. "Pharyngealization in Chechen is Not Just Pharyngeal." Talk given at the 37th Annual Meeting of the Berkeley Linguistics Society. Berkeley, CA.
- CAMPBELL, AMY; ANDREW GARRETT; HANNAH HAYNIE; JUSTIN SPENCE; RONALD SPROUSE; and **JOHN SYLAK**. 9 Jan. 2011. "Geographical Metadata in the California Language Archive." Poster presented at the 85th Annual Meeting of the Linguistic Society of America. Pittsburgh, PA.
- Sylak, John. 8 Jan. 2011. "Exhaustive and Restrictive Syllabification in Bella Coola (Nuxalk)." Talk given at the 85th Annual Meeting of the Linguistic Society of America. Pittsburgh, PA.
- SYLAK, JOHN. 10 Jan. 2009. "Lak Reduplication Challenges OT Fixed Segmentism." Poster presented at the 83rd Annual Meeting of the Linguistic Society of America. San Francisco, CA.

#### **Invited Talks and Workshop Presentations**

- Sylak-Glassman, John. 13 Feb. 2015. "Modeling Phonological Natural Classes in Optimality Theory Using Phonetics and Entailments." Center for Language and Speech Processing Student Seminar, Johns Hopkins University.
- SYLAK, JOHN. 2 May 2011. "Exhaustive and Restrictive Syllabification in Bella Coola (Nuxalk)." *Phonetics and Phonology Workshop*, Department of Linguistics, Stanford University.

CHANG, WILLIAM; **JOHN SYLAK**; and MELINDA FRICKE. 5 Oct. 2009. "Quichua Phonology So Far: A Presentation of Ongoing Work by Students in LING 240A (Field Methods)." *Phonetics and Phonology Forum*, Department of Linguistics, University of California, Berkeley.

SYLAK, JOHN. 10 Jan. 2009. "A One-Stem Approach to the Lak Verb." Invited talk given at the *Linguistic Society of America Annual Meeting* as part of the 2009 LSA Symposium on the Languages of the Caucasus. San Francisco, CA.

## Research Experience

Postdoctoral Fellow, The UniMorph Project: Broadly Multilingual Morphological Processing June 2014 - Present Center for Language and Speech Processing, Johns Hopkins University; PI: David Yarowsky

Collaboratively developing methods to improve the handling of complex morphology by machine translation (MT) and natural language processing (NLP) systems. Based on findings from linguistic typology and descriptively-oriented linguistic theory, independently developed the UniMorph Schema, a language-independent, universal representation of the meanings encoded by inflectional morphology. This schema was used to universalize the English edition of Wiktionary, yielding the largest multilingual morphological database to date, with full feature representations for inflected wordforms from  $\sim 977,094$  lemmas ( $\sim 14,719,125$  inflected forms) from 350 languages. Developed finite state morphological analyzers for Hausa, Turkish, Uzbek, and Uyghur. Output from these analyzers in the form of inflected words and associated UniMorph features was converted into synthetic translations (e.g. write+PRES+PROG+1+SG  $\rightarrow$  'I am writing'), which led to a +6.72 BLEU point translation quality increase on the Uyghur development set when incorporated into JHU's LORELEI machine translation system. Participating in the DARPA LORELEI program in collaboration with the Linguistic Data Consortium (LDC) and Raytheon BBN Technologies.

Postdoctoral Researcher, *Hybrid Machine Translation* Summer Camp for Applied Language Exploration (SCALE) Human Language Technology Center of Excellence (HLTCOE); PI: Matt Post June 2016 - Aug. 2016

Conducted research on lightly supervised, language-independent morphological lemmatization in 11 languages. Applied an unsupervised clustering algorithm, affinity propagation, to group string-similar words derived from raw text. Using example morphological paradigms from each language, determined average length of inflectional prefixes, infixes, and suffixes for use in a custom position-weighted Levenshtein distance algorithm. This algorithm was used to filter output clusters to maximize the likelihood that strings from as few lemmas as possible were included in each cluster. (*Note*: Participated through a 20% partial appointment.)

Graduate Student Researcher, Survey of California and Other Indian Languages Aug. 2010 - Aug. 2012 University of California, Berkeley; Supervisor: Prof. Andrew Garrett

Archived linguistic data in compliance with established best practices by organizing materials received (e.g. manuscripts, field notes, books, maps, reels, cassettes, CDs), accessioning them into the Survey's digital catalog, and storing them in an archivally-safe manner. Assisted migration of Survey and Berkeley Language Center digital catalogs to California Language Archive. Maintained Survey website and participated in the design of the California Language Archive (http://cla.berkeley.edu/). Provided access to archival materials for patrons from both academic and Native American communities, with a focus on facilitating digital access. Trained colleagues in digitizing and accessioning archival materials.

Graduate Student Researcher, *Phonology-Morphology Interface* University of California, Berkeley; Supervisor: Prof. Sharon Inkelas

Summer 2010

Collected example data and summarized theoretical findings and arguments on topics related to the phonology-morphology interface. This work is being used for an overview volume on the phonology-morphology interface being prepared by Prof. Sharon Inkelas. Topics for which data and theoretical arguments were provided: Morphologically conditioned phonology, process and non-concatenative morphology, templates, non-parallelism between phonological and morphological structure, phonology interfering with morphology, and paradigmatic effects.

Graduate Student Researcher, Chechen Pharyngeal Consonants University of California, Berkeley; Supervisor: Prof. Johanna Nichols Spring 2010

Surveyed literature in Russian and English on pharyngealized consonants in Chechen to determine their phonetic, phonological, and historical characteristics. Used Praat scripting to extract acoustic measurements from digital recordings, and statistically analyzed data in R. This work formed the basis for Sylak (2013) "Pharyngealization in Chechen is Gutturalization."

