**CLASP Annual Report 2017**

Stergios Chatzikyriakidis and Shalom Lappin

February 16, 2018

**Introduction**

2017 has been a busy and productive year for us. We have increased the number of our staff and PhD students, organised a major international conference on logic and machine learning in natural language, and published a significant number of papers in high profile journals, collections, and conferences.

This is the second annual report for the Centre for Linguistic Theory and Studies in Probability (CLASP), covering our activities in 2017. In it we cover

1. the appointments that we have made to date,

2. our budget (income and expenditures),

3. our scientific activities (workshops, conferences, and visiting speakers),

4. our PhD program in computational linguistics,

5. our research activities and publications,

6. cooperation with other programs and institutions,

7. our progress in addressing issues raised by both our Scientific Advisory Board

and the VR in response to our first annual report, and

8. our plans for 2018.

Additional information on CLASP’s staff, students, and regular activities is available on the CLASP website at <http://clasp.gu.se/>.

**Appointments**

Since January 2017 we have appointed the following staff.

1. Asad Sayeed, Senior Lecturer in Computational Linguistics (Machine Learning, started in May 2017)
2. Chris Howes, Senior Lecturer in Computational Linguistics (Linguistic Interaction, started in May 2017
3. Rasmus Blanck, post-doctoral Researcher (started January 2018)
4. Sharid Loáiciga, post-doctoral Researcher (started January 2018)
5. Aleksandre Maskharasvili, post-doctoral Researcher (started January 2018)
6. Susanna Myyry, Administrator (started May 2017)

In addition, the following FLoV staff are active members of CLASP

1. Ellen Breitholtz, Researcher, associate member of CLASP
2. Robin Cooper, Emeritus Professor of Computational Linguistics (Senior Professor)
3. Staffan Larsson, Professor of Computational Linguistics

We expect to hire another post-doc by the end of 2018.

**Budget**

The expenditures for 2018 are attached as separate xml files. Budget CLASP 2018-.2025.xlsx gives the total allocated CLASP budget for 2018 until 2025. Income and Costs 201501-201712.xlsx lists our income and expenditures from beginning of 2015 until the end of 2017. Spendings 2016-2017.xlsx specifies our income and costs for 2016-2017.

Our expenditures in staff and PhD salaries, equipment, travel, and workshops/conferences have risen in proportion our new appointments and increased research activity. We still have under spending in conferences/workshops and visiting researchers. We also have surpluses in some staff salary budgets due to the fact that (i) several of our researchers obtained external research grants covering some of their salary, (ii) a number of our appointments started later than originally planned, and (iii) our Senior Lecturer had some of his salary costs covered by the Faculty of Humanities at GU because of his teaching activities. We expect most of these surpluses to decline as we reach full staffing levels, and our research activities continue to expand.

We do expect some of the surpluses to persist over the next few years, while other budget categories, particularly travel and equipment, are likely to come under pressure. As a result of this situation, we wrote to the VR on November 14, 2017 asking for permission to move funds among different budget categories in response to our project needs. We also requested authorisation to increase the appointment of our current administrator, Susanna Myyry, from 50% to 75%, as her work load is increasing, and her contribution has greatly improved the administrative efficiency of the Centre. Tanya Nilsson of the VR responded positively to both requests in her reply of November 19, 2017. Susanna’s additional 25% appointment has now been approved and implemented by the FLoV management, effective from Feb 1, 2018.

