Naomi Baes

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Professional Profile

Ph.D. candidate at the intersection of Psychology and Natural Language Processing, developing "SIBling", a general, multidimensional linguistic framework that characterizes key dimensions of lexical semantic change: Sentiment, Intensity, and Breadth. Naomi has proposed computational tools to track these dimensions in historical text corpora, developed an evaluation framework ("LSC-Eval") to validate and select suitable methods, and is applying SIBling to text from academia, everyday vernacular, and media to examine conceptual change and its social and cultural drivers. She currently applies SIBling in mental health concepts.

Education

Ph.D.	**Doctor of Philosophy, Social Psychology/Natural Language Processing**	**University of Melbourne**
	Melbourne School of Psychological Sciences	Submission: June 2026
	Supervisors: Prof Nick Haslam & Dr Ekaterina Vylomova	
	Advisors: Prof Yoshi Kashima, Prof Charles Kemp	
GDPA	**Graduate Diploma in Psychology (Advanced), First Class Honours**	**University of Melbourne**
	Melbourne School of Psychological Sciences	December 2021
	Supervisors: Professor Nick Haslam & Dr Ekaterina Vylomova	
GDP	**Graduate Diploma in Psychology, First Class Honours**	**University of Melbourne**
	Melbourne School of Psychological Sciences	December 2020
	Capstone Supervisor: Professor Charles Kemp	
BIDS	**Bachelor of International Development Studies, Early Achievers' Status**	**Australian Catholic University**
	Faculty of Education and Arts	December 2014

Academic Awards and Grants

Current Ongoing Research Support:

- **AUD $135k** - *Research Training Program Scholarship*   **Australian Commonwealth Government**
  Details: 100% fee remission and annual stipend for up to 3.5 years at the University of Melbourne   July 2023–Dec 2026

Other:

- **AUD $15k** - *Seed Funding - The Fighting Harmful Online Communication Hallmark Research Initiative*   **UOM**
  Project: Automatic Evaluation of Stigma in Online Communication.   March 2025–2026
  Research Team: Yulia Otmakhova, **Naomi Baes**, Jemima Kang, Mike Conway, Chris Groot, Jacinthe Flore, Nick Haslam.
  Details: Seed funding for pilot data and preliminary studies to enable proposals for funding to complete large-scale projects.
- **USD $200** - *EMNLP Sponsorship*, iguanodon.ai, Partial conference registration and ACL membership fee   2023
- **AUD $130k** - *Research Training Program Scholarship*, Australian Commonwealth Government (2022-2025)   *Declined*
- **AUD $100** - *Advanced Psychological Theory & Practice Prize (top)*, Melbourne School of Psychological Sciences   2020
- *Commonwealth Supported Place*, Australian Commonwealth Government, Graduate Diploma in Psychology (Adv)   2020
- *Early Achievers' Status*, Australian Catholic University, Awarded early entry for community service and leadership   2012

Hard Skills

Programming	Python (Pandas), R (dplyr, data.table), Bash Tools
Tools	Git, LaTeX, ChatGPT, High-Performance Computing (SLURM, Vim), LIWC, NVivo, Qualtrics, TDM Studio
NLP/ML	Text Preprocessing (spaCy, NLTK, grep), Distributional Semantics (word2vec, BERT, XL-LEXEME), Pre-trained LMs (Hugging Face), Machine Learning (scikit-learn), Deep Learning (Keras, PyTorch, TensorFlow)
Statistics	Descriptive and Inferential Analysis (Correlation, Regression, *t*-test, ANOVA, PCA, Time Series)
Visualization	R (ggplot2), Python (Matplotlib, Seaborn), Google Sheets

Publications

Summary (as of 25/04/2025): *h*-index: 5 [Google Scholar] , 4 (Scopus). Total publications: 16 — including 12 journal articles, 3 preprints, 1 abstract, and 3 popular press articles.

*Journal Publications***:** ....

