

Naomi Baes

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🌐 [Website & GitHub](#)

🔍 [Google Scholar](#)

🇦🇺 Australian & Romanian (EU)

Professional Profile

- Researcher at the intersection of **NLP**, **machine learning**, and **computational social science**, building evaluation systems (with LLM-generated benchmarks) and scalable corpus pipelines to study how word meanings change over time.
- Co-developer of *SIBling* (metrics for semantic change across *Sentiment*, *Intensity*, *Breadth*) and co-creator of *LSC-Eval* (synthetic-LLM-generated corpus evaluation framework) — reproducible code, parallelized runs (HPC/SLURM).
- Published (14 papers; 250+ citations) at venues including **ACL**, **EMNLP**, and **IC2S2**; invited international talks at Utrecht, Change is Key!, National Research Council Canada; active NLP service (SemEval tasks, workshops, program committees).

Education

PhD	Doctor of Philosophy in Psychology/Natural Language Processing Melbourne School of Psychological Sciences <i>Supervisors: Professor Nick Haslam and Dr Ekaterina Vylomova</i> <i>Award: Aus. Gov. Research Training Program Scholarship (Fee Offset & Stipend)</i>	University of Melbourne Submission: June 2026
GDPA	Graduate Diploma in Psychology (Advanced), First Class Honours Melbourne School of Psychological Sciences <i>Supervisors: Professor Nick Haslam and Dr Ekaterina Vylomova</i> <i>Award: Commonwealth Supported Place</i>	University of Melbourne December 2021
GDP	Graduate Diploma in Psychology, First Class Honours Melbourne School of Psychological Sciences <i>Capstone Supervisor: Professor Charles Kemp</i>	University of Melbourne December 2020

Technical Skills

Programming	Python (pandas, numpy), R (dplyr, data.table), Bash
ML / DL	PyTorch, scikit-learn; applied use of HF Transformers (encoders, contextual embeddings)
NLP & Eval	spaCy, NLTK; evaluation harnesses, prompt design/optimization, inter-rater reliability (κ)
Corpus Processing	grep, dependency parsing, lemmatization, collocate extraction
Statistical Analysis	Correlation; Regression (OLS, GLS, GLM, mixed-effects, ARDL); ANOVA; <i>t</i> -tests; MDS; PCA
Data Visualization	ggplot2, Matplotlib, Seaborn, Google Sheets
Infrastructure & Tools	Spartan (HPC), SLURM, Git, VS Code, Vim, \LaTeX , LIWC, TDM Studio (JupyterLab)

Research Experience (Selected)

Research Internship (On-Site: Sweden) — Change is Key! <i>Department of Philosophy, Linguistics, and Theory of Science; Supervisor: Nina Tahmasebi</i>	University of Gothenburg Aug–Sep 2025
<ul style="list-style-type: none">• Advanced and completed benchmark paper on relations between word senses with an eight-person team (computational/theoretical linguists, psychologist) across six departments (Sweden, Belgium, Luxembourg, Australia).• Co-conceptualized study; co-designed experiments; annotated WordNet glosses to create gold-standard data for affective dimensions; computed reliability; optimized LLM prompts for automated annotation; drafted initial paper.• Presented research program at the <i>Change is Key!</i> conference; attended a 3-day consortium meeting; gave invited international talks at NLP labs (University of Utrecht; National Research Council Canada).	
Doctoral Researcher <i>Melbourne School of Psychological Sciences; Supervisors: Nick Haslam & Ekaterina Vylomova</i>	University of Melbourne Jun 2023 – Jun 2026
<ul style="list-style-type: none">• Develop <i>SIBling</i>, a model of lexical semantic change; implement toolkit to quantify <i>Sentiment</i>, <i>Intensity</i>, <i>Breadth</i>.• Design and implement computational methods (normed collocational ratings, transformer-based models).	

- Build *LSC-Eval*, a benchmarking framework that uses **LLM-generated** synthetic corpora to simulate and evaluate distinct kinds of semantic change; run parallelized experiments on HPC/SLURM.
- Apply the above to diachronic corpora (1970–present)—professional psychology, general language, and media—to trace semantic change in mental-health concepts and associated sociocultural dynamics.

