

Tyler Zarus Knowlton

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Contact Information

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Research Interests

Broad: psycholinguistics, language acquisition, semantics, the language-thought relationship
Specific: quantification, lexical decomposition, syntactic bootstrapping, argument structure, numerical and event concepts, the language-vision interface

Employment

Postdoctoral Research Fellow 2021-
[MindCORE](#) (Center for Outreach, Research, and Education)
University of Pennsylvania, Philadelphia, PA

Education

Ph.D. Linguistics 2021
Thesis: [The psycho-logic of universal quantifiers](#)
Advisors: [Jeffrey Lidz](#) and [Paul Pietroski](#)
University of Maryland, College Park, MD

B.A. Cognitive Science (with honors) 2015
Minors in Linguistics, Philosophy, and Psychology
Johns Hopkins University, Baltimore, MD

Awards and Honors

[NSF Doctoral Dissertation Improvement Grant](#), “Doctoral Dissertation Research: The mental representation and acquisition of the universal quantifiers” (NSF #BCS-2017525) (with [Jeffrey Lidz](#)) 2020

College of Arts and Humanities [Graduate Student Service Award](#) 2020

[Howard Lasnik Award for Distinguished Teaching by a Graduate Student](#) 2020

[CUNY Jerrold J. Katz Young Scholar Award](#) 2019

[Jacob K. Goldhaber Travel Grant](#) 2018

Fellow, [NSF-NRT Training Program](#), “NRT-DESE: Flexibility in Language Processes and Technology: Human- and Global-Scale” (NRT #1449815) 2017

Maryland [Language Science Fellowship](#) 2017

[Phi Beta Kappa](#) 2015

Cognitive Science Departmental Honors 2015

Johns Hopkins General University Honors 2015

Publications

Knowlton, T., Pietroski, P., Halberda, J., and Lidz, J. (accepted) *The mental representation of universal quantifiers*. Linguistics and Philosophy.

Knowlton, T., Hunter, T., Odic, D., Wellwood, A., Halberda, J., Pietroski, P., and Lidz, J. (2021) *Linguistic meanings as cognitive instructions*. Annals of the New York Academy of Sciences.

Knowlton, T. and Lidz, J. (2021) *Genericity signals the difference between “each” and “every” in child-directed speech*. Proceedings of the 45th annual Boston University Conference on Language Development.

Knowlton, T., Pietroski, P., Williams, A., Halberda, J., and Lidz, J. (2021) *Determiners are “conservative” because their meanings are not relations: evidence from verification*. Proceedings of SALT 30.

Presentations

Conference Talks

Knowlton, T., Halberda, J., Pietroski, P., and Lidz, J. (2021) *Evaluating “each”- (but not “every”-) sentences encourages encoding individual properties*. 34th CUNY Conference on Human Sentence Processing, University of Pennsylvania.

Knowlton, T. and Lidz, J. (2021) *Bootstrapping universal quantifiers: the role of genericity*. Linguistic Society of America (LSA) Annual Meeting, San Francisco, CA.

Knowlton, T. and Lidz, J. (2020) *Genericity signals the difference between “each” and “every” in child-directed speech*. Boston University Conference on Language Development (BUCLD) 45, Boston University.

Knowlton, T., Pietroski, P., Williams, A., Halberda, J., and Lidz, J. (2020) *Memory for cardinality supports a non-relational account of conservativity*. Experiments in Linguistic Meaning (ELM) 1, University of Pennsylvania.

Cesana-Arlotti, N., **Knowlton, T.**, Lidz, J., and Halberda, J. (2020) *An investigation of the origins of logical quantification: infants’ (and adults’) representations of exhaustivity in collective or individual complex actions*. Symposium on Learning ‘hard words’, XXII International Congress of Infant Studies (ICIS) Biennial Congress, Glasgow, Scotland.

Knowlton, T., Pietroski, P., Williams, A., Halberda, J., and Lidz, J. (2020) *Conservative meanings with only one set: evidence from verification*. 33rd CUNY Conference on Human Sentence Processing, University of Massachusetts at Amherst.

Knowlton, T., Pietroski, P., Halberda, J., and Lidz, J. (2019) *The mental representation of universal quantifiers: evidence from verification*. 32nd CUNY Conference on Human Sentence Processing, CU Boulder.