First Author (4)

Baes, N., Haslam, N., Vylomova, E. (2024). A Multidimensional Framework for Evaluating Lexical Semantic Change with Social Science Applications. In *Proceedings of the 62nd Annual Meeting of the Association for Computational Linguistics (Volume 1: Long Papers)*, pages 1390–1415, Bangkok, Thailand. *Association for Computational Linguistics*. [link]

Baes, N., Haslam, N., & Vylomova, E. (2023, December). Semantic Shifts in Mental Health-Related Concepts. In *Proceedings of the 4th Workshop on Computational Approaches to Historical Language Change*, pages 119–128, Singapore. *Association for Computational Linguistics*. [link]

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

Baes, N., Speagle, H., & Haslam, N. (2022). Has Psychology Become More Positive? Trends in Language Use in Article Abstracts. *Frontiers in Psychology, 30*(13):870549. [link]

Last Author (4)

Kiropoulos, L. A., Rozenblat, V., **Baes, N.** (2024) Inflammatory proteins related to depression in multiple sclerosis: A systematic review and meta-analysis. *Brain, Behavior, & Immunity - Health, 43*(2025):100939. [link]

Haslam, N., **Baes, N.** (2024). What should we call mental ill health? Historical shifts in the popularity of generic terms. *PLOS Mental Health, 1*(1):e0000032. [link]

Haslam, N., & **Baes, N.** (2023). Science of mind and behaviour or allied health profession? Changes in the organisational location of psychology in Australian universities. *Australian Journal of Psychology, 75*(1):2182140. [link]

Haslam, N., & **Baes, N.** (2023). Scientific eminence and scientific hierarchy: bibliometric prediction of fellowship in the Australian Academy of Science. *Scientometrics, 128*(12), pages 6659–6674. [link]

Middle Author (4)

Wheeler, M. A., Wilson, S. G., **Baes, N.**, & Demsar, V. (2024). A search for commonalities in defining the common good: Using folk theories to unlock shared conceptions. *British Journal of Social Psychology, 63*(2), pages 956–974. [link]

Haslam, N., **Baes, N.**, & Haghani, M. (2024). The Structure and Evolution of Social Psychology: A Co-citation Network Analysis. *The Journal of Social Psychology*, 2363354, pages 1–12. [link]

Xiao, Y., **Baes, N.**, Vylomova, E., & Haslam, N. (2023). Have the concepts of 'anxiety' and 'depression' been normalized or pathologized? A corpus study of historical semantic change. *Plos one, 18*(6):e0288027. [link]

Chayadi, E., **Baes, N.**, & Kiropoulos, L. (2022). The effects of mindfulness-based interventions on symptoms of depression, anxiety, and cancer-related fatigue in oncology patients: A systematic review and meta-analysis. *PloS one, 17*(7):e0269519. [link]

*Manuscripts/Proposals under Review/ Preprints (5)***:** ....

Cassotti, P., **Baes, N.**, Camboim De Sa, J., Periti, F., Pascale, S., Haslam, N., Geeraerts, D., Tahmasebi, N. (in prep.). SenseRel: Modeling Semantic Relations Between Word Senses. *SemEval-2026 The 20th International Workshop on Semantic Evaluation.*

Baes, N., Merx, R., Haslam, N., Vylomova, E., Dubossarsky, D. (2025). A General Framework to Evaluate Methods for Assessing Dimensions of Lexical Semantic Change Using LLM-Generated Synthetic Data. *Association for Computational Linguistics*. [link]

Muhammad, S. H., Ousidhoum, N., Abdulmumin, I., Wahle, J. P., Ruas, T., Beloucif, M., de Kock, C., Surange, N., Teodorescu, D., Ahmad, I. S., Adelani, D. I., Aji, A. F. A., Ali, F. D. M. A., Alimova, I., Araujo, V., Babakov, N., **Baes, N.**, Bucur, A-M., Bukula, A., Cao, G., ... Mohammad, S. M. et al. (2025). BRIGHTER: BRIdging the Gap in Human-Annotated Textual Emotion Recognition Datasets for 28 Languages. *Association for Computational Linguistics*. [link]

Kashima, Y., Vylomova, E., Haslam, N., Hamamura, T., **Baes, N.** (2025). Culture in Psychology: A Cultural Dynamical Analysis. *Personality and Social Psychology Review*

Wheeler, A. M., Fine, C., Sojo V. E., Arthur, C. A. L., **Baes, N.** and Ryan, M. (2025). Barriers and Facilitators Shaping Fathers' Uptake of Parental Leave: A Capabilities Approach to Understanding an Important Dimension of Wellbeing and Gender Inequality. *Journal of Management Studies*

Manuscripts in Preparation (3): ....

