

Pablo Andrés Contreras Kallens

Language Science and Technology
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Employment

2023 - Present **Postdoctoral Researcher and lecturer**, Saarland University, Saarbrücken, Germany, supervised by Matthew Crocker.
Specialization in Computational psycholinguistics and mathematical modelling of human language processing.

Education

- 2018 - 2023 **Ph. D.**, Department of Psychology, Cornell University, Ithaca, NY 14850, Dissertation title: *The computational bridge. Interfacing theory and data in cognitive science.*
Advisor: Morten H. Christiansen
- 2018 - 2021 **M. A.**, Department of Psychology, Cornell University, Ithaca, NY 14850.
Advisor: Morten H. Christiansen
- 2016 - 2018 **Graduate Studies, Department of Cognitive and Information Sciences**, University of California, Merced.
Advisor: Rick Dale
- 2013 - 2016 **M. A. in Philosophy**, Universidad de Chile, Santiago, Chile, Summa cum Laude.
Dissertation: *The ghost's machine. Unit of analysis in cognitive science* [In Spanish]
- 2008 - 2012 **B. A. in Philosophy**, Universidad de Chile, Santiago, Chile, Summa cum Laude.
Dissertation: *Direct perception. The ecological approach as an alternative to cognitivism in perception* [In Spanish]

Fellowships and Awards

- 2021 **Department of Psychology, Graduate Teaching Award.**
- 2018 - 2023 **Sage Fellow**, Cornell University.
Funding for Ph. D. studies

- 2016 - 2020 **Fulbright Foreign Student Program for Doctorate Studies**, *Fulbright Commission Chile*.
Sponsorship for Ph. D. Studies
- 2013 - 2015 **Scholarship for Graduate Studies in Chile**, *CONICYT*.
Funding for M. A. studies

Peer-Reviewed Publications

- Under Review **Contreras Kallens, P.**, Monaghan, P., Christiansen, M.H. “Systematic patterns of sound and meaning can support early stages of word learning across the world's languages.”. *Nature: Human Behavior*.
- Under Review Kristensen-McLachlan, R.D., **Contreras Kallens, P.**, Christiansen, M.H. “LLMs highlight the importance of interaction in human language learning.”. *Linguistics Vanguard*.
- 2024 **Contreras Kallens, P.**, Christiansen, M.H. “Distributional semantics: Meaning through culture and interaction.”. *Topics in Cognitive Science*
- 2024 Lupyan, G., **Contreras Kallens, P.**, Dale, R. “Information density as a predictor of communication dynamics.”. *Trends in Cognitive Sciences*, 28(6), 489-491.
- 2023 **Contreras Kallens, P.**, Kristensen-McLachlan, R.D., Christiansen, M.H. “Large Language Models demonstrate the potential of statistical learning in language.”. *Cognitive Science*, 47(3), e13256.
- 2023 **Contreras Kallens, P.**, Yoshimi, J. “A bibliometric analysis of the phenomenology literature.”. In *Horizons of phenomenology: Essays on the state of the field and its applications*. Springer.
- 2022 **Contreras Kallens, P.**, Hicks, D. J., Jennings, C. D. “Networks in philosophy: Social networks and employment in academic philosophy”. *Metaphilosophy* 53(5), 653-684.
- 2022 Christiansen, M. H., **Contreras Kallens, P.**, Trecca, F. “We need a comparative approach to language acquisition: A commentary on Kidd and Garcia”. *First Language* 42(6), 751-755.

