**CLASP Annual Report 2021**

Sharid Loáicigaand Shalom Lappin

February 9, 2022

**1 Introduction**

During the past year CLASP has managed to grow, and to sustain a high level of research activity, despite the difficulties posed by the continuing pandemic. We produced a substantial stream of publications, participated in a variety of high profile international conferences, and maintained a lively seminar series with both international and local speakers. One of our PhD students completed her degree, we took on a new PhD student, and we appointed a new Associate Director. We conducted a successful annual conference, with in-person, as well as Zoom participation. The proceedings were again published in the ACL Anthology under SIGSEM sponsorship.

We are currently in the midst of recruiting several Associate Senior Lecturers, who we expect to appoint in the Spring of 2022. These positions will help to insure the continuation of CLASP as a major centre for research and advanced teaching in computational linguistics, past the period of our VR grant.

As we gradually return to normal activity on the GU campus, we look forward to resuming an active and vibrant schedule of scientific activity in the coming year.

**2 CLASP Staff and Recruitment**

We have had several staff changes during 2021. We recruited an additional PhD student, Alex Berman, who joined us in October. Stergios Chatzikyriakidis, our Associate Director, left in June 2021 to take up a Professorship at the University of Crete. He continues to supervise Kathrein Abu-Kwaik’s thesis research, and he is now an Associate Researcher at CLASP. Sharid Loáiciga has been appointed as a researcher and Associate Director of CLASP. Alex Clark, Chris Fox, and Ruth Kempson have become Associate Researchers. Ellen Breitholtz has been appointed a Lecturer in Linguistics in FLoV, and she remains a member of CLASP. Hanna Edblom has become our temporary administrator, filling in for Susanna Myyry. Susanna has just returned to us in February 2022, on a part-time basis.

We received approval from the Humanities Faculty at GU to advertise for one or more Associate Senior Lecturers in Computational Linguistics. We announced these positions in November, with a deadline of February 1, 2022. We have now received seven applications, which we will be submitting to external assessment. We hope to appoint successful candidates to these positions by May, 2022. When added to the permanent academic staff already in CLASP (two Senior Lecturers and two Professors), these appointments will secure a core of NLP researchers who will continue at GU past the tenure of our VR grant. They will provide the basis for the long term future of CLASP as a continuing centre for cutting edge research and teaching in computational linguistics at the University of Gothenburg.

**Researchers:**

Jean-Philippe Bernardy

Researcher (Docent in Computer Science) in CLASP

Ellen Breitholtz

Lecturer in Linguistics in FLoV, researcher in CLASP

Stergios Chatzikyriakidis

Researcher and Associate Director of CLASP until June 2021,

currently Professor of Computational Linguistics at the University of Crete,

and Associate Researcher in CLASP

Robin Cooper

Senior Researcher at CLASP, Professor emeritus of Computational Linguistics

Simon Dobnik

Professor of Computational Linguistics

Christine Howes

Senior Lecturer in Computational Linguistics (Docent in Computational Linguistics)

Aram Karimi

AI researcher and programmer

Shalom Lappin

Professor, Senior Researcher, Director of CLASP

Staffan Larsson

Professor of Computational Linguistics

Sharid Loáiciga

Researcher, Associate Director of CLASP

Asad Sayeed

Senior Lecturer in Machine Learning

**Post Doctoral Researchers:**

Julian Grove

**PhD Students:**

Kathrein Abu-Kwaik

Axel Almquist

On a one year leave of absence as of November 2021

Alexander Berman

Adam Ek

Tewodros Gebreselassie

Nikolai Ilinykh

Vladislav Maraev

Bill Noble

Sylvie Saget

Vidya Somashekarappa

**Associate Researchers:**

Alexander Clark

Associate Researcher

Alex Clark is a researcher in computational linguistics specialising in grammatical inference, and theoretical and mathematical approaches to natural language.

Chris Fox

Associate Researcher

Previously Reader in Computer Science (Essex, UK), researcher in computational linguistics and formal semantics

Ruth Kempson

Associate Researcher

Ruth Kempson, Fellow of the British Academy, Member of Academia Europaea, Professor Emerita of Linguistics, Philosophy Department, King’s College London

**Administrators:**

Hanna Edblom

Susanna Myyry

**3 Research Activities and Research Groups**

**Dialogue Group:**

Research in the dialogue research group in 2021 continued to focus on existing projects, particularly GRIPES ([https://www.gu.se/en/research/gripes-gothenburg-research-initiative-for](https://www.gu.se/en/research/gripes-gothenburg-research-initiative-for-politically-emergent-systems)

[-politically-emergent-systems](https://www.gu.se/en/research/gripes-gothenburg-research-initiative-for-politically-emergent-systems)), IncReD, and DRiPS (http://www.christinehowes.com/research). Two of these, IncReD and DRiPS, which focus on reasoning in dialogue, have been extended until June 2022 due to covid-19. Non-project specific research continues in the areas of semantic coordination, dialogue systems, humour, common ground, laughter and gaze.  We have collaborated extensively both locally and internationally (see publications appendix), and continue to attend internationally acclaimed conferences and workshops to disseminate our work and encourage new collaborations, albeit virtually. In October 2021, we co-hosted CLASP's Reasoning in Interaction conference (Reinact 2021 -- see https://sites.google.com/view/reinact2021/home), published the proceedings via the ACL anthology. In particular, the dialogue group was pivotal in collecting a new, unique dataset on Natural Language Inference in Dialogue (preliminary results have been submitted to LREC).

We have welcomed two new PhD students to the Dialogue Research Group (Alex Berman, funded by CLASP and Fahima Ayub Khan funded by Linguistics at FLoV). We also welcome Ruth Kempson as an associate researcher. Grant applications are in progress to VR, RJ and the ERC. The dialogue reading group continues to meet fortnightly in a hybrid format. In 2021, several of the invited speakers were specifically relevant to research in the dialogue group, including Mattias Appelgren, Nick Chater, Julia Hockenmaier, Roger Levy, Giulia Perugia.

**Machine Learning, Cognitive Modeling, and Natural Language Processing Group:**

2021 was a year of challenges due to pandemic and other factors, but the Machine Learning, Cognitive Modeling, and Natural Language Processing (MLCMNLP) group took the opportunity to expand and deepen existing collaborations, both outside and inside CLASP. Asad Sayeed continued his collaboration, partly via the GRIPES project, on meaning disagreement and language change with other CLASP researchers as well as the University of Amsterdam, producing two publications.  With researchers at Bloomberg LLC and students at Columbia University, he also expanded his work on thematic fit modeling, including a new project on using Dowtyan proto-roles to produce an end-to-end SRL/proto-role parser.  Asad also continues to lead the GRIPES project, a joint collaboration with the Journalism and Media Studies department. GRIPES launched and successfully completed a pilot study in applying word replacement tasks from psycholinguistics to Swedish-language opinion research in the cause of identifying dogwhistle dynamics in Swedish political media.

Asad also co-supervised two master's theses with a local company on developing translation and speech recognition tools for Sámi dialects under the sponsorship of the Sámi Parliament of Norway.

CLASP student Vidya Somashekarappa continued working with the CLASP dialog group, but for her dissertation published her on-going work on developing a mutual gaze annotated video corpus with additional analysis.  She then initiated a collaboration with researchers at Potsdam University and Uppsala University on using dialogue robot simulations to test her hypotheses about mutual gaze and is presently developing an automated annotation system for gaze corpora via recent machine learning techniques.

Within the GRIPES project, Ph.D. student Gregor Rettenegger, placed by GRIPES in the Journalism and Media Studies (JMG) department, developed a model of identity construction and reinforcement via media polarization. Data is now being collected to develop models of polarization and hostility in internet conversation based on this idea.

**Probabilistic Natural Language Semantics (PNLS) and Type Theory Group:**

The Type Theory Group has now been combined with the PNLS group, as the same people are involved in both, and their activities are fully integrated.

We are currently editing a volume of articles for CSLI Publications, that provide an overview of current developments in probabilistic syntax and semantics. The collection will include contributions from members of CLASP, and a range of other researchers working on probabilistic approaches to natural language. The volume will cover a broad range of methods and models, from small scale Bayesian methods with few parameters, to large-scale deep neural networks with millions of parameters. The intended audience is chiefly graduate students in formal linguistics, NLP, AI, and cognitive science, as well as more advanced researchers seeking to broaden their understanding of work in these areas. We expect the volume to go in press in 2022.

A course on probabilistic semantics was given at ESSLLI 2021, together with our alumnus Aleksandre Maskharashvili.

Other research activities of the group include a reformulation of probabilistic semantics in terms of the simply typed lambda calculus. This work appeared at LENLS and will be featured in the post-proceedings, published in LNCS. In a piece of work which appeared in NALOMA, we have applied probabilistic semantics to the problem of pragmatic anaphora resolution. Some of the output from our group was integrated in Cooper's TTR, as witnessed by publications co-authored by Larsson and Bernardy.

**Cognitive Systems Group:**

The cognitive systems group which covers work on situated language processing and semantic representation learning continued its work on (i) computational models and meaning representations of language, action and perception (Dobnik, Ilinykh, and Kelleher (external)), (ii) semantic models of language and perception (Dobnik, Cooper, Larsson), (iii) reference and co-reference in visual dialogue (Dobnik, Loáiciga and Schlangen (external)), (iv) representation learning in language models (Dobnik, Abu Kwaik, Gebreselassie, Ek, Ilinykh, Karimi, Chatzikyriakidis), (v) multi-modal dialogue (Dobnik, Ilinykh, Maraev, Noble, and Somashekarappa). For details of publications and activities, please refer to their lists with individual researchers.