Baes, N., Vylomova, E., Haslam, N. (in prep.). The Conceptual Change of Schizophrenia in American Media.

Baes, N., Vylomova, E., Haslam, N. (in prep.). Media Representations of Autism.

Vylomova, E.*, **Baes, N.***, Raszewski, L.*, Kock, C.* (in prep.). A Computational Analysis of the Dehumanization of Women in the Manosphere. *ACL Rolling Review*. * = equal contribution

Popular Press

Haslam, N. & **Baes, N.** (2024, April 9). What Should We Call Mental Ill-Health? *The Conversation*. Retrieved from [link]

Wheeler, M. A., Wilson, S. **Baes, N.**, Demsar, V. (2024, January 23). What does the 'common good' actually mean? Our research found common ground across the political divide. *The Conversation*. Retrieved from [link]

Baes, N. (2023, June 20). The proliferation of trauma online, Medium. Retrieved from [link]

Haslam, N., **Baes, N.**, Vylomova, E., & Xiao, Y. (2023, July 5). Do we think about anxiety and depression differently now? *PURSUIT*. Retrieved from [link]

In the Press: [See MuckRack Profile] ....

Stock, P. (2023, November 6). In the Academy of Science, are some sciences more equal than others? *Cosmos, Society*. [Link]

Stock, P. (2023, November 11). Policy advice benefits from diverse research. *Cosmos, Society*. [Link]

Stock, P. (2023, July 9). Tracking the shift in meanings of 'anxiety' and 'depression' over time. *Cosmos, Social Sciences*. [Link]

Academic Service

Leadership Positions: ....
- Program Committee for The 14th Joint Conference on Lexical and Computational Semantics (*SEM 2025), co-located with EMNLP in Suzhou, China (November 2025)
- Co-Organiser for SemEval-2026 Task: "SenseRel: Semantic Relations of Word Senses" - The 20th International Workshop on Semantic Evaluation *(pending acceptance of proposal to SemEval-2026 Task: 19 May 2025)*

Ad-hoc Reviewer: ....
- *Journals*: 1) Psychological Trauma: Theory, Research, Practice, and Policy; 2) Journal of Biosocial Science; 3) Advances in Methods and Practices in Psychological Science; 4) PLOS Mental Health; 5) Journal of Medical Internet Research

Student Supervision: ....
- **PSYC40010: Year-long (50-points) 2022 Honours student thesis**: Support Prof Nick Haslam to supervise Yu Xiao, providing programming, results interpretation support, and finalizing manuscript for publication
- **PSYC40010: Year-long (50-points) 2025 Honours student thesis**: Support Prof Nick Haslam to supervise Nick Pietsch, programming and helping to interpret analyses to model the conceptual change of 'autism' and publish results (ongoing)

Research Experience (Selected)

Doctoral Researcher   **University of Melbourne**
Melbourne School of Psychological Sciences; Supervisors: Nick Haslam & Ekaterina Vylomova   June 2023—June 2026
- Develop theoretical multidimensional framework to evaluate dimensions of lexical semantic change drawing on linguistics
- Quantitatively analyze large text corpora: psychology abstracts (1930-2019); general (1810-2019); media (TDM Studio)
- Develop/ use computational models (collocations, BERT, annotated lexica) to evaluate dimensions of conceptual change
- Statistically analyze time series trends (regression), and how semantic indices relate, to address social and cultural concerns
- Design experiments to evaluate and illustrate the generalizability and scalability of the computational linguistic framework
- Publish papers in top conference proceedings (Association of Computational Linguistics) and psychology journals
- Collaborate with researchers locally and internationally to advance work on conceptual change in NLP and Psychology

Research Assistant in Concept Creep   **University of Melbourne**
Melbourne School of Psychological Sciences; Supervisor: Professor Nick Haslam   July 2023—
- Source/compile new corpora after consulting with experts for scraping/extraction (academies, New York Times, PubMed)
- Pre-process (clean, lemmatize, dependency parse) diachronic text corpora for further analysis and language modelling
- Supervise and train RAs: to code binary labels and to compile corpus data (scrape PubMed databases, NYT articles)