Predoctoral / Research Assistant in Concept Creep

University of Melbourne

Melbourne School of Psychological Sciences; Supervisor: Professor Nick Haslam

Jan 2023 – Present

- Contributed to 12 projects on the semantic expansion of harm-related concepts (“concept creep”)
- Designed and implemented computational workflows for large-scale corpus analysis, including feature extraction (normalized term frequencies, collocates, adjective modifiers) and exploratory modeling (MDS, regression, ANOVA).
- Preprocessed diachronic text corpora (cleaning, lemmatization, dependency parsing) for downstream NLP analyses
- Collaborated with domain experts and trained research assistants to identify, curate, and document [new data sources](#) (New York Times, PubMed), expanding the lab’s repository of psychological and media corpora.

Research Assistant

Swinburne University of Technology

Australian Leadership Index; Supervisors: A/Prof Samuel Wilson, Dr Vlad Demsar, Dr Melissa Wheeler

Aug 2022 – Mar 2023

- Reviewed literature; identified methods; advanced a nationally significant project on public perceptions of leadership.
- Preprocessed and statistically analysed longitudinal text data; extracted latent themes using PCA; co-authored [paper](#).

Research Assistant / Research Project Student (Prof. Charles Kemp)

University of Melbourne

Computational Cognitive Sciences Lab, Melbourne School of Psychological Sciences

Jan 2021 – Jan 2023

- Constructed a multilingual dataset (38 languages) by extracting/annotating grammatical number systems and word-form mappings; collaborated across time zones (CET, GMT, AEDT) for [PNAS](#).
- Built a cultural astronomy database documenting cross-cultural semantic variation in references to celestial objects.
- Co-designed and ran a project linking linguistic, geospatial, and climatic datasets (248 languages) and modelled results with mixed-effects logistic regression.

Publications (Only First Author Listed)

Summary (8/10/2025): *h*-index: 6 [\[Google Scholar\]](#), 4 [\[Scopus\]](#). Total publications: 14 (10 journal articles; 3 conference proceedings (A* ACL); 1 workshop paper). Press: 3.

Journal Publications/Conference Proceedings:

Naomi Baes, Raphael Merx, Nick Haslam, Ekaterina Vylomova, and Haim Dubossarsky. (2025). LSC-Eval: A General Framework to Evaluate Methods for Assessing Dimensions of Lexical Semantic Change Using LLM-Generated Synthetic Data. *Findings of ACL 2025*, Vienna, Austria. [\[link\]](#)

Role: Conceptual design, synthetic dataset construction, benchmarking, experiments, writing.

Baes, N., Haslam, N., Vylomova, E. (2024). A Multidimensional Framework for Evaluating Lexical Semantic Change with Social Science Applications. *ACL 2024 (Long)*, 1390–1415. [\[link\]](#)

Role: Study design, method development (contextual embeddings, affect-rated lexica), regression analysis, writing.

Baes, N., Haslam, N., & Vylomova, E. (2023). Semantic Shifts in Mental Health-Related Concepts. *LChange@EMNLP 2023*, 119–128. [\[link\]](#)

Baes, N., Vylomova, E., Zyphur, M., & Haslam, N. (2023). The semantic inflation of “trauma” in psychology. *Psychology of Language and Communication*, 27(1), 23–45. [\[link\]](#)

Baes, N., Speagle, H., & Haslam, N. (2022). Has Psychology Become More Positive? *Frontiers in Psychology*, 13:870549. [\[link\]](#)

Invited Talks (Selected)

- **Dimensions of Semantic Change: Validation and Application of SIBling.**
 - **Sep 2025:** Change is Key! Conference, University of Gothenburg [\[Event\]](#) [\[Slides\]](#)
 - **Sep 2025:** Invited talk, *University of Utrecht*, [Natural Language and Text Processing Lab](#) [\[Slides\]](#)
 - **Sep 2025:** Invited talk, National Research Council Canada [\[Slides\]](#)
- **A General Framework to Evaluate Methods for Assessing Dimensions of LSC Using LLM-Generated Data.** *NLP Reading Group*, University of Melbourne (Apr 2025)
- **A Multidimensional Framework for Evaluating LSC.** *ACL Main*, Bangkok (Aug 2024). [\[Video/Slides/Poster\]](#)