

## General Information

**Affiliation** Institute of Language, Cognition and Computation,  
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## Research Statement

I am a postdoctoral researcher in the Institute of Language, Logic and Cognition, University of Edinburgh, working with Prof. Mirella Lapata and Dr. Shay Cohen. I use machine learning methods and computational models to gain a deeper understanding of the structure and dynamics of meaning representations both in language and in humans. I develop Bayesian models of how children learn categories and their structured featural representations in a joint and incremental process. I am also interested in the dynamics of meaning in natural language. I have developed models of word meaning change over centuries. Most recently I have used deep learning methods to model the structure and development of plots in books and films.

## Education

- 2013–2017 **PhD in Informatics, ILCC, University of Edinburgh, Edinburgh,**  
Thesis: *Bayesian Models of Category Acquisition and Meaning Development*  
Supervisors: Prof. Mirella Lapata and Dr. Charles Sutton.
- 2011–2012 **Research Stay (Erasmus Mundus MULTI Exchange),**  
*Nanyang Technical University, Singapore,*  
Research project on cross-lingual parse disambiguation  
Supervisor: Prof. Dr. Francis Bond.
- 2010–2013 **M.Sc. Language Science and Technology, Saarland University, Saarbrücken,**  
Thesis: *A Hierarchical Bayesian Model for Unsupervised Learning of Script Knowledge*  
Supervisors: Dr. Ivan Titov and Prof. Dr. Manfred Pinkal.  
GPA: 1.1 *with distinction* (Scale: 1.0 (excellent) - 5.0 (fail))
- 2009–2010 **Visiting Student, University of Edinburgh, Edinburgh,**  
Courses in Computer Science, Cognitive Science, Computational Linguistics.
- 2007–2010 **B.A. Language Sciences and English-speaking Cultures (Focus: Computational Linguistics), University of Bremen, Bremen,**  
Thesis: *Dialogue Act Recognition based on Information Extraction Approaches in the Spatial Domain*  
Supervisors: Dr. Heriberto Cuayáhuatl and Prof. Dr. John Bateman.  
GPA: 1.4 (Scale: 1.0 (excellent) - 5.0 (fail))

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## Employment

- 07–09 2017 **Visiting Scholar**, *Language and Cognition Lab, Stanford University*, Stanford, USA.
- 2016–present **Research Associate**, *ILCC, University of Edinburgh*, Edinburgh.
- 2016 **Machine Learning Internship**, *Amazon Core Machine Learning*, Berlin.
- 2010–2011 **Research Assistant**, *Department of Computational Linguistics, Saarbrücken*.  
Annotation of HPSG parses with the English Resource Grammar (ERG) of the Wallstreet Journal, as part of the DELPH-IN project.
- 2008–2010 **Research Assistant**, *SFB/TR8 Spatial Cognition, Bremen*.  
Development of a parsing grammar for German spatial language in the CCG grammar framework with the OpenCCG development environment
- 2008 **Research Internship**, *SFB/TR8 Spatial Cognition, Bremen*.  
Design, execution and evaluation of various linguistic experiments.  
Natural language generation with the grammar development environment KPML.  
Natural language parsing with the grammar development environment OpenCCG.

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## Awards

- 2017 **Sicsa Postdoctoral and Early Career Researcher Exchange Grant**.
- 2011 **Erasmus Mundus MULTI Mobility Grant**.

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## Teaching

- 2016, 2015 **Tutor**, *„Informatics 1 Cognitive Science“*.  
1st year B.Sc. course, School of Informatics, University of Edinburgh
- 2012, 2011 **Tutor and Teaching Assistant**, *“Grammar Formalisms“*.  
3rd year B.Sc. course, Department of Computational Linguistics, Saarland University
- 2009 **Tutor**, *„Introduction to English Linguistics (Part II: Empirical Methods)“*.  
2nd year B.A. course, Department of Linguistics and Literature, University of Bremen
- 2008 **Tutor**, *„Introduction to General and Comparative Linguistics“*.  
1st year B.A. course, Department of Linguistics and Literature, University of Bremen

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## Professional Service

- Journal Reviewing Memory and Cognition (2016, 2017)
- Conference Reviewing ACL (2017), ACL-SRW (2017), SemEval-2017 Steering Committee, NAACL (2016), NAACL-SRW (2016), Coling (2016), WiML(2016), EMNLP (2015, 2017), ESSLI (2015), Workshop on Vector Space Modeling for NLP (2015), CoNLL (2017)
- Committee Member SLT-1: Semantics of the Long Tail (Workshop at IJCNLP 2017)
- 2014–2015 **Organizer of the reading group “Machine Learning for Natural Language Processing”**, *University of Edinburgh*.
- 2008–2009 **Member of Degree Programme Organization Committee (Studienkommission)**, *University of Bremen*.
- 2008–2009 **Member of Student Council (Studentenvertretung)**, *University of Bremen*.

## Miscellaneous

- 2014 **Proofreading “Bayesian Analysis in Natural Language Processing”**, Monograph currently under development by Dr. Shay Cohen.
- 2011 **Participant in Lisbon Machine Learning School**, *Instituto Superior Técnico*, Lisbon.

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## Invitations

- 2016 **Invited talk at the Drift-a-LOD Workshop (EKAW 2016)**, *Bologna*, Italy.
- 2015 **Invited talk at Heriot-Watt University**, *Edinburgh*, United Kingdom.
- 2015 **Google NLP PhD Summit**, *Zurich*, Switzerland.
- 2012 **Invited Paper presentation at the First Workshop on Multilingual Modeling (in conjunction with ACL 2012)**, *Jeju Island*, Republic of Korea.

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## Publications

### Journal Articles

- Frermann, Lea and Mirella Lapata. “A Bayesian Model of Diachronic Meaning Change”. In: *Transactions of the Association for Computational Linguistics* 4 (2016), pp. 31–45.
- Frermann, Lea and Mirella Lapata. “Incremental Bayesian Category Learning From Natural Language”. In: *Cognitive Science* 40.6 (2016), pp. 1333–1381.

### Conference Papers

- Frermann, Lea and Mirella Lapata. “A Bayesian Model for Joint Learning of Categories and their Features”. In: *Proceedings of the Conference of the North-American Chapter of the Association for Computational Linguistics*. Denver, USA, 2015.
- Frermann, Lea, Ivan Titov, and Manfred Pinkal. “A Hierarchical Bayesian Model for Unsupervised Induction of Script Knowledge”. In: *Proceedings of the Conference of the European Chapter of the Association for Computational Linguistics*. Gotheborg, Sweden, 2014.
- Frermann, Lea and Mirella Lapata. “Incremental Bayesian Learning of Semantic Categories”. In: *Proceedings of the Conference of the European Chapter of the Association for Computational Linguistics*. Gotheborg, Sweden, 2014.
- Frermann, Lea and Francis Bond. “Cross-lingual Parse Disambiguation based on Semantic Correspondence”. In: *Proceedings of the 50th Annual Meeting of the Association for Computational Linguistics*. Jeju Island, South Korea, 2012.

### Workshop Contributions (not published)

- Frermann, Lea. *A Bayesian Model of Joint Category and Feature Learning*. 11th Workshop for Women in Machine Learning (WiML) – in conjunction with NIPS. Barcelona, Spain, 2016.
- Frermann, Lea. *A Bayesian Model of the Temporal Dynamics of Word Meaning*. 10th Workshop for Women in Machine Learning (WiML) – in conjunction with NIPS. Montreal, Canada, 2015.