Predoctoral Research Assistant in Concept Creep   **University of Melbourne**

Melbourne School of Psychological Sciences; Supervisor: Professor Nick Haslam   Jan 2023—Jun 2023
- Manage 12 projects independently and with principal investigator (4 to completion; progressed 4; developed 4)
- Extract information (relative frequencies, collocates, adjective modifiers, counts) from corpora with dynamic programming
- Exploratory analysis (MDS) and hypothesis testing on big data for papers: logistic regression, *t*-tests, analysis of variance

Research Assistant   **Swinburne University of Technology**

Australian Leadership Index; Supervisor: A/Prof. Samuel Wilson, Dr. Vlad Demsar, Dr. Melissa Wheeler   Aug 2022—Mar 2023
- Advance project in research team by researching literature to find gap, optimal method and coding quantitative analysis
- Manage preprocessing and statistical analysis for national longitudinal data set reflecting opinions of Australian population
- Quantitatively extract themes in corpus data (PCA in R) and co-draft paper, leading to publication in Tier 1 journal

Research Assistant to Charles Kemp   **University of Melbourne**

Computational Cognitive Sciences Lab; Supervisor: Professor Charles Kemp   Jan 2021—Jan 2023
- Build linguistic dataset by scanning grammars for patterns in how 38 languages mark word forms for word meanings
- Liaise with researchers across time zones (CET, GMT, and AEDT) to compile grammatical number data for modelling
- Compile cultural astronomy database detailing different meanings cultures give to sky objects (e.g., galaxies, nebulas)

Psychology Capstone Project   **University of Melbourne**

Melbourne School of Psychological Sciences; Supervisor: Professor Charles Kemp   Jun 2021—Nov 2021
- Investigate if rainfall amount in language location predicts more rain-related vocabulary in dictionaries of local language
- Link dictionary data (word counts, 248 languages) with geographic coordinates for languages with global rainfall data
- Mixed effects logistic regression models: precipitation predicts probability of rain-related noun occurence in dictionaries

Research Intern/ Honours/ Affiliated Researcher   **University of Melbourne**

Social/Personality Laboratory; Supervisors: Professor Nick Haslam & Dr Ekaterina Vylomova   2021—2022
- Led project within team of 3, analyzed sentiment of psychology corpus data, co-drafted manuscript, resulting in publication
- Developed method to evaluate semantic severity of concepts using affect ratings & collocate counts for honours thesis
- Programmed code for Honours student and guided them to compute indices, graph and quantify results, for thesis project

Teaching Experience

Tutor, BUSA90543: Natural Language Processing   **University Of Melbourne**

Melbourne Business School; Subject Coordinator: A/Prof Jey Han Lau   May-July 2025
- 1/3 tutors running 60-minute weekly workshops for up to 80 students in the Master of Business Analytics course
- Marking assignments (report and exams) in a timely manner and providing support to students

Sessional Marking, PSYC90100: Applied Research Methods   **University Of Melbourne**

Melbourne School of Psychological Science; Subject Coorindator: Prof Nick Haslam   November 2024
- Mark 40 exams (short answer questions) for Applied Research Methods (PSYC90100) for Masters of Applied Psychology

Academic Tutor   **Private Tutoring Service**

Students from universities across Australia[1]   Mar 2022—
- Provide tutoring services to > 70 university students (87% University of Melbourne) across 28 psychology subjects (higher education AQF levels 7-9) in confidential setting, securing positive reviews
- Consult on entry into academic programs, research design and statistical analysis, time management and proofread/provided feedback on assessments (1,500 word lab reports; up to 10,000 word theses)

Music Teacher (Piano, Violin, Theory)   **Private Studio/ uLearn Music**

City of Casey   Jan 2010—Jan 2017
- Teach classic music (theory and practice: AMEB piano syllabus, Suzuki violin method) with 98% retention rate
- Hold practice recitals and increased student base (all ages) with an individualized teaching approach
- Engage primary-school children by adapting curriculum in private, semi-private (dyad), and group lessons
- Prepare over 30 students for school concerts by selecting pieces and coaching students in technique and performance