The group meets jointly every fortnight around a reading group for which students can also receive course credit. (Two doctoral students from Språkbanken are also regular attendees.) The joint discussions of the group produced a co-authored survey paper examining meaning representations in computational semantics for various tasks and applications, which has been posted on arXiv.

Currently, there are three standing doctoral courses: Language, Action, and Perception (APL), Representations of Meaning (ROM) and Machine Learning Methods for Vision and Language (ML-V&L). Additional reading courses can be arranged to cover more specific interests of students.

The group members supervised several theses in our masters programme but also worked in external collaborations with (i) Thomas Hoffmann working towards Masters in Complex Adaptive Systems at Department of Physics, GU and Chalmers on "Quantum Models for Word-sense Disambiguation" (co-supervised by Granath (external) and Dobnik) and (ii) Yasmeen Emampoor working towards Masters in Computer Science and Engineering at GU and Chalmers on Embodied Question Answering with a virtual robot (co-supervised by Dobnik and Ilinykh).

Dobnik took part in the organisation of the 23rd Nordic Conference on Computational Linguistics (NoDaLiDa 2021) which was held in Reykjavik/Online between 31 May and 2 June and several members helped with the organisation of the CLASPs conference on Reasoning and Interaction (ReInAct 2021) which attracted several submissions related to its core topics, including a keynote by Joyce Chai on "Language, Action, and Physical Causality".

Group leader Simon Dobnik has continued his work in the Coordination Group for Artificial Intelligence and Digitisation at University of Gothenburg (SAID) which acts as an advisory body to the deputy vice-chancellor on the issues related to AI. The focus this year was the development and launch of a university-wide online course (MOOC) “AI and Professions” intended for the general public. Dobnik, Ilinykh, Loáiciga, Ek, and Somashekarappa worked on the natural language processing module for which they have recorded lecture videos and developed exercises. Dobnik has previously obtained funding from AI Competence Sweden to organise a course or a summer school with external lectures on natural language processing, vision and robotics. Unfortunately, due to the pandemic, this had to be postponed again and is now planned for the summer of 2022.

The group and its external collaborators worked on several research grant proposals, with the aim of expanding its members with postdoctoral positions and PhD students. They were also intended to establish new international collaborations, primarily through the Swedish Research Council (VR) which also funds CLASP. Unfortunately, these were not funded. Dobnik won funding within the SKANDIBOT project consortium for development of a conversational agent used in second language learning. New research applications are underway for the current funding round.

**4 Scientific Activities (Conferences, Workshops, Seminars, and Speakers)**

The First Conference on Reasoning and Interaction (ReInAct) brought together researchers interested in computationally relevant approaches to reasoning and interaction in natural language. ReInAct was open to Machine Learning, Symbolic and Experimental approaches, as well as combinations of these. The conference was held in a hybrid format in October 2021. More information can be found here: <https://sites.google.com/view/reinact2021/home>

The conference was sponsored by SIGSEM and its proceedings were published in the ACL anthology: <https://aclanthology.org/volumes/2021.reinact-1/>

**5 Joint Research with External Partners**

Ellen Breitholtz, Christine Howes and Robin Cooper continued to work with Mary Lavelle (City, University of London) on the DRiPS project. They have also built on a collaboration with Maxime Amblard (University of Lorraine), and will be hosting an intern from his group under the Erasmus+ traineeship scheme during 2022 to work on “Modelling topic level interaction in pathological conversations”.

Robin Cooper and Staffan Larsson are working with Jonathan Ginzburg (University of Paris Diderot) on probabilistic semantics in language acquisition

Robin Cooper has worked with Andy Lücking (University of Frankfurt and University of Paris Diderot) and Jonathan Ginzburg (University of Paris Diderot) on applying TTR to Head Driven Phrase Structure Grammar (HPSG).

Christine Howes has continued to work with Arash Eshghi (Heriot-Watt, Edinburgh) on feedback in dialogue. This work has led to a paper being published in the Journal of Logic, Linguistics and Information (see publications). Arash Eshghi has also been approved as a guest researcher at FLoV during 2022 to strengthen this collaboration.

Vlad Maraev, Vidya Somashekarappa and Christine Howes have been involved in a collaboration with Chiara Mazzocconni (Marseille) combining insights about gaze and laughter in dialogue, with work presented at a number of venues including ICMI (see publications).

Sharid Loáiciga has continued work started at her previous postdoc position at the University of Potsdam on the annotation of a multimodal corpus with coreference information. This project is a collaboration with David Schlangen from the Linguistics Department at the University of Potsdam and Simon Dobnik, and is being developed alongside the broader framework of the Universal Anaphora project led by Massimo Poesio from Queen Mary University of London.

Shalom Lappin has been working with the members of the NLP lab in the Cognitive Science Group of the School of Electronic Engineering and Computer Science, Queen Mary University of London, where he recently took up a 20% position as Professor of Natural Language Processing. He has also been planning a joint research project with Jey Han Lau of the University of Melbourne, Jean-Philippe Bernardy, and Adam Ek, on using neural language models to predict human sentence acceptability judgments in multi-modal contexts.

**6 Our Seminars, Visiting Speakers/Guest Researchers**

As restrictions remain due to the pandemic, the weekly research seminar has continued to be held online. For a short period during November-December, two physical visits took place. These were a research visit by Ryan Cotterell from the University of Zürich, and a seminar presentation by Aarne Ranta from the University of Gothenburg/Chalmers. The guest speakers came from diverse affiliations, including both national and international institutions, and the topics covered all areas of interest in CLASP:

* Olof Mogren, RISE, "Learned representations and what they encode"
* Marianna Apidianaki, University of Pennsylvania, "What does BERT know about words? Unveiling hidden lexical semantic properties"
* Julia Hockenmaier, University of Illinois, "Collaborative Construction and Communication with Minecraft"
* Giulia Perugia, Uppsala University, "Gaze, Personality, and the Uncanny Valley: Implicit Cues of Uncanny feelings and Interaction Strategies to Overcome them"
* Nick Chater, Warwick/UCL, "Virtual bargaining: The hidden logic of joint action and communication"
* Mark Steedman, University of Edinburgh, "Why we still need Grammars for NLP"
* Jörg Tiedemann, University of Helsinki, "What's in a translation model? Analyzing neural seq2seq models and the representations they learn"
* Moa Johansson, Chalmers, "Bias and Methods of AI Technology Studying Political Science"
* Richard Johansson and Lovisa Hagström, Chalmers, "Interpreting and Grounding Pre-trained Representations for Natural Language Processing"
* Adam Poliak, Barnard College, "Exploring Reasoning Capabilities of NLP systems using Recognizing Textual Entailment"
* Haim Dubossarsky, University of Cambridge, "A space is worth a thousand words: A new spectral analysis method to evaluate vector space similarity"
* Katrin Erk, University of Texas, "Contextualized embeddings for semantics: some steps along the way"
* Roger Levy, MIT, "How language understanding unfolds in minds and machines"
* Ryan Cotterell, University of Zürich, "Two New Insights into Beam Search"
* Aarne Ranta, Chalmers, "Abstract Wikipedia and Vastly Multilingual Natural Language Generation"
* Mattias Appelgren, University of Edinburgh, "Interactive Task Learning from Corrective Feedback"

The seminar is also a forum for CLASP researchers to present ongoing work, and it gives the PhD students an opportunity to receive useful feedback. In the past year, there have been presentations by Bill Noble, Axel Almquist, Vlad Maraev, Robin Cooper, Staffan Larsson, Sharid Loáiciga, and Julian Grove.

A more detailed list of seminar talks, including abstracts may be found at:

<https://gu-clasp.github.io/event/?type=seminars&page=1>

**7 PhD Program in Computational Linguistics**

We currently have 9 PhD students in CLASP. They are

1. Kathrein Abu-Kwaik (started November 2016, first supervisor Stergios Chatzikyriakidis, second supervisor Simon Dobnik)
2. Vladislav Maraev (started September 2017, first supervisor Chris Howes, second supervisor Staffan Larsson, Jonathan Ginzburg, external advisor)
3. Bill Noble (started September 2018, first supervisor Staffan Larsson, second supervisor Asad Sayeed)
4. Adam Ek (started March 2019, first supervisor Jean-Philippe Bernardy, second supervisor Stergios Chatzikyriakidis)
5. Vidya Somashekarappa (started January 2019, first supervisor Asad Sayeed, second supervisor Chris Howes)
6. Axel Almquist (started January 2020, first supervisor Asad Sayeed, second supervisor Simon Dobnik)
7. Tewodros Gebreselassie (started January 2020, first supervisor Simon Dobnik, second supervisor, Stergios Chatzikyriakidis)
8. Nikolai Ilinykh (started February 2020, first supervisor Simon Dobnik, second supervisor, Asad Sayeed)
9. Alexander Berman (started October 2021, first supervisor Chris Howes, second supervisor Jean-Philippe Bernardy)

Our students continue making excellent progress, with most of them presenting papers at major international conferences over the past year, despite the pandemic. Kathrein Abu-Kwaik successfully presented her final seminar in January 2022, Axel Almquist has taken a one-year leave of absence, and Sylvie Saget finished her contract with CLASP in January 2022.