Knowlton, T., Halberda, J., Pietroski, P., and Lidz, J. (2018) *Acquiring the universal quantifiers: every part together or each part on its own?* Boston University Conference on

Invited Talks

- Knowlton, T.** (2021) *The psycho-logic of universal quantifiers*. Linguistics Colloquium, University of Southern California.
- Knowlton, T.** (2019) *The psychological treatment of (universal) quantification*. Integrated Language Sciences and Technology Seminar, University of Pennsylvania.
- Knowlton, T.** (2018) *Are natural language quantifiers first- or second-order?* McDonnell Network Focused Workshop on “The Development of Set and Quantifier Representations”, Johns Hopkins.

Conference Posters

- Cesana-Arlotti, N., **Knowlton, T.**, Lidz, J., and Halberda, J. (2021) *An investigation of the origins of logical quantification: infants’ (and adults’) representations of exhaustivity in collective or individual complex actions*. Society for Philosophy and Psychology (SPP) 47th Annual Meeting, Princeton.
- Cesana-Arlotti, N., **Knowlton, T.**, Lidz, J., and Halberda, J. (2021) *Representing the exhaustivity of collective and individual actions: an investigation of universal quantification in adults and infants*. 12th Dubrovnik Conference on Cognitive Science, Virtual.
- Knowlton, T.**, Pietroski, P., Williams, A., Halberda, J., and Lidz, J. (2020) *Determiners are ‘conservative’ because their meanings are not relations: evidence from verification*. Semantics and Linguistic Theory (SALT) 30, Cornell.
- Cesana-Arlotti, N., **Knowlton, T.**, Lidz, J., and Halberda, J. (2020) *An investigation of the origin of logical quantification: infants’ and adults’ representations of collective and distributive actions in complex visual scenes*. 42nd Annual Meeting of the Cognitive Science Society, Virtual.
- Cesana-Arlotti, N., **Knowlton, T.**, Lidz, J., and Halberda, J. (2020) *Who’s chasing whom? Adults’ and infants’ engagement of quantificational concepts (“each” and “all”) when representing visual chasing events*. Vision Sciences Society (VSS) 20th Annual Meeting, Virtual.
- Cesana-Arlotti, N., **Knowlton, T.**, Lidz, J., Pietroski, P., and Halberda, J. (2019) *Concepts of universal quantification (“each” and “all”) may support infant and adult understanding of collective and distributive actions*. Cognitive Development Society (CDS) 2019 Biennial Meeting, Louisville, KY.
- Knowlton, T.**, Halberda, J., Pietroski, P., and Lidz, J. (2019) *A novel memory task reveals early understanding of quantifier meanings*. Society for Research in Child Development (SRCD) 2019 Biennial Meeting, Baltimore, MD.
- Knowlton, T.**, Pietroski, P., Halberda, J., and Lidz, J. (2019) *Representational format and universal quantifiers*. Linguistic Society of America (LSA) Annual Meeting, New York, NY.
- Perkins, L., **Knowlton, T.**, Williams, A., and Lidz, J. (2018) *Matching number vs. linking roles: using 3-participant scene percepts to understand infants’ bootstrapping*. Boston University Conference on Language Development (BUCLD) 43, Boston, MA.
- Knowlton, T.**, Perkins, L., Williams, A., and Lidz, J. (2018) *Getting a grip on infants’ event representations: participant number in TAKE and PICK-UP*. XXI International Congress of Infant Studies (ICIS) Biennial Congress, Philadelphia, PA.

- Knowlton, T.**, Wong, A., Halberda, J., Pietroski, P., and Lidz, J. (2018) *Different determiners, different algorithms: two majority quantifiers in Cantonese bias distinct verification strategies*. 31st CUNY Conference on Human Sentence Processing, UC Davis.
- Knowlton, T.**, Halberda, J., Pietroski, P., and Lidz, J. (2017) *Sentences, centers, and sets: set selection and the meanings of more and most*. Cognitive Development Society (CDS) Biennial Meeting, Portland, OR.
- Knowlton, T.**, Halberda, J., Pietroski, P., and Lidz, J. (2017) *Distinguishing first- from second-order specifications of each, every, and all*. Mid-Atlantic Colloquium of Studies in Meaning (MACSIM) 7, Georgetown.
- Knowlton, T.**, Halberda, J., Pietroski, P., and Lidz, J. (2017) *Set selection and storage reflect differences in quantifier meanings*. McDonnell Network Plenary Workshop on “The Ontogenetic Origins of Combinatorial Thought”, UCSD.
- Perkins, L., **Knowlton, T.**, Hirzel, M., Dudley, R., Williams, A., and Lidz, J. (2017) *Linguistic and conceptual structure in verb learning*. McDonnell Network Plenary Workshop on “The Ontogenetic Origins of Combinatorial Thought”, UCSD.