**Scientific Activities**

1. **Conference on Logic and Machine Learning in Natural Language (LaML)**

CLASP organized LaML, where we successfully brought to together researchers working in both logical and machine learning/deep learning approaches to Computational Linguistics. The conference initiated a lot of discussion, and it featured high quality papers on the subject. The program can be found here:

<https://clasp.gu.se/news-events/conference-on-logic-and-machine-learning-in-natural-language--laml-/programme>

We have published the LaML proceedings online at

<https://gubox.app.box.com/s/u74ejj7gyxb177o92nekpvev12nw71m4>

1. **Our Seminars, Visiting Speakers/Guest Researchers**

CLASP has been very active in conducting regular seminars in which members of CLASP, visiting speakers, and guest researchers present work related to CLASP’s scientific interests. CLASP was privileged to host a number of distinguished visiting speakers/guest researchers, both for short visits (2-4 days), and for longer visits (5-10 days). The range of topics covered by the seminars indicate CLASP’s broad research interests:

1. Mathieu Lafourcade (short visit): "Games with a Purpose: The JeuxdeMots project" (February 1st)
2. Asad Sayeed (short visit): "Semantic representation and world knowledge" (February 20th)
3. Kristina Liefke (short visit): "Relating Theories of Formal Semantics: established methods and surprising results" (March 1st)
4. Eleni Gregoromichelaki (short visit): "Ad hoc grammatical categorisation in Dynamic Syntax" (March 22nd)
5. Hannes Rieser (short visit): "A Process Algebra Account of Speech-Gesture Interaction" (March 20th)

Eve and Herbert Clark (long visit): A total of 4 talks (May 1st to May 7th). See here for more details:

<https://clasp.gu.se/news-events/past-seminars>

1. David Schlangen (short visit): "Learning and Maintaining a Lexicon for Situated Interaction" (May 20th)
2. Judith Holler (short visit): "On the pragmatics of face-to-face communication: the role of the body in social cognition and social interaction" (May 29th)
3. Sharid Loáiciga (short visit): "What is it? Disambiguating the different readings of the pronoun 'it' (September 13th)
4. Aleksandre Maskharashvili (short visit): "An Abstract Categorial Grammar Approach to the Discourse Modeling" (October 25th)
5. Maxime Amblard (short visit): "A Formal Account of Disorders in Dialogues" (November 17th)
6. Rasmus Blanck (short visit): "Rough Sets and Degree Modifiers" (December 13th)

CLASP members have had group and individual meetings after each seminar talk to discuss shared research interests with the visiting speakers. We have invited the following people in 2018 (decided so far):

1. Patrick Blackburn
2. Angeliki Lazaridou
3. Richard Sproat (long visit in May in collaboration with Chalmers)
4. Samuel Bowmann (long visit)
5. Steve Pulman (short visit)
6. Stephan Oepen and Dag Haug (visit)
7. Mirella Lapata

For more details on CLASP seminars, please visit: <https://clasp.gu.se/news-events/past-seminars>.

1. **New Server with 4 GPU Cards and Work on Deep Neural Network Learning**

We purchased a powerful sever with 4 Nvidia GPU cards for fast processing of parallel distributed programs. This machine is now supporting a considerable amount of work in Deep Neural Network driven NLP which our research staff and students our doing. The results of some of this work are reported in the papers and talks listed below.

**PhD Programme**

We currently have 6 PhD students in CLASP. They are

1. Kathrein Abu-Kwaik (started November 2016, first supervisor Stergios Chatzikyriakidis, second supervisor Simon Dobnik)
2. Wafia Adouane (started September 2016, first supervisor Simon Dobnik, second supervisor Shalom Lappin)
3. Yuri Bizzoni (started September 2015, first supervisor Shalom Lappin, second supervisor Staffan Larsson)
4. Mehdi Ghanimifard (started September 2015, first supervisor Simon Dobnik, second supervisor Staffan Larsson)
5. Vladislav Maraev (started September 2017, first supervisor Chris Howes, second supervisor Staffan Larsson)
6. Sylvie Saget (Started September, 2017, first supervisor Asad Sayeed, second supervisor Staffan Larsson)

Our students are making excellent progress, with most of them presenting papers at major international conferences over the past year. Our first two students, Yuri Bizzoni and Mehdi Ghanimifard, are well into their respective PhD theses, and both hope to submit by the end of the 2019 academic year.