**8 Budget**

As our budget spreadsheet indicates, we continue to run a significant budget surplus. Part of this is due to the absence of travel, and the suspension of most scientific visits during the past two years of pandemic restrictions. We expect that the surplus will be reduced as we gradually return to normal activity. In addition, we are using some of these funds for our new Associate Senior Lecturer appointments. We are also planning to significantly upgrade our server and GPU resources to support more intensive research computing. The international chip shortage has delayed our purchase of the hardware needed for this purpose, particularly a large GPU card, but we are hoping to obtain the equipment in the coming year.

**9 CLASP Alumni**

**Wafia Adouane**

Wafia works at Cerence (software company) in the domain of IoT with the focus on the automotive domain. She works with the NLU and ASR teams where she develops systems that control connected devices using human voice in multiple languages. She is also interested in following the recent developments in the NLP domain since her work is based on applying the latest research methods/models, including but not limited to deep learning, LM, syntactic parsers, etc.

**Yuri Bizzoni**

In 2021 Yuri had two jobs. He was a postdoctoral researcher at the University of Saarland, and then, in the summer of 2021, he moved to become a researcher at the University of Aarhus. During the first part of the year, he worked on human translation and interpretation within the framework of Saarland's project "Ideal". He directed and organised a workshop on "Modelling Human Translation" (MoTra21). He focused on training models to detect the syntactic and lexical differences between translation, interpretation, and original texts and speeches.

Yuri also worked on the sister project "Information Density in English Scientific Writing: A Diachronic Perspective". In this context he trained models of individual influence through time to track which scientists seem to have had the largest influence in the early Royal Society Corpus.

In the second part of the year Yuri moved to Aarhus University to join the new interdisciplinary project FabulaNet, which aims at better defining literary quality by studying the fractal properties of stories' sentimental arcs. Fabula's long term goal is to develop systems to help editors and writers perform a transparent evaluation of narrative texts. We have started small scale work on the corpus of H. C. Andersen's fairy tales, where we found a significant correlation between a tale's sentiment arc's Hurst exponent and its level of appreciation by GoodRead's readers (early result published in NLP4DH 21).

**Rasmus Blanck**

Rasmus spent 2021 as a temporary Senior lecturer in logic and theoretical philosophy at FLoV, involved in 17 courses in logic, linguistics, and philosophy.

**Publications:**

Rasmus Blanck (2021), “Hierarchical incompleteness results for arithmetically definable

 extensions of fragments of arithmetic”, *The Review of Symbolic Logic* 14(3), pp. 624–644.

**Invited talk:**

Incompleteness results for arithmetically definable extensions of strong fragments of PA, Models of Peano Arithmetic seminar, CUNY graduate center, New York (online), 15 Nov. 2021.

**Mehdi Ghanimifard**

Mehdi started working at DocuSign in January 2021. Since then, he has worked in the machine learning innovation team of DocuSign in Sweden. The main research topic of the group is language processing tasks for contracts and agreements, including sentence classification and entity extraction. He will continue this role at DocuSign AI in 2022.

**Aleksandre Maskharashvili**

Since 2019, Aleksandre Maskharashvili has been a postdoctoral researcher at The Department of Linguistics at The Ohio State University (OSU), Ohio, United States. At OSU, he works on Professor Michael White’s project, funded by Facebook. In 2021. Aleksandre and colleagues at OSU havew been studying the capacity of pre-trained language models to reliably and correctly generate discourse connectives. Their findings indicate that the state-of-the-art pre-trained language models, such as BART and T5, benefit from providing discourse information in the input, for generating a coherent text with discourse connectives.

Together with his colleagues from CLASP, Jean-Philippe Bernardy, Rasmus Blank, Stergios Chatzikyriakidis, and Shalom Lappin, Aleksandre has been editing a volume of collected papers, *Probabilistic Approaches to Linguistic Theory*, which will be published by CSLI Publications in 2022.

In 2021, together with Jean-Philippe Bernardy, Aleksandre gave a course, Probabilistic Semantics and Inference Under Uncertainty in Natural Language, at The European Summer School in Logic, Language and Information 2021 (ESSLLI2021).

**Publications:**

Aleksandre Maskharashvili, Symon Jory Stevens-Guille, Xintong Li, and Michael

 White (2021), “Neural Methodius Revisited: Do Discourse Relations Help with Pre-

 Trained Models Too?”, *Proceedings of the 14th International Conference on Natural*

 *Language Generation*, Aberdeen, United Kingdom, pp. 12–23.

Xintong Li, Symon Jory Stevens-Guille, Aleksandre Maskharashvili, and Michael

 White“ (2021), “Self-Training for Compositional Neural NLG in Task-Oriented Dialogue”,

 *Proceedings of the 14th International Conference on Natural Language Generation*,

 Aberdeen, United Kingdom, pp. 87–102.

**Charalambos Themistocleous**

Charalambos Themistocleous is a postdoctoral researcher in neurolinguistics and computational linguistics at the *Department of Neurology, Johns Hopkins Medicine.* His research aims to determine the relationship between brain and language and improve prognosis and diagnosis in elderly individuals with speech and language impairment. He develops techniques for the multifactorial analysis of the linguistic, neuronal, social, and physical correlates of language deterioration, using machine learning, acoustic analysis, Natural Language Processing (NLP), MRI analysis, and electroencephalography (EEG).

In his recent collaborative projects, he has developed a system for subtyping patients with Primary Progressive Aphasia (PPA) into symptom variants automatically from speech recordings, using feedforward artificial neural networks (*Journal of Alzheimer’s Disease*). Also, he studied the effects of transcranial direct current stimulation (tDCS) combined with language therapy in the speech of patients with progressive speech apraxia and showed that tDCS improves speech fluency significantly (*Brain Sciences)*. To measure the effects of speech pathology on language, he developed a system for the automatic quantification of spelling performance (*Journal of Speech, Language, and Hearing Research*) and the quantification of morphological production in patients with the non-fluent PPA (nfvPPA) variant using probabilistic language parsers (*American Journal of Speech-Language Pathology*). Finally, he employed word embeddings to quantify patient semantic scores in confrontational naming tasks (*under preparation*).

**Publications:**

Themistocleous Charalambos, Webster Kimberly, Tsapkini, Kyrana (2021), "Effects of tDCS

 on Sound Duration in Patients with Apraxia of Speech in Primary Progressive

 Aphasia*”,Brain Sciences* 11(3).

Themistocleous Charalambos, Bronte Ficek, Kimberly Webster, Dirk-Bart den Ouden, Argye

 E. Hillis, Kyrana Tsapkini (2021), “Automatic subtyping of individuals with Primary

 Progressive Aphasia, *Journal of Alzheimer’s Disease*.

Themistocleous Charalambos, Kyriaci Neophytou, Brenda Rapp, Tsapkini Kyrana (2021),

 “Automatic metrics of spelling errors on words and non-words”, *Journal of Speech,*

 *Language, and Hearing Research*.

Themistocleous Charalambos, Webster Kimberly, Afthinos Alexandros, & Tsapkini Kyrana

 (2021), “Part of Speech Production in Patients with Primary Progressive Aphasia: An

 Analysis Based on Natural Language Processing”, *American Journal of Speech-Language*

 *Pathology*.

Themistocleous Charalambos, Afthinos Alexandros, Hermann Olivia, Hongli Fan, Lu

 Hanzhang and Kyrana Tsapkini (2021), “Brain Perfusion and Neurocognitive Tasks in

 Patients with Primary Progressive Aphasia”, *Academy of Aphasia 59th Annual Meeting* 24-

 26 October, 2021, Online.

Georgiou George and Themistocleous Charalambos (2021), “Vowel learning in diglossic set-

 tings: Evidence from Arabic-Greek learners”, *International Journal of Bilingualism*.

Olivia Herrmann, Alexandros Afthinos, Charalambos Themistocleous, Hongli Fan, Hanzhang

 Lu and Kyrana Tsapkini (2021), “Brain areas that mediate sentence comprehension in

 primary progressive aphasia: Evidence from perfusion imaging”, *Academy of Aphasia 59th*

 *Annual Meeting*, 24-26 October, 2021, Online.

Lucy Bryant, Angela Roberts, Charalambos Themistocleous, Dirk den Ouden and Brielle Stark

 (2021), “Best practices for reporting of discourse analysis”, *Academy of Aphasia 59th Annual*

 *Meeting* 24-26 October, 2021, Online.

**10 Plans for 2022**

**Annual Conference and Workshops:**

We are organising the CLASP annual conference around the topic of (Dis-)Embodiment. It will focus on the question of the limits of NLP models constructed through training on text corpora. Semantic grounding is a core theme of the conference. It is scheduled for the week of September 13, 2022, and our first call for papers will go out shortly. We are again seeking SIGSEM sponsorship, so that the conference will be an ACL workshop and the proceedings published in the ACL Anthology. Although it will be held in hybrid mode, like our 2021 conference, we are hoping for a larger on site presence this year.

**Scientific Visitors and Participation in Conferences:**

As international travel gradually opens up we are planning on inviting more scientific visitors to spend short periods of time with us for joint research and lecturers. In the context of Kathrein Abu-Kwaik's final seminar, we have already hosted Mo El-Haj from Lancaster University in January.