Undergraduate Research Assistant, *Chicago Language Modeling Lab* University of Chicago; Supervisor: Prof. Jason Riggle

Apr. 2007 - Aug. 2008

Collaborated as part of a team with the director of the Advanced Simulations Technologies Center at Argonne National Laboratory on conceptual details of incorporating a language module into the ENKIMDU simulation. Drafted progress reports for funding agencies. Compiled a comprehensive phonological feature chart to be used for computationally evaluating Optimality Theoretic constraints in Erculator. Co-wrote manual for Erculator program as a submission to *UMOP* 36. Provided and edited content for lab website. Beta-tested lab software.

## Field Research Experience

Language	ISO 639-3	Field Site	Duration
Ditidaht	DTD	Nitinaht Lake (Malachan 11), British Columbia, Canada	4 weeks in summer 2013 5 weeks in summer 2012
Máíj <del>i</del> ki	ORE	Nueva Vida, Loreto, Perú	8 weeks in summer 2011
Imbabura Quichua	QVI	Berkeley, CA (field methods class)	2009-2010 academic year

# Teaching and Mentoring Experience

Research Mentor June - August 2015 & 2016

Johns Hopkins University; Center for Language and Speech Processing

Advised students participating in the National Science Foundation Research Experience for Undergraduates (NSF REU) on a variety of projects, including synthetic morphological phrase generation in machine translation, constructing morphological generators, and exploring methods for supervised morphological segmentation.

Linguistic Partner 1-12 June 2015

National Breath of Life Archival Institute for Indigenous Languages, Washington, DC

Worked with a community researcher from the San Felipe Pueblo community (New Mexico) to locate archival resources on the San Felipe Pueblo language (Keresan stock) in US government archives and collections,

including the National Archives, the Smithsonian Institution, and the Library of Congress. Assisted community researcher in interpreting and gathering language resources to learn more about the language and to aid revitalization and teaching efforts.

Linguistics Research Apprenticeship Practicum (LRAP) University of California, Berkeley; Department of Linguistics Spring 2013 - Spring 2014

Mentored an undergraduate doing phonological typology research on post-velar consonants, especially in the Athabaskan and Indo-Iranian languages.

Linguistic Mentor June 2010

9th Breath of Life California Indian Language Restoration Workshop, University of California, Berkeley

Aided a community researcher in finding materials held in the University of California, Berkeley, archives on the Chochenyo Ohlone language and interpreting them to facilitate self-learning and language revitalization.

Graduate Student Instructor, *The American Languages* (LING 55AC) University of California, Berkeley; Department of Linguistics

Fall 2009

Led three one-hour discussion sections weekly with a total of 49 students. The class focused on language ideology and policy in the US, dialectal variation in American English, and the languages spoken by immigrants to the US and Native Americans. Overall teaching effectiveness: 6.2 / 7.0.

Residential Tutor, Computer Science and Spanish University of Massachusetts, Boston, Upward Bound

June - Aug. 2006

Guided students and assisted teachers daily for 6 weeks in classes on HTML and Spanish by helping to correct code or improve language skills, respectively. Students were low-income, first-generation college-bound high school students from Boston.

Volunteer ESL Tutor, Students Teaching at the Ray School (STARS) University of Chicago and Ray Elementary School, Chicago, IL

Sept. 2005 - May 2008

Tutored two students (grades 3 and 5) from Russian-speaking backgrounds and one student (grade 6) from a Swahili-speaking background twice a week throughout the school year in reading and mathematics.

#### Service

Ad-hoc book manuscript reviewer. Oxford University Press – Linguistics.

Aug. - Nov. 2016

Abstract reviewer. 91st Annual Meeting of the Linguistic Society of America (LSA).

August 2016

Manuscript reviewer. 54th Annual Meeting of the Association for Computational Linguistics (ACL 2016). Berlin.

Mar. - Apr. 2016

Manuscript reviewer. 10th International Conference on Language Resources and Evaluation (LREC 2016). Portorož, Slovenia.

Dec. 2015 - Jan. 2016

Ad-hoc proceedings reviewer. Perspectives on Arabic Linguistics XXVIII: Papers from the Annual Symposium on Arabic Linguistics. Gainesville, FL.

Oct. 2014

Oct. 2012 - Apr. 2013
Aug. 2010 - May 2012
Aug. 2010 - May 2012
Aug. 2010 - Dec. 2011
Aug. 2009 - Feb. 2010
July - Aug. 2009
2009 - 2012
Feb. 2009 - May 2011
Fall 2008 - Spring 2009

## Languages

Reading and Speaking: English (native), Russian (advanced), Spanish (intermediate), French (beginner) Structural Knowledge: Ditidaht (Wakashan; Vancouver Island, BC), Máíhiki (Western Tukanoan; Peruvian Amazon), Imbabura Quichua (Quechua; Ecuador), Chechen (Northeast Caucasian; Russia), Lak (Northeast Caucasian; Russia)

2008, 2009, 2011

#### **Technical Skills**

Computational: Python, Foma, UNIX, R, Praat scripting, LATEX, CSS, HTML
Other: Data and metadata management, audio recording, archiving physical, analog, and digital materials

Volunteer. Linguistic Society of America Annual Meeting. Served at meetings in

Chicago (2008), San Francisco (2009), and Pittsburgh (2011).

#### Research Interests

Broad Goals: Improving HLT systems by incorporating linguistic knowledge, extracting information conveyed by morphology, developing human language technology (HLT) for low-resource languages

Methodologies: Neural network architectures and deep learning, graphical models, finite state methods