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[1]Australian National University, Institute for Social Neuroscience, Monash University, Swinburne University, University of Adelaide, University of Canberra

Professional Development Activities

Academic Conferences: ....
- **Google Australia Research@Sydney Student Event**, Google Sydney (Feb 2025). *PhD Student Attendee*. [Link]
- **ACL 2024 (62nd Annual Meeting)**, Bangkok, Thailand (Aug 2024). *Poster Presenter & Conference Attendee*. [Program]
- **EMNLP 2023**, Sentosa, Singapore (Dec 2023). *Workshop Presenter, Conference Attendee & Mentee (w/ Syrielle Montariol)*. [Program]
- **SASP–ACPID 2023**, Noosa, QLD (Nov 2023). *Presenter & Conference Attendee*. [Abstract Book]
- **AIIA National Conference**, Canberra (Oct 2014). *Conference Attendee & Student Participant in the Aid & Development Masterclass (w/ Dr Janet Hunt)*. [Report]

Summer Schools/Workshops: ....
- **ESSLLI 2024 (35th European Summer School in Logic, Language and Information)**, KU Leuven, Belgium (Jul–Aug 2024). [Programme]
- **Change is Key! Workshop @ ESSLLI: Computational Models for Semantic Change and their Applications in Multidisciplinary Research**, KU Leuven, Belgium (Jul–Aug 2024). *Instructors: Haim Dubossarsky, Pierluigi Cassotti*. [Details]
- **LChange Workshop @ EMNLP: 4th International Workshop on Computational Approaches to Historical Language Change**, Sentosa, Singapore (Dec 2023). [Event Link]
- **SASP Summer School: How Evolution Shaped the The Social Mind**, University of Melbourne (Nov 2023). *Instructors: Khandis Blake, Amanda Rotella, Beatrice Alba*. [Event]
- **Mainstream Media Workshop**, Australian Science Media Centre, University of Melbourne (Oct 2023)

Technical Skill Development: ....
- **COMP90042: Natural Language Processing** (12 weeks). Graduate-level audit, University of Melbourne (2024; 2025)
- **COMP90049: Introduction to Machine Learning** (12 weeks). Graduate-level audit, University of Melbourne (2024)
- **COMP10001: Foundations of Computing** (12 weeks). First-year audit, University of Melbourne (2024)
- **High Performance Computing Workshops** (8 hours each). University of Melbourne [Details]: (1) Introduction to Linux and HPC: Job Submission Approaches; (2) Parallel and High Performance Python: Parallel Programming, Performance

Professional Memberships: ....
- Association for the Advancement of Artificial Intelligence: Washington, DC, US   2025–
- Mental Health PhD Program, Melbourne School of Psychological Sciences, University of Melbourne, AUS   2024–
- Association for Computational Linguistics: Stroudsburg, Pennsylvania, US   2023–
- Society of Australasian Social Psychologists: Sydney, AU   2023–

Talks and Presentations

- **A General Framework to Evaluate Methods for Assessing Dimensions of Lexical Semantic Change Using LLM-Generated Synthetic Data**. *Natural Language Processing Reading Group, CIS*, University of Melbourne (April 2025)
- **A Multidimensional Framework for Evaluating Lexical Semantic Change with Social Science Applications.** *Association for Computational Linguistics, Main Conference,* Bangkok, Thailand (August 2024). [Video/ Slides/ Poster]
- **Semantic Shifts in Mental Health-Related Concepts**. *LChange'23 at EMNLP*, Sentosa, Singapore (Dec 2023). [Slides]
- **The Concept Creep of Mental Illness**. *SASP–ACPID Conference*, Noosa, QLD (Nov 2023). [Slides] [Event]
- **The Semantic Inflation of 'Trauma' in Psychology**. *Computational Cognitive Sciences Lab, Complex Human Data Hub*, University of Melbourne (Apr 2022). [Slides]

Hobbies

I enjoy moving my body (lifting weights, running, hiking) and learning new things (currently, I am studying the Tanakh, reading Ayn Rand's 'Atlas Shrugged', and learning Beethoven's 'Piano Sonata No. 14 in C# minor, *Quasi una fantasia*, Op. 27, No. 2').