**11 Appendix: Publications, Talks, and Other Scientific Activities**

**Total Outputs by Publication Category:**

**Books** 1

**Refereed Journal Articles** 6

**Chapters in Books** 3

**Refereed Conference Papers** 33

**ArXiv Papers** 4

**Edited Conference Proceedings** 4

**Kathrein Abu-Kwaik**

Kathrein was on parental leave until October 2021. Since then, she has focused on writing the Kappa of her compilation thesis. She had a successful final seminar on February 14th, 2022, with Mo El-Haj (University of Lancaster) as the opponent. In addition, she has supported a student in Algeria on the subject of Cyberbullying and Harassment detection in Algerian dialects. She will be defending her thesis in the Spring of 2022.

**Axel Almquist**

Axel Almquist completed a thorough reimplementation of several contemporary argument mining algorithms through a painstaking effort that involved looking up not only papers, but directly inspecting implementations and interrogating previous authors insofar as they made themselves available.  In the process he produced results showing the limitations of a best effort replication of argument-mining architectures through a well-engineered framework.  Results of this replication are in preparation for publication.  Axel also developed a collaboration with colleagues at the business school that would see the application of his framework to the problem of the effect of earnings calls on the stock market, by helping them design an annotation strategy that would be compatible with contemporary argument mining approaches. Axel has taken a one-year leave of absence to take up a position in the software industry.

**Alex Berman**

PhD Thesis Work:

Since starting his PhD studies in October, Alex has worked towards refining his research questions, scope and methods. Tentatively, his project revolves around dialogues involving explanations and justifications of statistically grounded decisions and judgments, both between humans, and in human-computer interaction. In a case study, Alex has investigated how public employment services (PES) use statistical models for decisions about job seeker's access to employment initiatives, and more specifically, how such decisions are communicated to job seekers and case workers. Alex has also sketched additional experiments and studies through which the research topic could be addressed, including collection of human-human dialogue data, agent-based simulations, and development and evaluation of dialogue interface prototypes.

**Jean-Philippe Bernardy**

**Papers in Refereed Conference Proceedings:**

Maximilian Algehed, Jean-Philippe Bernardy, and Cătălin Hritcu. “Dynamic IFC Theorems

 for Free!” (2021), *Proceedings of the 34th IEEE Computer Security Foundations*

 *Symposium*, IEEE.

Jean-Philippe Bernardy and Arnaud Spiwack. “Evaluating Linear Functions to Symmetric

 Monoidal Categories”(2021), *Proceedings of the 14th ACM SIGPLAN International*

 *Haskell Symposium (Haskell ’21)*, August 26–27, 2021, Virtual Event, Republic of Korea,

 ACM, 2021, pp. 17–33. isbn: 978-1-4503-8615-9/21/08. doi: 10.1145/3471874.3472980

Jean-Philippe Bernardy, Adam Ek, and Vladislav Maraev (2021), “Can the Transformer

 Learn Nested Recursion with Symbol Masking, *Findings of the ACL 2021*.

Jean-Philippe Bernardy and Stergios Chatzikyriakidis (2021), “Applied Temporal Analysis: A

 Complete Run of the FraCaS Test Suite”, *Proceedings of IWCS 2021 - 14th International*

 *Conference on Computational Semantics* - Long papers.

Adam Ek, Jean-Philippe Bernardy, and Stergios Chatzikyriakidis. “Can argument-predicate

 relationships be extracted from UD trees?” (2021), *Proceedings of the Joint 15th Linguistic*

 *Annotation Workshop (LAW) and 3rd Designing Meaning Representations (DMR)*.

Adam Ek and Jean-Philippe Bernardy. “Training Strategies for Neural Multilingual

 Morphological Inflection” (2021*), Proceedings of the 18th SIGMORPHON Workshop on*

 *Computational Research in Phonetics, Phonology, and Morphology*.

Julian Grove, Jean-Philippe Bernardy, and Stergios Chatzikyriakidis. “From compositional

 semantics to Bayesian pragmatics via logical inference” (2021), *Proceedings of Natural*

 *Logic meets Machine Learning 2021*.

Julian Grove and Jean-Philippe Bernardy (2021), “Probabilistic compositional semantics,

 purely”, *Proceedings of Logic and Engineering of Natural Language Semantics 18*.

Staffan Larsson and Jean-Philippe Bernardy. “Semantic Classification and Learning Using a

 Linear Tranformation Model in a Probabilistic Type Theory with Records” (2021),

 *Proceedings of the Reasoning and Interaction Conference (ReInAct 2021)*, Gothenburg,

 Sweden: Association for Computational Linguistics, Oct. 2021, pp. 14–22, url:

 https://aclanthology.org/2021.reinact-1.3.

Staffan Larsson, Jean-Philippe Bernardy, and Robin Cooper (2021), “Semantic Learning in a

 Probabilistic Type Theory with Records”, *Proceedings of Computing Semantics*

 *with Types, Frames and Related Structures*.

Vladislav Maraev, Ellen Breitholtz, Christine Howes, and Jean-Philippe Bernardy (2021),

 “Why Should I Turn Left? Towards Active Explainability for Spoken Dialogue Systems”,

 *Proceedings of the Reasoning and Interaction Conference (ReInAct 2021)*, Gothenburg,

 Sweden: Association for Computational Linguistics, Oct. 2021, pp. 58–64,

 url: https://aclanthology.org/2021.reinact-1.9.

Vladislav Maraev, Jean-Philippe Bernardy, and Christine Howes. “Non-humorous use of

 laughter in spoken dialogue systems” (2021), *Proceedings of the 7th Linguistic and*

 *Cognitive Approaches to Dialog Agents Workshop*.

**Invited Talks and Lectures:**

Linear Haskell: Today and Tomorrow, Haskell Symposium 2021

Modalities in Type-Systems, Workshop on Computing Semantics with Types, Frames and Related Structures 2021

Probabilistic Natural Language Inference, ESSLLI 2021 (with Aleksandre Maskharashvili)

**Community roles**

IWCS 2021, PC Member

TyDe 2021, PC Member

\*SEM 2021, PC Member

**Ellen Breitholtz**

**Articles in Refereed Journals:**

Vladislav Maraev, Ellen Breitholtz, Christine Howes, Staffan Larsson and Robin Cooper

 (2021), “Something Old, Something New, Something Borrowed, Something Taboo:

 Interaction and Creativity in Humour”, *Frontiers of* *Psychology* 12.

**Papers in Refereed Conference Proceedings:**

Breitholtz, Ellen and Cooper, Robin (2021), “Dogwhistles as inferences in interaction”,

 *Proceedings of the Reasoning and Interaction Conference (ReInAct 2021)*, pp. 40–46.

Howes, Christine; **Breitholtz, Ellen**; Lavelle, Mary; and Cooper, Robin (2021), “Justifiable

 reasons for everyone: Dialogical reasoning in patients with schizophrenia”, *Proceedings of*

 *the 25th Workshop on the Semantics and Pragmatics of Dialogue (SemDial2021)*.

Maraev, Vladislav; Breitholtz, Ellen; Howes, Christine; and Bernardy, Jean-Philippe

 (2021), “Why should I turn left? towards active explainability for spoken dialogue

 Systems”, *Proceedings of the Reasoning and Interaction Conference* *(ReInAct 2021)*, pp.

 58–64.

Maraev, V., Breitholtz, E. & Howes, C (2021), “Funny story... Reasoning and perspective

 taking in humorous interaction”, *17th International Pragmatics Conference*.

Ioussef, Denis; Breitholtz, Ellen; and Howes, Christine (2021), “Don’t you think that

 a rhetorical question can convey an argument?”, *Proceedings of the 25th Workshop on the*

 *Semantics and Pragmatics of Dialogue (SemDial2021)*.

Nord, Ebba Axelsson; Maraev, Vladislav; Breitholtz, Ellen; and Howes, Christine (2021),

 “What do you mean? eliciting enthymemes in text-based dialogue”, *Proceedings of the*

 *25th Workshop on the Semantics and Pragmatics of Dialogue (SemDial2021)*.

**Chapters in Books:**

Breitholtz, E., Cooper, R., Howes, C. & Lavelle, M (2021), “Reasoning in multiparty

 dialogue involving patients with schizophrenia”, Amblard, M. (editor), *(In)Coherence of*

 *Discourse*. Springer.

**Edited Conference Proceedings:**

Breitholtz, Ellen, Georgila, Kallirroi; Schlangen, David (eds.) (2021), *Proceedings of the*

 *25th Workshop on the Semantics and Pragmatics of Dialogue (SemDial2021)*.

Howes, Christine; Dobnik, Simon; Breitholtz, Ellen; and Chatzikyriakidis, Stergios (eds.)

 (2021), *Proceedings of the reasoning and interaction conference* *(ReInAct 2021)*.

**Invited talks**

Mental Health, AI and Language, French – Swedish research day 2021, 15th November, organized by the French embassy in Sweden.

**External examiner**

Examining committee member (examinateur) at the defence of the PhD thesis
of Maria Boritchev, *Dialogue Modeling in a Dynamic Framework*. Université de
Lorraine, November 22, 2021.

**Stergios Chatzikyriakidis**

**Papers in Refereed Conference Proceedings:**

Ek, E.,  Bernardy, JP and  Chatzikyriakidis S. (2021), “Can argument-predicate relationships

 be extracted from UD trees?”, *Proceedings of the Joint 15th Linguistic Annotation Workshop*

 *(LAW) and 3rd Designing Meaning Representations (DMR) Workshop*, EMNLP 2021.