We expect to take on 2-3 new PhD students in September 2018, and we will be advertising these positions within the next few months.

**Research Activities and Publications**

CLASP members have been extremely active in their research activities and producing high quality publications based on this research. Again, the wide range of topics covered witnesses the diversity and quality of research produced in the centre. In what follows, the most important research activities and publications per CLASP member are presented. More information is available on the individual webpages of the researchers that can be accessed via the CLASP website [www.clasp.gu.se](http://www.clasp.gu.se) .

**Kathrein Abu-Kwaik**

Publications:

Kathrein Abu Kwaik, Motaz Saad, Stergios Chatzikyriakidis and Simon Dobnik. Shami: A Corpus of Levantine Arabic Dialects. To appear at *LREC* 2018.

**Wafia Adouane**

Publications:

Wafia Adouane and Simon Dobnik. 2017. Proceedings of the *Third Arabic Natural Language Processing Workshop*, chapter Identification of Languages in Algerian Arabic Multilingual Documents. Association for Computational Linguistics.

Wafia Adouane. Building a cross-lingual NLP system for similar under-resourced languages: the Case of Maghrebi Arabic. Presentation at the *Faculty of Arts Doctoral Conference* (HFDK2017).

**Jean-Philippe Bernandy**

Publications:

Jean-Philippe Bernardy 2017. Functional Pearl: a pretty but not greedy printer. Proceedings of the *ACM on Programming Languages*, volume 1, ICFP.

Jean-Philippe Bernardy and Shalom Lappin 2017. Using Deep Neural Networks to Learn Syntactic Agreement. *Linguistic Issues In Language Technology* 15(2).

Jean-Philippe Bernardy and Stergios Chatzikyriakidis, 2017. A Type-Theoretical system for the FraCaS test suite: Grammatical Framework meets Coq. *International Conference on Computational Semantics* (IWCS2017).

Talks:

Jean-Philippe Bernardy and Charalambos Themistocleous,  2017. Modelling prosodic structure using Artificial Neural Networks. *ExLing 2017: 8th Tutorial and Research Workshop on Experimental Linguistics.*

Jean-Philippe Bernardy 2017. A pretty but not greedy printer. Talk given at the *International Conference on Functional Programming* (ICFP).

Jean-Philippe Bernardy 2017. Natural Language Semantics in Coq. Tutorial given at the *GF summer school* in Riga.

**Yuri Bizzoni**

Publications:

Yuri Bizzoni, Marco Senaldi and Alessandro Lenci 2017. Deep Learning the Ropes: Modelling Idiomaticity With Neural Networks. Proceedings of *CLIC-It 2017.* Roma 11-13 December 2017.

Yuri Bizzoni and Shalom Lappin 2017. Deep Learning of Binary and Gradient Judgments for Semantic Paraphrase. Proceedings of *IWCS* 2017, short papers volume, ACL anthology W17 - 69xx.

Yuri Bizzoni, Stergios Chatzikyriakidis, and Mehdi Ghanimifard 2017 “Deep” Learning: Detecting Metaphoricity in Adjective-Noun Pairs. Proceedings of the *Workshop on Stylistic Variation*, EMNLP2017, ACL, Conference paper 2017

**Ellen Breitholtz**

Grants:

Dialogical Reasoning in Patients with Schizophrenia (Riksbankens jubileumsfond,

P16-0805:1)

– Duration: 2017–2020

–PI: Dr Ellen Breitholtz

– Co-investigators: Dr Christine Howes, University of Gothenburg, Dr Mary

Lavelle, King’s College, London, Professor Robin Cooper, University of Gothenburg.

Publications :

Ellen Breitholtz. Reasoning incrementally with underspecified enthymemes 2017.

Proceedings of the Workshop on *Formal Approaches to the Dynamics of Linguistic Interaction* 2017 co-located within the European Summer School on Logic, Language and Information (ESSLLI 2017) Toulouse, France, July 17-21, 2017.