- 2022 Dale, R., **Contreras Kallens, P.** “Dissipation, integration and practical pluralism: The case of cognitive science”. In M. Belanger, P. Potvin, S. Horst, E. Mortimer and A. Shtulman (Eds.), *Multidisciplinary perspectives on representational pluralism* (pp. 250-269). Routledge.
- 2022 Christiansen, M. H., **Contreras Kallens, P.**, Trecca, F. “Toward a comparative approach to language acquisition”. *Current Directions in Psychological Science* 31(2), 131-138.
- 2022 **Contreras Kallens, P.**, Dale, R., Christiansen, M. H. “Quantifying interdisciplinarity in cognitive science and beyond”. *Topics in Cognitive Science* 14, 634–645, doi: 10.1111/tops.12609
- 2022 **Contreras Kallens, P.**, Christiansen, M. H. “Models of language and multiword expressions”. *Frontiers in Artificial Intelligence* 5:781962. doi: 10.3389/frai.2022.781962
- 2019 Smaldino, P., Turner, M., **Contreras Kallens, P.** “Open science and modified funding lotteries can impede the natural selection of bad science”. *Royal Society Open Science* 6 (7), 190194
- 2018 **Contreras Kallens, P.**, Christiansen, M. H., & Dale, R. “Linguistic diversity and individual variation: A comment of ‘Rethinking foundations of language from a multidisciplinary perspective’ by T. Gong et al”. *Physics of Life Reviews* 26, 164-166.
- 2018 **Contreras Kallens, P.**, Dale, R. & Smaldino, P. “Cultural evolution of categorization”. *Cognitive Systems Research* 52, 765:774.
- 2018 Dale, R., Galati, A., Alviar, C., **Contreras Kallens, P.**, Ramirez-Aristizabal, A., Tabatabaieian, M., Vinson, D. W. “Interacting timescales in perspective-taking”. *Frontiers in Psychology* 9, 1278.
- 2018 **Contreras Kallens, P.** & Dale, R. “Exploratory mapping of theoretical landscapes through word use in abstracts”. *Scientometrics* 116(3), 1641-1674.
- 2014 **Contreras Kallens, P.** “Palabra y Concepto: acercamiento a un eliminativismo conceptual en ciencia cognitiva”. *Revista Colombiana de Filosofía de la Ciencia* 14 29:139-16.

- 2022, October Christiansen, M. H., **Contreras Kallens, P.** “AI is changing scientists’ understanding of language learning - and raising questions about an innate grammar”. *The Conversation*.
- 2017 Dacey-Jennings, C., **Contreras Kallens, P.**, & Vlasits, J. “The Philosophical Gourmet Report and placement”. Available [here](#).

Technical Reports

Academic placement in philosophy

Carried out for the Academic Placement Data and Analysis Group. Results featured in *Daily Nous*.

- 2017 Dacey-Jennings, C., Cobb, P., **Contreras Kallens, P.**, Kyrilov, A. “Academic Placement Data and Analysis: 2017 Final Report”. Available [here](#).

Higher education reform in Chile

This is a series of analyses of the reforms to higher education put forward by the Chilean government during 2016. Written as part of the research work done for the *Universidad de Chile Student Union (FECH) Study Center, CEFECH*, along with fellow director Fernando Carvallo Arrau. They are all available at my personal website. The results of these reports were widely reported in the media. Fernando Carvallo also presented them to the Chilean Congress in August 8th, 2016.

- 2016 Carvallo Arrau, F. & **Contreras Kallens, P.** “Minuta de analisis. Gratuidad 2016”
- 2016 **Contreras Kallens, P.** & Carvallo Arrau, F. “Minuta de Analisis de la Reforma a la Educacion Superior Parte I: Educacion de mercado y derechos sociales”
- 2016 Carvallo Arrau, F., **Contreras Kallens, P.**, Gallegos Vallejos, T., & López Orellana, D. “Minuta de analisis proyecto de ley de Educacion Superior Parte II. La ‘Reforma’: Continuidad y Perfeccionamiento”

Invited talks

Titles of presentations given in Spanish are presented along with a translation in square brackets and italics. Only first authored presentations are included.

- 2024 **Contreras Kallens, P.** “Getting aligned: Exploring the effect of feedback on LLMs”. *Invited talk for the National Science Foundation’s (USA) Workshop in Text Production and Comprehension by Human and Artificial Intelligence. National Science Foundation / Iowa State University.*
- 2022 **Contreras Kallens, P. & M. H. Christiansen** “AI Poetry and Human Language”. *Invited AI seminar delivered to the Department of Computer, Cornell University, Ithaca, NY.*
- 2022 **Contreras Kallens, P.** “When Large Language Models Write Poetry”. *University of Illinois, Urbana-Champaign, School of Information Sciences.*
- 2022 **Contreras Kallens, P.** “Diversidad lingüística, uso y adquisición del lenguaje” *Universidad católica de la Santísima Concepción*
- 2022 **Contreras Kallens, P.** “Metaciencia computacional: El caso de la ciencia cognitiva” [*Computational metascience: The case of cognitive science*]. *Instituto de Filosofía y Ciencias de la Complejidad - IFICC, Chile.*
- 2022 **Contreras Kallens, P.** “Evidence of sound-meaning cues in a typologically and genealogically diverse dataset of two hundred languages”. *Palacky University, Department of General Linguistics, Czech Republic.*
- 2022 **Contreras Kallens, P.** “Doing metascience computationally”. *ASU Machine Learning Days 2022, Arizona State University.*

Selected Presentations

Titles of presentations given in Spanish are presented along with a translation in square brackets and italics. Only first authored presentations are included.