Grove, J., Bernardy, JP. and Chatzikyriakidis S. (2021), “From Compositional Semantics to

 Bayesian Pragmatics via Logical Inference”, *Proceedings of the workshop on Natural Logic*

 *and Machine Learning,* IWCS 2021.

Bernardy, JP. and Chatzikyriakidis S. (2021), “Applied Temporal Analysis: A Complete Run

 of the FraCaS test suite”, *Proceedings of the 14th International Conference of*

 *Computational Semantics,* IWCS 2021.

Talman, A., Apidianaki, M., Chatzikyriakidis, S. and Tiedemann, J. (2021), “NLI Data Sanity

 Check: Assessing the Effect of Data Corruption on Model Performance”, *Proceedings*

 *of  the 23rd Nordic Conference on Computational Linguistics (NoDaLiDa 22)*.

Chatzikyriakidis, S. and Luo, Z. (2021), “Gradability in MTT-semantics”, *Postproceedings of*

 *the Thirteenth International Tbilisi Symposium on Language, Logic and Computation,*

 *Lectures Notes in Computer Science,* Springer.

**ArXiv paper:**

Bernardy, JP. and Chatzikyriakidis S. (2020), *FraCaS: Temporal Analysis*. ArXiv:

 2021.10668.

**Edited Volumes:**

Howes, C., Dobnik, S., Breitholtz, E. and Chatzikyriakidis, S. (2020), *Proceedings of the 1st*

 *Conference on Reasoning in Interaction*, SIGSEM, ACL anthology.

**Conference Organising:**

Conference on Reasoning in Interaction (REinACT2021). Co-chair with Ellen Breitholtz, Simon Dobnik, Christine Howes and Asad Sayeed

Natural Logic meets Machine Learning (IWCS2021). Organizing committee.

**Other Scientific Activity:**

CLASP seminar organizer and coordinator (up until September 2021)

**Robin Cooper**

**Articles in Refereed Journals:**

Vladislav Maraev, Ellen Breitholtz, Christine Howes, Staffan Larsson and Robin Cooper

 (2021), “Something Old, Something New, Something Borrowed, Something Taboo:

 Interaction and Creativity in Humour”, *Frontiers of* *Psychology* 12.

**Chapters in Books:**

Robin Cooper (2021), “Perception, types and frames” in Löbner, Sebastian / Gamerschlag,

 Thomas / Kalenscher, Tobias / Schrenk, Markus / Zeevat, Henk (Eds.), *Concepts, Frames*

 *and Cascades in Semantics, Cognition and Ontology* Springer InternationalPublishing,

 pp. 165-177.

Breitholtz E., Cooper R., Howes C., Lavelle M. (2021) “Reasoning in Multiparty Dialogue

 Involving Patients with Schizophrenia” in Amblard M., Musiol M., Rebuschi M. (eds),

 *(In)coherence of Discourse. Language, Cognition, and Mind*, vol 10. Springer.

Andy Lücking, Jonathan Ginzburg & Robin Cooper (2021) “Grammar in dialogue” in Stefan

 Müller, Anne Abeillé, Robert D. Borsley & Jean-Pierre Koenig (eds.), *Head-Driven Phrase*

 *Structure Grammar: The handbook*, 1155--1199. Berlin: Language Science Press.

**Paper in Refereed Conference Proceedings:**

Ellen Breitholtz and Robin Cooper (2021), “Dogwhistles as Inferences in Interaction”,

 *Proceedings of the Reasoning and Interaction Conference (ReInAct 2021)*, ed. by Christine

 Howes, Simon Dobnik, Ellen Breitholtz, Stergios Chatzikyriakidis, pp. 40--46, ACL

 Anthology.

**ArXiv paper:**

Dobnik, S., Cooper, R., Ek, A., Noble, B., Larsson, S., Ilinykh, N., Maraev, V., and Somashekarappa, V. (2021), “We Went to Look for Meaning and All We Got Were These Lousy Representations: Aspects of Meaning Representation for Computational Semantics”, ArXiv: 2109.04949

**Invited Talks and Lectures:**

Modelling Memory with Types: semantics and neural representation, Workshop on Dialogue,

Memory and Emotion, Paris, 20-21 May, 2021

So what's all this structure good for? Some uses of record types in TTR, Computing

Semantics with Types, Frames and Related Structures, ESSLLI workshop, 26-27 July, 2021

Staffan Larsson, Jean-Philippe Bernardy, Robin Cooper (2021), Semantic Learning in a

Probabilistic Type Theory with Records, in ESSLLI Workshop on Computing Semantics with

Types, Frames and Related Structures

**Projects:**

Gripes (Asad Sayeed)

IncReD (Chris Howes)

Drips (Ellen Breitholtz)

**Simon Dobnik**

**Articles in Refereed Journals:**

Ilinykh, N., & Dobnik, S. (2021), “What Does a Language-And-Vision Transformer See: The

 Impact of Semantic Information on Visual Representations”, *Frontiers in Artificial*

 *Intelligence* 4.

**Paper in Refereed Conference Proceedings:**

S. Dobnik and V. Silfversparre (2021), “The red cup on the left: Reference, coreference and

 attention in visual dialogue”, E. Breitholtz, K. Georgila, and D. Schlangen (editors),

 *Proceedings of PotsDial - Semdial 2021: The 25th Workshop on the Semantics and*

 *Pragmatics of Dialogue, Proceedings (SemDial)*, pp. 50–60, Potsdam, Germany,

 September 20–22 2021.

N. Ilinykh and S. Dobnik (2021), “How vision affects language: Comparing masked self-

 attention in uni-modal and multi-modal transformer”, *Proceedings of the 1st Workshop on*

 *Multimodal Semantic Representations (MMSR)*, Groningen, Netherlands, June 2021.

 Association for Computational Linguistics, pp. 45–55.

M. Rajestari, S. Dobnik, R. Cooper, and A. Karimi (2021), “Very necessary: the meaning of

 non-gradable modal adjectives in discourse contexts”, P. Ljunglöf, S. Dobnik, and R.

 Johansson (editors), *Selected contributions from the Eighth Swedish Language Technology*

 *Conference (SLTC-2020)*, volume 184 of NEALT Proceedings Series, No. XX,

 Gothenburg, Sweden, 25–27 November 2021.

S. Loáiciga, S. Dobnik, and D. Schlangen (2021), “Reference and coreference in situated

 Dialogue”, *Proceedings of the Second Workshop on Advances in Language and Vision*

 *Research,* Association for Computational Linguistics, pp 39–44.

S. Loáiciga, S. Dobnik, and D. Schlangen (2021), “Annotating anaphoric phenomena in

 situated dialogue”, *Proceedings of the 1st Workshop on Multimodal Semantic*

 *Representations (MMSR)*, pp. 78–88, Groningen, Netherlands June 2021, Association for

 Computational Linguistics, pp 39–44.

**ArXiv paper:**

Dobnik, S., Cooper, R., Ek, A., Noble, B., Larsson, S., Ilinykh, N., Maraev, V., and Somashekarappa, V. (2021), “We Went to Look for Meaning and All We Got Were These Lousy Representations: Aspects of Meaning Representation for Computational Semantics”, ArXiv: 2109.04949

**Edited conference proceedings:**

S. Dobnik and L. Øvrelid (editors) (2021), *Proceedings of the 23rd Nordic Conference on*

 *Computational Linguistics (NoDaLiDa)*, Reykjavik, Iceland, May 31–2 June 2021.

P. Ljunglöf, S. Dobnik, and R. Johansson (editors), (2021), *Selected contributions from the*

 *Eighth Swedish Language Technology Conference (SLTC-2020)*, 25-27 November 2020,

 number 184, Gothenburg, Sweden, August 2021. Northern European Association for

 Language Technology (NEALT), Proceedings Series, No. XX.

C. Howes, S. Dobnik, E. Breitholtz, and S. Chatzikyriakidis (editors), *Proceedings of the*

 *Reasoning and Interaction Conference (ReInAct 2021)*, Gothenburg, Sweden, Oct. 2021,

 Association for Computational Linguistics.

**Other Research Activities:**

Reviewed funding applications for The Dutch Research Council (NWO) Gravitation programme and The Canada Research Chairs Program (CRCP).

Member of the PhD grading committees:

Mattias Appelgren: Interactive Task learning from Corrective Feedback. Institute for Language, Cognition and Computation, School of Informatics, University of Edinburgh.

David Alfter: Exploring natural language processing for single-word and multi-word lexical complexity from a second language learner perspective, Department of Swedish, University of Gothenburg.

Recurring appointment: Helga Svala Sigurðardóttir: Learning Classifier Systems for Text Normalization using Regular Expressions as Input, Reykjavik University.

**Project Funding:**

The SKANDIBOT project from the Nordplus Nordic Languages 2021 Application, a consortium with SmartLearning (Copenhagen), Royal Institute of Technology in Stockholm (KTH, Sweden), Det Danske Sprog- og Litteraturselskab (Denmark), and University of Gothenburg.

**Conference and workshop organisation:**

Publication chair at the 23rd Nordic Conference on Computational Linguistics (NoDaLiDa 2021), May 31st to June 2nd, 2021, Reykjavik, Iceland.

Co-organiser of the CLASP Reasoning and Interaction Conference (ReInAct 2021).