Teaching and Mentorship

Teaching Experience

University of Maryland

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|---------------------------------------------------------------------------------------------|-------------|
| Instructor, Language and Thought (LING449T) | Spring 2020 |
| Designed and taught 11-student seminar | |
| TA, Grammar and Meaning (LING410; Instructor: Valentine Hacquard) | Fall 2019 |
| Duties: grading, office hours, reviewing p-sets in class, once teaching ~25 student lecture | |
| TA, Child Language Acquisition (LING444; Instructor: Jeffrey Lidz) | Spring 2019 |
| Duties: grading, office hours, helping write exams, once teaching ~20 student lecture | |
| TA, Language and Mind (LING240; Instructor: Tonia Bleam) | Fall 2018 |
| Duties: grading, office hours, review sessions, twice teaching ~50 student lecture | |
| TA, Introductory Linguistics (LING200; Instructor: Tonia Bleam) | Spring 2018 |
| Duties: weekly discussion section of ~30 students, grading, office hours | |

Mentorship

University of Maryland

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| High school summer intern mentor, Project on Children's Language Learning | 2019 |
| Responsible for mentoring high school research assistant S. Chervenak and supervising his final paper & science fair poster presentation | |
| Undergraduate mentor, Project on Children's Language Learning | 2018-2021 |
| Responsible for mentoring undergraduate research assistants M. Lauchman, M. Aiyad, D. Lahori, T. Hudson, M. Griffith, S. Deshpande, & A. Boyer and supervising their end-of-term poster presentations | |

Johns Hopkins University

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| Undergraduate mentor, Vision and Cognition Lab | 2015-16 |
| Responsible for mentoring undergraduate research assistants A. Wong, | |

S. Akmal, A. Vadaparty, I. Perone, & L. Grau and supervising their term papers

Research Experience

Research Assistant, Project on Children's Language Learning , College Park, MD	2016-21
PURA Fellow, Language Processing and Development Lab , Baltimore, MD	2014-16
Lab Manager, Vision and Cognition Lab , Baltimore, MD	2014-16
Research Assistant, Vision and Cognition Lab , Baltimore, MD	2012-13
Research Intern, Coriell Institute for Medical Research, Camden, NJ	2012

Academic Activities

Service

Linguistics Colloquium Committee	2019-21
Mayfest 2020: Hindsight Organizing Committee (postponed due to COVID-19)	2019-20
Developmental Science Workshop Co-Organizer (with Z. Ovens & M. Hirzel), <i>Endless Possibilities: The Development of Possibility and Necessity in Cognition, Language, and Society</i>	2018-19
Chair, Language Science Outreach Committee	2018-19
Winter Storm 10 Planning Committee	2017-18
Co-chair (with S. Thivierge), Linguistics Graduate Student Association	2017-18
Career fair coordinator, Language Science Outreach Committee	2016-18
Winter Storm 9 Planning Committee	2016-17
SALT27 Organizing Committee	2016-17

Ad Hoc Reviewing

Manuscripts

Journal of Memory and Language (x2)
Language Learning and Development

Conference Papers

Annual Meeting of the Cognitive Science Society (2020, 2021)

Professional Memberships

Cognitive Science Society	2020-
Society for Research in Child Development	2019-
International Congress of Infant Studies	2017-
Cognitive Development Society	2017-
Linguistic Society of America	2015-

Skills & Methods

- Technical: R, PsychoPy (python), L^AT_EX, Linger, PsyToolkit, Habit, HTML/CSS, JavaScript, Psychtoolbox (MATLAB), Adobe Premiere, Git, PsyScope X, PsyCode
- Experimental: Visual Psychophysics, Habituation-switch, Corpus analysis, Self-paced reading (including with eye-tracking)

References

- Jeffrey Lidz
Professor of Linguistics & Distinguished Scholar-Teacher
University of Maryland
jlidz@umd.edu
- Paul Pietroski
Distinguished Professor of Philosophy & Cognitive Science
Rutgers University
paul.pietroski@rutgers.edu
- Justin Halberda
Professor of Psychological and Brain Sciences
Johns Hopkins University
halberda@jhu.edu
- Alexander Williams
Associate Professor of Linguistics & Philosophy
University of Maryland
alxndrw@umd.edu

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