- 2024 **Contreras Kallens, P.,** Kristensen-McLachlan, R. D., Christiansen, M. H. “Human feedback makes Large Language Models more human-like.”. Poster. *46th Annual Meeting of the Cognitive Science Society.*
- 2024 **Contreras Kallens, P.,** & Kristensen-McLachlan, R. D. “Human feedback alters linguistic behavior of LLMs. Presentation”. Presentation. *Interdisciplinary Advances in Statistical Learning 2024.*

- 2023 **Contreras Kallens, P.**, Dale, R., & Christiansen, M. H. “Graded grammatical expectations in transformer models”. Poster. *45th Annual Meeting of the Cognitive Science Society*.
- 2023 **Contreras Kallens, P.**, Elmlinger, S., Wang, K., Goldstein, M., McLeod, S., Crowe, K., & Christiansen, M. H. “ Statistical learning or phonological universals? Ambient language statistics guide consonant acquisition in four languages. Poster and published paper”. Poster and published paper. *45th Annual Meeting of the Cognitive Science Society*.
- 2022 **Contreras Kallens, P.**, **Christiansen, M. H.**, & **Monaghan, P.** “Evidence of sound-meaning cues in a typologically and genealogically diverse dataset of two hundred languages”. Presentation. *Crosslinguistic Perspectives on Processing and Learning X-PPL, 2022*.
- 2022 **Contreras Kallens, P.**, **Christiansen, M. H.**, & **Monaghan, P.** “Sound-meaning patterns useful for learning available in languages from over fifty families”. Poster. *AMLaP 2022*. Online presentation.
- 2020 **Contreras Kallens, P.** & **Christiansen, M. H.** “Phonological patterns distinguish words for actions and things in typologically diverse languages”. Talk. *Words in The World Conference 2020*. Online conference. Abstract available in the published proceedings.
- 2020 **Contreras Kallens, P.** & **Christiansen, M. H.** “Phonological cues to semantic class membership across hundreds of languages”. Poster. *Evolution of Language 13*. In-person meeting cancelled because of COVID-19 Epidemic. Summary available in the published Proceedings.
- 2017 **Contreras Kallens, P.** & **Dale, R.** “Mapping the Theories of Cognitive Science Using LSA”. Poster. *Annual Meeting of the Society for Computers in Psychology, Vancouver, Canada*.
- 2015 **Contreras Kallens, P.** “Una perspectiva metateórica para la explicación no individualista de la cognición” [A metatheoretical view of non-individualistic explanation of cognition]. Talk. “Aproximaciones experimentales a la Interacción Social” symposium, *Instituto de Sistemas Complejos de Valparaíso, Valparaíso, Chile*.

- 2014 **Contreras Kallens, P.** “Perspectivas teoricas para la explicacion no individualista de la cognicion” [*Theoretical views for the non-individualistic explanation of cognition*]. Talk. IV Workshop on Philosophy and Cognitive Science, *Sociedad Argentina de Análisis Filosófico (SADAF)*, Buenos Aires, Argentina.
- 2014 **Contreras Kallens, P.** “Un lugar para el individualismo en la ciencia cognitiva” [*A role for individualism in cognitive science*]. Talk. V Coloquio Lenguaje y Cognición, *Universidad de Concepción, Concepción, Chile*.
- 2012 **Contreras Kallens, P.** “Eliminativismo conceptual: Acercamiento desde la externalizacion sensoriomotora y lingüística” [*Concept eliminativism: an approach from sensorimotor and linguistic externalization*]. Talk. III Workshop in Philosophy and Cognitive Science, *Sociedad Argentina de Análisis Filosófico, Buenos Aires, Argentina*.