**Other scientific activity:**

Co-organiser of seminars of the Centre for Language Technology (CLT) at University of Gothenburg.

Member of the steering committee of the Centre for Digital Humanities (Centrum för digital humanioras) at University of Gothenburg.

Member of the SAID group (Samordningsgrupp för artificial intelligens och digitalisering, Coordination group for artificial intelligence and digitalisation) of University of Gothenburg.

Member of the reference group of the SuperLim project: a Swedish GLUE (General Language Understanding Benchmark), Magnus Sahlgren, RISE.

Designed and co-presented the NLP module of the AI and Professions online course (MOOC) at GU.

A deputy elector for the elector assembly of The Swedish Research Council/Vetenskapsrådet (VR).

Participated in a Dagstuhl seminar on Representing and Solving Spatial Problems.

**Adam Ek**

**Papers in Refereed Conference Proceedings:**

Jean-Philippe Bernardy, Adam Ek, and Vladislav Maraev (2021), “Can the Transformer

 Learn Nested Recursion with Symbol Masking, *Findings of the ACL 2021*.

Jean-Philippe Bernardy and Stergios Chatzikyriakidis (2021), “Applied Temporal Analysis: A

 Complete Run of the FraCaS Test Suite”, *Proceedings of IWCS 2021 - 14th International*

 *Conference on Computational Semantics* - Long papers.

Adam Ek, Jean-Philippe Bernardy, and Stergios Chatzikyriakidis. “Can argument-predicate

 relationships be extracted from UD trees?” (2021), *Proceedings of the Joint 15th Linguistic*

 *Annotation Workshop (LAW) and 3rd Designing Meaning Representations (DMR)*.

Adam Ek and Jean-Philippe Bernardy. “Training Strategies for Neural Multilingual

 Morphological Inflection” (2021*), Proceedings of the 18th SIGMORPHON Workshop on*

 *Computational Research in Phonetics, Phonology, and Morphology*.

**ArXiv paper:**

Dobnik, S., Cooper, R., Ek, A., Noble, B., Larsson, S., Ilinykh, N., Maraev, V., and Somashekarappa, V. (2021), “We Went to Look for Meaning and All We Got Were These Lousy Representations: Aspects of Meaning Representation for Computational Semantics”, ArXiv: 2109.04949

**Conferences attended:**

ACL 2021, EMNLP 2021

**PhD Work:**

Adam has the published articles required for his compilation thesis, and he is currently writing the kappa. The thesis title will be something like Studies in Language Structure Using Deep Learning". The main focus is how we can model different language structures, morphological, syntactic and pragmatic, and use these to probe and investigate the semantics that arise from them.

**Tewodros Gebreselassie**

**Research Activity:**

We submitted the following paper to LREC 2022.

Gebreselassie T. and Dobnik S. (2022), “Wolaytta Word Embeddings”, *Proceedings of*

 *Language Resources and Evaluation (LREC)*, Marseille, France.

**Conference Participation:**

Speaker in a Deep Learning IndabaX-2022, Ethiopia

Participated in Machine Learning for the Developing World (NeurIPS 2021 Workshop)

**PhD Thesis Work:**

Tewodros is working on a compilation thesis. So far, he has created a corpus of roughly 1 million sentences that is the first of its sort for Wolaytta. WordSim-100, a Wolaytta analogy dataset, and a Wolaytta word embedding were also constructed. Now, he is working on the main part of the thesis with the resources we've accumulated so far.

**Julian Grove**

**Papers in Refereed Conference Proceedings:**

Julian Grove, Jean-Philippe Bernardy, & Stergios Chatzikyriakidis (2021), “From

 compositional semantics to Bayesian pragmatics via logical inference”, *Proceedings of*

 *Natural Logic Meets Machine Learning II, Workshop @IWCS. Published by the*

 *Association for Computational Linguistics*, Available at

 https://aclanthology.org/2021.naloma-1.8/.

**Invited talks and seminars:**

Presupposition projection as a scope phenomenon, LINGUAE research group, Institut Jean-Nicod, February, 2021.

Presupposition projection as a scope phenomenon, Linguistics Research Seminar, FLOV, March, 2021.

Probabilistic compositional semantics, purely, CLASP Seminar, November, 2021.

**Other activities:**

Reviewer for *Journal of Logic, Language and Information*

**Christine Howes**

**Articles in Refereed Journals:**

Howes, C. & Eshghi, A. (2021), “Feedback relevance spaces: Interactional constraints on

 processing contexts in Dynamic Syntax”, *Journal of Logic, Language and Information*

 30(2), 331-362.

Howes, C. & Gibson, H. (2021), “Dynamic Syntax -- The dynamics of incremental

 processing: Constraints on underspecification”, *Journal of Logic, Language and*

 *Information* 30(2), 263–276.

Maraev, V., Breitholtz, E., Howes, C., Larsson, S. & Cooper, R. (2021), “Something old,

 something new, something borrowed, something taboo: Interaction and creativity in

 humour”, *Frontiers in Psychology*.

**Chapters in Books:**

Breitholtz, E., Cooper, R., Howes, C. & Lavelle, M (2021), “Reasoning in multiparty

 dialogue involving patients with schizophrenia”, in Amblard, M. (editor), *(In)Coherence of*

 *Discourse*. Springer.

**Papers in Refereed Conference Proceedings:**

Howes, C., Breitholtz, E., Lavelle, M. & Cooper, R (2021), “Justifiable reasons for everyone:

 Dialogical reasoning in patients with schizophrenia”, *Proceedings of the 25th Workshop on*

 *the Semantics and Pragmatics of Dialogue*, SEMDIAL.

Ioussef, D., Breitholtz, E. & Howes, C (2021), “Don’t you think that a rhetorical question can

 convey an argument?”, *Proceedings of the 25th Workshop on the Semantics and*

 *Pragmatics of Dialogue*, SEMDIAL.

Maraev, V., Bernardy, J.-P. & Howes, C (2021), ‘Non-humorous use of laughter in spoken

 dialogue systems’, *Proceedings of Linguistic and Cognitive Approaches to Dialog Agents*

 *(LaCATODA 2021)*.

Maraev, V., Breitholtz, E., Howes, C. & Bernardy, J.-P (2021), ‘Why Should I Turn Left?

 Towards Active Explainability for Spoken Dialogue Systems”, *Proceedings of the*

 *Reasoning and Interaction Conference (ReInAct 2021)*.

Maraev, V., Noble, B., Mazzocconi, C. & Howes, C (2021), ‘Dialogue act classification is a

 laughing matter’, *Proceedings of the 25th Workshop on the Semantics and Pragmatics of*

 *Dialogue*,SEMDIAL.

Mazzocconi, C., Maraev, V., Somashekarappa, V. & Howes, C (2021), “Looking for laughs:

 Gaze interaction with laughter pragmatics and coordination”, *Proceedings of the 23rd*

 *ACM International Conference on Multimodal Interaction*.

Somashekarappa, V., Howes, C. & Sayeed, A (2021), “A deep gaze into social and referential

 Interaction”, *Proceedings of the Annual Meeting of the Cognitive Science Society*.

**Other Conference and Workshop Contributions:**

Axelsson-Nord, E., Maraev, V., Breitholtz, E. & Howes, C (2021), “What do you mean?

 Eliciting enthymemes in text-based dialogue”, *Proceedings of the 25th Workshop on the*

 *Semantics and Pragmatics of* Dialogue, Poster Abstracts, SEMDIAL.

Breitholtz, E. & Howes, C (2021), “Reasoning with topoi in dialogue”, 17th International

 Pragmatics Conference.

Howes, C. & Lavelle, M (2021), “Mis-taking turns: Conversing with a patient with

 Schizophrenia”, The Role of the Current Speaker in Conversational Turn Taking –

 Theoretical, Experimental, and Corpus Linguistic Perspectives on Speaker Contributions

 to Aligned Turn-Timing.

Maraev, V., Breitholtz, E. & Howes, C (2021), “Funny story... Reasoning and perspective

 taking in humorous interaction”, 17th International Pragmatics Conference.

Mazzocconi, C., Maraev, V., Somashekarappa, V. & Howes, C (2021), “Watch out for

 laughs: Gaze and laughter coordination in dialogue”, Architectures and Mechanisms for

 Language Processing.

Mazzocconi, C., Maraev, V., Somashekarappa, V. & Howes, C (2021), “Looking at the

 pragmatics of laughter”, *Proceedings of the 43rd Annual Meeting of the Cognitive Science*

 *Society*.

Mazzocconi, C., Maraev, V., Somashekarappa, V. & Howes, C (2021), “Is it ok if I laugh

 now?: Laughter and gaze coordination in interaction’, *Proceedings of the 4th*

 *Experimental Pragmatics in Italy Conference*.

Somashekarappa, V., Mazzocconi, C., Maraev, V. & Howes, C (2021), “This smells like cat’s

 wee: Laughter and gaze during disagreements about hummus”, 17th International

 Pragmatics Conference.

**Edited Volumes:**

Howes, C., Dobnik, S., Breitholtz, E. & Chatzikyriakidis, S. (editors) (2021), *Proceedings of*

 *the Reasoning and Interaction Conference (ReInAct 2021)*.