Ellen Breitholtz, Christine Howes, and Robin Cooper 2017. Incrementality all the way up. Proceedings of the *Computing Natural Inference Workshop* at the International Conference on Computational Semantics (IWCS).

Talks:

Ellen Breitholtz, Christine Howes, and Robin Cooper 2017. Dialogical Reasoning in Patients with Schizophrenia. The 7th *CLT-workshop*, Gullmarsstrand, November 30th - December 1st 2017.

Ellen Breitholtz and Christine Howes 2017. Dialogical reasoning in patients with schizophrenia - Invited Talk. *(In)Coherence of Discourse 4*, 30th March 2017, Nancy, France.

**Stergios Chatzikyriakidis**

Publications:

Chatzikyriakidis, S. and Luo, Z. 2017. *Formal Semantics in Modern Type Theories* (monograph). ISTE/Wiley Science Publishing Ltd. (to appear late 2018).

Bernardy, J.P and Chatzikyriakidis S. 2017. An Algorithmic Treatment of Anaphora and its Computational Implementation. Submitted to *Journal of Logic and Computation*.

Chatzikyriakidis, S., Lafourcade, M., Ramadier, L. and Zarrouk, M. forthcoming Modern Type Theories and Lexical Networks: Using Serious Games as the Basis for Multi-Sorted Typed Systems. *Journal of Language Modelling*, 5(2), 229-272.

Bernardy, J.P and Chatzikyriakidis S., 2017. A Type-Theoretical system for the FraCaS test suite: Grammatical Framework meets Coq​. In the *proceedings of IWCS 2017*, Montpellier, France.

Chatzikyriakidis, S., Cooper, R., Dobnik, S. and Larsson, S. 2017. An overview of Natural Language Inference Data Collection: The Way Forward?. Proceedings of the *IWCS2017 workshop on Computing Natural Language Inference.*

Bizzoni, Y., Chatzikyriakidis, S. and Ghanimifard, 2017. M. "Deep Learning": Detecting Metaphoricity in Adjective-Noun Pairs 2017. In the proceedings of *EMNLP2017, workshop on Stylistic Variation.*

Ruth Kempson, Stergios Chatzikyriakidis and Christine Howes 2017. Cognitive science, language as a tool for interaction, and a new look at language evolution. In proceedings of the workshop on *Formal Approaches to Linguistic Interaction*, ESSLLI2017.

Chatzikyriakidis S. and Cooper R. 2017. Type Theories for Natural Language Semantics. *Oxford Reference Encyclopedia* article.

Talks:

Chatzikyriakidis, S. and Luo, Z., 2017. Identity Criteria of CNs: Quantfication and Copredication. Talk give at the workshop on *Approaches to Coercion and Polysemy.* Oslo, 2017.

Chatzikyriakidis, S. 2017. Modification in Dynamic Syntax. Presented at the 1st *Dynamic Syntax Conference*, SOAS, University of London, April 2017.

Chatzikyriakidis, S. 2017. Verifying our formal semantics accounts? Proof assistants to the rescue. *Semantics in Athens II*.

Chatzikyriakidis S. 2017. Coq for natural language semantics. Three day invited tutorial at the *Center of Advanced Study*, Oslo, November 2017.

Chatzikyriakidis S. 2017. Natural Language Inference: Is type theory relevant? Invited talk at *the SFB Kolloquium at the University of Duesseldorf,* June 2017.

Chatzikyriakidis, S. 2017. In Defence of Lost Causes: Type Theories for Natural Language Semantics. Invited talk at the *Semantics and Pragmatics Exchange SemPrE Group*, Duesseldorf, June 2017.

Chatzikyriakidis, S. 2017. Modern Type Theoretical Semantics and Reasoning with Natural Language. Invited talk at the *Logic Seminar*, Department of Philosophy, Linguistics and Theory of Science, University of Gothenburg, November 2017.