Research Positions

- 2021 - 2022 **Research assistant**, *Cornell University*.
Working in a New Frontiers grant for professors Morten H. Christiansen and Laurent Dubreuil.
- 2017 - 2018 **Graduate student researcher**, *University of California, Merced*.
Working on an agent based model of the effects of different funding schemes for science for professor Paul Smaldino.
- 2017 - 2020 **Quantitative measures advisor**, *Academic Placement Data and Analysis Group*, placementdata.com/about/.
Work in developing surveys and analyzing data regarding academic placement and other dimensions of graduate studies at the Academic Placement Data and Analysis project under professor Carolyn Dicey Jennings
- 2016 **Head researcher**, *Universidad de Chile Student Union (FECH)*.
At the Student Union’s Study Center, CEFECH (*Centro de Estudios de la Federación de Estudiantes de la Universidad de Chile*). Worked writing and presenting research on educational policy. Helped coordinate the study groups.
- 2013 - 2015 **Graduate dissertation researcher**, *Universidad de Chile*.
Took part of professor Manuel Rodriguez’s research grant, *The principle of compositionality in the light of the debates about the relationship between mind and language: a problem of choice of cognitive architecture*.

Teaching

Courses

- Winter 2024 **Statistical learning in psycholinguistics**, *Saarland University*, Saarbrücken, Germany.
- Summer 2024 **Embodied and situated psycholinguistics**, *Saarland University*, Saarbrücken, Germany.
- Summer 2024 **Information theory**, *Saarland University*, Saarbrücken, Germany.
- Winter 2023 **NLP Tools for psycholinguistic research**, *Saarland University*, Saarbrücken, Germany.
- Winter 2023, Winter 2024 **Language Evolution**, *Saarland University*, Saarbrücken, Germany.

Teaching Assistantships

- Spring 2023 **Psychology of language**, *Cornell University*, Ithaca, New York.
Morten H. Christiansen
- Spring 2021 **Computational psychology**, *Cornell University*, Ithaca, New York.
Shimon Edelman
- Fall 2020 **Introduction to behavioral neuroscience**, *Cornell University*, Ithaca, New York.
Tim Devoogd
- Spring 2020 **Developmental psychology**, *Cornell University*, Ithaca, New York.
Michael Goldstein
- Fall 2018 **Applied perception**, *Cornell University*, Ithaca, New York.
David Field
- Spring 2017 **Free will**, *University of California, Merced*, Merced, California.
Carolyn Dicey-Jennings
- Fall 2016 **Introduction to cognitive science**, *University of California, Merced*, Merced, California.
Rick Dale
- Fall 2013, 2014, 2015 **Epistemology**, *Universidad de Chile*, Santiago, Chile.
Guido Vallejos, Rodrigo González, Manuel Rodríguez
- Fall 2015 **Introduction to philosophy**, *Universidad de Chile*, Santiago, Chile.
Manuel Rodríguez, Claudia Gutiérrez, María José López

Course Design

2014 - 2016 **Epistemology**, UNIACC, Santiago, Chile.
Course Designer and Online Tutor, Psychology Department

Service

Ad-hoc reviewer

Cognitive Science

Eidos

Language Learning

Synthese

Límite

Cognitive Processing

Open Mind: Discoveries in Cognitive Science

Computer Speech & Language

Editorial

2019 - Present **Editorial committee and web designer**. *Revista ROSA*
(<http://www.revistarosa.cl/>)

2017 - 2019 **International editor**. *Cuadernos de Coyuntura* (<http://www.nodoxxi.cl/centro-de-estudios/>)

2017 **Inaugural editor**. *Fulcro*

Organizing

2017 - 2018 **Graduate delegate**, *University of California, Merced*.
Delegate of the Cognitive and Information Sciences to the
Graduate Student Association's Delegate Assembly.

2013 - 2015 **Representative (different levels)**, *Universidad de Chile*
Student Union (FECH).

Representative for graduate students at different levels, including
Graduate Student Delegate for the entire population of graduate
students of the Universidad de Chile.

Affiliations

Member of the **Cognitive Science of Language Lab** at
Cornell University.

Director: Morten H. Christiansen.

Member of the Co-Mind Lab at the University of California,
Los Angeles.

Director: Rick Dale.

Member of the **Cognitive Science Society**

Skills

R Advanced

Python Advanced

Julia Intermediate

Languages

Spanish Native

English Fluent