**Conference Organising:**

CLASP Reasoning in Interaction, 4-5 October 2021, Gothenburg, Sweden (Hybrid)

**Additional activities:**

Member of the Evaluation Panel for COST Projects 2021, Swiss National Science Foundation (SNSF)

**Nikolai Ilinykh**

**Articles in Refereed Journals:**

Ilinykh, N., & Dobnik, S. (2021), “What Does a Language-And-Vision Transformer See: The

 Impact of Semantic Information on Visual Representations”, *Frontiers in Artificial*

 *Intelligence* 4.

**Papers in Refereed Conference Proceedings:**

Ilinykh, N., & Dobnik, S. (2021), “How Vision Affects Language: Comparing Masked Self-

 Attention in Uni-Modal and Multi-Modal Transformer”, *Proceedings of the 1st Workshop*

 *on Multimodal Semantic Representations (MMSR)*, Association for

 Computational Linguistics, pp. 45–55.

**ArXiv Paper:**

Dobnik, S., Cooper, R., Ek, A., Noble, B., Larsson, S., Ilinykh, N., Maraev, V., and Somashekarappa, V. (2021), “We Went to Look for Meaning and All We Got Were These Lousy Representations: Aspects of Meaning Representation for Computational Semantics”, ArXiv: 2109.04949

**Other Research Activities:**

Advanced Language Processing Winter School, ALPS 2021 (January 17th – January 22nd), Online: <http://alps-2021.imag.fr>, presented a paper with the poster: *Multi-Head Self-Attention in Transformers for Image Captioning: Preliminary Study on Input Features and Heads’ Roles*.

Sustainable language representations for a changing world, NoDaLiDa 2021 workshop, May 31st, Online: <https://spraakbanken.gu.se/en/news-and-events/conferences-and-workshops/sustainable-language-representations>, presented a position statement: *Taking BERT for a walk: on the necessity of grounding, multi-modality and embodiment for impactful NLP*.

**PhD Thesis Work:**

In 2021 I have explored multiple directions for my research, helping me identify the common topic thread for my dissertation in the future. I have published a paper on the interplay between language and vision in language models and a journal article that takes a step further. It links observations in the models to the human way of processing and fusing multi-modal information. I have also been involved in teaching and student supervision (2 students have successfully defended their theses), which allowed me to push and test (in the context of working with students) ideas of placing multi-modal problems in the world of embodied systems. Overall, 2021, despite the pandemic, has been fruitful in understanding existing problems in multi-modal set-ups (e.g., modelling affordances, co-reference, coherent image descriptions), which is required for me to expand it to embodied systems.

**Aram Karimi**

Karimi provided technical support for the ReInAct conference. In addition, she continues to provide administrative support for the CLASP external website and the Lark CPU + GPU server. Within the language and perception group, she has joined the reading group, and she has helped Simon Dobnik in the development and launching of web chat tools. During the past year, Karimi provided extra teaching assistant support for the courses “LT2318 H20 Artificiell intelligens: kognitiva system” and “LT2124 H21 Teman i datalingvistik och språkteknologi”. She is also working on the development of a scientific recommender system using BERT, SciBert and RHCNN.

**Shalom Lappin**

**Book:**

Shalom Lappin (2021), *Deep Learning and Linguistic Representation*, Taylor and Francis,

 Boca Raton and Oxford.

**Publishing activity:**

Shalom Lappin (ed) (to appear), *Algebraic Structures in Natural Language*, Taylor and

 Francis, Boca Raton and Oxford, A collection of papers by researchers from computational

 linguistics, NLP, cognitive science, and psycholinguistics on the role of algebraic systems

 in language acquisition, linguistic representation, and the encoding of linguistic knowledge.

Shalom Lappin (to appear), “Deep Learning and Algebraic Models of Linguistic Knowledge”,

 *Theoretical Linguistics*, lead article in a special issue devoted to discussion of Lappin’s

 monograph *Deep Learning and Linguistics Representation*.

Jean-Philippe Bernardy, Rasmus Blank, Stergios Chatzikyriakidis, Shalom Lappin, and

 Aleksandre Maskharashvili (eds) (to appear) *Probabilistic Approaches to Linguistics*,

 CSLI Publications, Stanford CA, collection of papers by CLASP members and external

 researchers on probabilistic modelling of natural language.

Devdatt Dubhashi and Shalom Lappin (2021), “Scared about the threat of AI?

 It’s the big tech giants that need reining in”, The Guardian, December 16, 2021 Op Ed

 article.

**Invited talk:**

Moving Beyond Algebraic Models of Linguistic Knowledge, University of Uppsala NLP Seminar, October 22, 202

**Other Research Activity:**

Joint work with members of the NLP Lab in the Cognitive Science Group at the School of Electronic Engineering and Computer Science, Queen Mary University of London. Lappin took up a 20% position as Professor of Natural Language Processing in this group in February 2020.

**Staffan Larsson**

**Articles in Refereed Journals:**

Maraev, V., Breitholtz, E., Howes, C., Larsson, S., & Cooper, R. (2021), “Something Old,

 Something New, Something Borrowed, Something Taboo: Interaction and Creativity in

 Humour”, *Frontiers in Psychology* 12, 1443.

**Papers in refereed conference proceedings:**

Larsson, S., & Bernardy, J. P. (2021), “Semantic Classification and Learning Using a Linear

 Tranformation Model in a Probabilistic Type Theory with Records”, *Proceedings of the*

 *Reasoning and Interaction Conference (ReInAct 2021)*, pp. 14-22.

Noble, B., Viloria, K., Larsson, S., & Sayeed, A. (2021), “What do you mean by negotiation?

 Annotating social media discussions about word meaning”, *Proceedings of the Workshop*

 *on the Semantics and Pragmatics of Dialogue (SemDial 2021)*.

Larsson, S. (2021), “The role of definitions in coordinating on perceptual meanings”,

 *Proceedings of the Workshop on the Semantics and Pragmatics of Dialogue (SemDial*

 *2021)*.

Noble, B., Sayeed, A., Fernández, R., & Larsson, S. (2021), “Semantic shift in social

 Networks”, *Proceedings of \*SEM 2021: The Tenth Joint Conference on Lexical and*

 *Computational Semantics*, pp. 26-37.

Larsson, S., & Cooper, R. (2021), “Bayesian classification and inference in a probabilistic

 type theory with records”, *Proceedings of the 1st and 2nd Workshops on Natural Logic*

 *Meets Machine Learning (NALOMA)*, pp. 51-59.

Larsson, S., Bernardy, J. P., & Cooper, R. (2021), “Semantic learning in a probabilistic type

 theory with records”, *Proceedings of Workshop on Computing Semantics with Types,*

 *Frames and Related Structures*.

**Arxiv Paper:**

Dobnik, S., Cooper, R., Ek, A., Noble, B., Larsson, S., Ilinykh, N., Maraev, V., and Somashekarappa, V. (2021), “We Went to Look for Meaning and All We Got Were These Lousy Representations: Aspects of Meaning Representation for Computational Semantics”, ArXiv: 2109.04949.

**Invited talks:**

Meaning as coordinated and composable classifiers. Université du Québec à Montréal. April 8, 2021

**Sharid Loáiciga**

**Journal paper:**

Bevacqua, L., Loáiciga, S., Rohde, H., & Hardmeier, C. (2021), “Event and entity

 coreference across five languages: Effects of context and referring expression”, *Dialogue &*

 *Discourse Journal*, 12:2.

**Papers in Refereed Conference Proceedings:**

Coto-Solano, R., Flores Fuentes, A.S., & Loáiciga, S. (2021), “Towards Universal

 Dependencies for Bribri”, *Proceedings of the Fifth Workshop on Universal Dependencies (UDW, SyntaxFest 2021).*

Loáiciga, S., Dobnik, S., & Schlangen, D. (2021), “Annotating anaphoric phenomena in

 situated dialogue”, *Proceedings of the First workshop on Multimodal Semantic*

 *Representations*, MMSR.

Loáiciga, S., Dobnik, S., & Schlangen, D. (2021), “Reference and Coreference in Situated

 Dialogue”, *Proceedings of the 2nd Workshop on Advances in Language and Vision*

 *Research*, ALVR.

Beyer, A., Loáiciga, S., & Schlangen, D. (2021), “Is Incoherence Surprising? Targeted

 Evaluation of Coherence Prediction from Language Models”, *Proceedings of the 2021*

 *Conference of the North American Chapter of the Association for Computational*

 *Linguistics: Human Language Technologies*, NAACL21.

**Arxiv Paper:**

Loáiciga, S., Bevacqua, L., & Hardmeier, C. (2021), “Unsupervised Discovery of

 Unaccusative and Unergative Verbs”, *arXiv* preprint, arXiv:[2111.00808](https://arxiv.org/abs/2111.00808).

**Vladislav Maraev**

**Articles in Refereed Journals:**

Maraev, V., Bernardy, J.-P., and Ginzburg, J. (2020), “Dialogue Management with Linear logic: the role of Metavariables in Questions and Clarifications”, *Traitement Automatique des Langues (TAL), 61(3):43–67.*

Maraev, V., Breitholtz, E., Howes, C., Larsson, S., and Cooper, R. (2021), “Something old, something new, something borrowed, something taboo: Interaction and creativity in humour”, *Frontiers in Psychology, 12:1443.*

**Papers in Refereed Conference Proceedings:**

Bernardy, J.-P., Ek, A., and Maraev, V. (2021), “Can the Transformer Learn Nested Recursion with Symbol Masking?”, *Findings of the Association for Computational Linguistics: ACL-IJCNLP 2021*, pages 753–760.

Maraev, V., Bernardy, J.-P., and Howes, C. (2021), “Non-Numorous Use of Laughter in Spoken Dialogue Systems”, *Linguistic and Cognitive Approaches to Dialog Agents (LaCATODA 2021),* pages 33–44.

Maraev, V., Breitholtz, E., Howes, C., and Bernardy, J.-P. (2021), “Why Should I Turn Left? Towards Active Explainability for Spoken Dialogue Systems”, *Proceedings of the Reasoning and Interaction Conference (ReInAct 2021),* pages 58–64, Gothenburg, Sweden. Association for Computational Linguistics.

Maraev, V., Noble, B., Mazzocconi, C., and Howes, C. (2021), “Dialogue Act Classification Is a Laughing Matter”, *Proceedings of the 25th Workshop on the Semantics and Pragmatics of Dialogue - Full Papers*, Potsdam, Germany, SEMDIAL.

Mazzocconi, C., Maraev, V., Somashekarappa, V., and Howes, C. (2021), “Looking for Laughs: Gaze Interaction with Laughter Pragmatics and Coordination”, In *Proceedings of the 2021 International Conference on Multimodal Interaction, ICMI ’21*, page 636–644, New York, NY, USA. Association for Computing Machinery.

Noble, B. and Maraev, V. (2021), “Large-Scale Text Pre-Training Helps with Dialogue Act Recognition, But Not Without Fine-Tuning”, *Proceedings of the 14th International Conference on Computational Semantics (IWCS)*, pages 166–172, Groningen, The Netherlands.

**ArXiv Paper:**

Dobnik, S., Cooper, R., Ek, A., Noble, B., Larsson, S., Ilinykh, N., Maraev, V., and Somashekarappa, V. (2021), “We Went to Look for Meaning and All We Got Were These Lousy Representations: Aspects of Meaning Representation for Computational Semantics”, ArXiv: 2109.04949.

**Other Conference and Workshop Contributions:**

Axelsson Nord, E., Maraev, V., Breitholtz, E., and Howes, C. (2021), “What Do You Mean? Eliciting Enthymemes in Text-Based dialogue”, *Proceedings of the 25th* *Workshop on the Semantics and Pragmatics of Dialogue - Poster Abstracts*.

Maraev, V., Breitholtz, E., and Howes, C. (2021), “Funny story... Reasoning and perspective taking in humorous interaction”, *17th International Pragmatics Conference*.

Mazzocconi, C., Maraev, V., Somashekarappa, V., and Howes, C. (2021), “Looking at the Pragmatics of Laughter”, *Proceedings of the Annual Meeting of the Cognitive Science Society*, volume 43.

Mazzocconi, C., Maraev, V., Somashekarappa, V., and Howes, C. (2021), Watch out for laughs: Gaze and laughter coordination in dialogue, *Architectures and Mechanisms for Language Processing.*

Somashekarappa, V., Mazzocconi, C., Maraev, V., and Howes, C. (2021), This smells like cat’s wee: Laughter and gaze during disagreements about hummus, *17th International Pragmatics Conference*.

**Seminars and Invited Talks:**

What Does Laughter Mean For A Dialogue System?, July 28, invited talk at Austrian Research Institute for Artificial Intelligence (OFAI)

Dialogue management with linear logic: the role of metavariables in questions and clarifications, Feb 24, CLASP seminar.

**PhD Thesis Work:**

In 2021 Vlad finalised which of his previous contributions would constitute the results reported in the monograph. He is planning to dedicate the first half of 2022 entirely to thesis writing. The final seminar is planned for March 2022 and the thesis defence for September 2022.

**Bill Noble**

**Papers in Refereed Conference Proceedings:**

Maraev, V., Noble, B., Mazzocconi, C., & Howes, C. (2021), “Dialogue act classification is a laughing matter”, *Proceedings of the 25th Workshop on the Semantics and Pragmatics of Dialogue*.

Noble, B., & Maraev, V. (2021), “Large-scale text pre-training helps with dialogue act recognition, but not without fine-tuning”, *Proceedings of the 14th International Conference on Computational Semantics*, pp. 166-172.

Noble, B., Sayeed, A., Fernández, R., & Larsson, S. (2021), “Semantic shift in social Networks”, *Proceedings of \*SEM 2021: The Tenth Joint Conference on Lexical and Computational Semantics*, pp. 26–37.

Noble, B., Viloria, K., Larsson, S., & Sayeed, A. (2021), “What do you mean by negotiation? Annotating social media discussions about word meaning”, *Proceedings of the 25th Workshop on the Semantics and Pragmatics of Dialogue*.

**Seminar:**

CLASP Seminar, 26 Feb 2021, Distributional semantics for lexical semantic variation and change

**PhD Thesis Work:**

Bill is writing a compilation thesis on the topic of semantic accommodation and change. So far he has published two conference papers on this topic, both in 2021 (“Semantic shift in social networks” and “What do you mean by negotiation?”). Another paper is currently under review, and he plans to submit at least two more papers in Spring 2022, with a focus on dynamic classifier-based perceptual semantics.

**Asad Sayeed**

**Papers in Refereed Conference Proceedings:**

Noble, B., Sayeed, A., Fernández, R., & Larsson, S. (2021), “Semantic shift in social networks”, *Proceedings of \*SEM 2021: The Tenth Joint Conference on Lexical and Computational Semantics*, pp. 26-37.

Noble, B., Viloria, K., Larsson, S., & Sayeed, A. (2021), “What do you mean by negotiation? “Annotating social media discussions about word meaning”, *Proceedings of the Workshop on the Semantics and Pragmatics of Dialogue (SemDial 2021)*.

Somashekarappa, V., Howes, C., & Sayeed, A. (2021), “A Deep Gaze into Social and Referential Interaction”, *Proceedings of the Annual Meeting of the Cognitive Science Society* Vol. 43, No. 43.

**ArXiv Paper:**

Marton, Y., & Sayeed, A. (2021). Thematic fit bits: Annotation quality and quantity for event participant representation. arXiv preprint arXiv:2105.06097.

**Research Grants:**

Google compute grant of $5000 USD for the project Event Participant and Thematic Fit Modelling

**Vidya Somashekarappa**

**Papers in Refereed Conference Proceedings:**

Somashekarappa, V., Mazzocconi, C., Maraev, V. & Howes, C (2021), “This smells like cat’s

 wee: Laughter and gaze during disagreements about hummus, *17th International*

 *Pragmatics Conference,* Winterthur, Switzerland, 27th -2nd July 2021.

Somashekarappa, V., Howes, C. & Sayeed, A (2021), ‘Social and Referential Gaze

 Behaviour: Automation towards Human-Robot Multimodal Interaction”, *1st International*

 *Advanced Course & Symposium on Artificial Intelligence & Neuroscience – ACAIN 2021*,

 Grasmere, UK, October 5 – 8, 2021.

Mazzocconi, C., Maraev, V., Somashekarappa, V. & Howes, C (2021), “Looking for laughs:

 Gaze interaction with laughter pragmatics and coordination”, *Proceedings of the 23rd ACM*

 *International Conference on Multimodal Interaction*, Montreal, Canada, 18th -22nd

 October 2021.

Mazzocconi, C., Maraev, V., Somashekarappa, V. & Howes, C (2021), “Watch out for

 laughs: Gaze and laughter coordination in dialogue, *Architectures and Mechanisms for*

 *Language Processing.* Paris, France, 2nd-4th September 2021.

Mazzocconi, C., Maraev, V., Somashekarappa, V. & Howes, C (2021), “Looking at the

 pragmatics of laughter, *Proceedings of the 43rd Annual Meeting of the Cognitive Science*

 *Society*, Vienna, Austria, 26th- 29th July 2021.

Mazzocconi, C., Maraev, V., Somashekarappa, V. & Howes, C (2021). “Is it ok if I laugh

 now?”: Laughter and gaze coordination in interaction”, *Proceedings of the 4th*

 *Experimental Pragmatics in Italy* Conference, Trento, Italy, 8th-9th July 2021.

**ArXiv Paper:**

Dobnik, S., Cooper, R., Ek, A., Noble, B., Larsson, S., Ilinykh, N., Maraev, V., and Somashekarappa, V. (2021), “We Went to Look for Meaning and All We Got Were These Lousy Representations: Aspects of Meaning Representation for Computational Semantics”, ArXiv: 2109.04949

**Organisational Activity:**

PhD representative of the steering committee of the Centre for Digital Humanities/Centrum for digital humanioras.

Co-organiser of seminars of the Centre for Language Technology (CLT) at Gothenburg University

**PhD Thesis Work:**

Vidya’s thesis is mainly focused on human-agent dialogue, the annotated data for social. Referential and pragmatic features were analysed to explore the meaning of temporal patterns in gaze cues and their correlations. Using the same data, we coded for laughter, to explore laughter performing different pragmatic functions accompanied by different gaze patterns, and we investigated the role of gaze in laughter coordination between interacting dialogue participants.

Two papers were accepted in peer reviewed journals, and one paper discussing meaning representations was produced. Vidya has been experimenting with different gaze models (GazeML, GailBot, RT-GENE) that she could implement for the data they have generated. Using Sonix software 12 pair of videos have been transcripted and edited. They are collaborating with Giulia Perugia and Maike Paetzel from Uppsala University to build a gaze interaction experiment with Furhat based on their previous eye tracking research.