**Robin Cooper**

Publications

Cooper, Robin (2017) Adapting Type Theory with Records for Natural Language Semantics. *Ιn Modern Perspectives in Type-Theoretical Semantics,* ed. by Stergios Chatzikyriakidis and Zhaohui Luo, eds., Studies in Linguistics and Philosophy, 98, Springer, pp. 71—94.  
  
Cooper, Robin (2017) Charting a Way through the Trees, *Theoretical Linguistics*, Vol. 43, Nos. 1-2, pp. 121--128, DOI 10.1515/tl-2017-0009.   
  
Cooper, Robin (2017) Proper Names in Interaction, in New Frontiers in Artificial Intelligence: JSAI-isAI 2016 Workshops, LENLS HAT-MASH, AI-Biz, JURISIN and SKL Kanagawa, Japan, November 14--16, 2016, Revised Selected Papers, ed. by Setsuya Kurahashi, Yuiko Ohta, Sachiyo Arai, Ken Satoh and Daisuke Bekki, *Lecture Notes in Artificial Intelligence*, 10247, Springer, pp. 5--18.   
  
Chatzikyriakidis, Stergios, Robin Cooper, Simon Dobnik and Staffan Larsson (2017) An overview of Natural Language Inference Data Collection: The Way Forward?, extended abstract, *Workshop on Computing Natural Language Inference*, International Conference on Computational Semantics, Toulouse, 2017.    
  
Breitholtz, Ellen, Christine Howes and Robin Cooper (2017) Incrementality all the way up, extended abstract, Workshop on *Computing Natural Language Inference*, International Conference on Computational Semantics, Toulouse, 2017.  
  
Dobnik, Simon and Robin Cooper (2017) Interfacing language, spatial perception and cognition in Type Theory with Records. *Journal of Language Modelling*, Vol. 5 No. 2,  
  pp. 272--301.   
  
Cooper, Robin and Christian Retoré, eds (2017) Special issue on type-theoretical approaches to lexical semantics, *Journal of Language Modelling*, Vol. 5 No. 2.  
  
Cooper, Robin (2017) Judgement, taste and closely related Germanic languages, in *The very model of a modern linguist -- in honor of Helge Dyvik*, ed. by Victoria Rosén and Koenraad De Smedt, Bergen Language and Linguistic Studies, Vol. 8.

Talks:

Cooper, Robin 2017. Neural TTR, Keynote Lecture, Workshop on Logic and Algorithms in Computational Linguistics 2017 (LACompLing2017), Stockholm.

Cooper, Robin 2017. Coercion in Languages in Flux. Invited talk at *Workshop on Coercion and Polysemy* (CoPo2017), Oslo.

Cooper, Robin 2017. How to play games with types. Invited talk at Workshop on *Content and Reasoning in spoken dialogue and other media* (CREDOG), Paris 2017.

Cooper, Robin 2017. Contribution to panel on argumentation and computational semantics, *International conference on Computational Semantics* (IWCS) 2017.

**Simon Dobnik**

Publications

S. Dobnik and J. D. Kelleher 2017. Modular mechanistic networks: On bridging mechanistic and phenomenological models with deep neural networks in natural language processing. In S. Dobnik and S. Lappin, editors, Proceedings of the *Conference on Logic and Machine Learning in Natural Language* (LaML 2017), Gothenburg, 12–13 June 2017, volume 1 of CLASP Papers in Computational Linguistics, pages 1–11, Gothenburg, Sweden, November 2017. Department of Philosophy, Linguistics and Theory of Science (FLOV), University of Gothenburg, CLASP, Centre for Language and Studies in Probability.

J. D. Kelleher and S. Dobnik 2017. What is not where: the challenge of integrating spatial representations into deep learning architectures. In S. Dobnik and S. Lappin, editors, Proceedings of the *Conference on Logic and Machine Learning in Natural Language* (LaML 2017), Gothenburg, 12 –13 June, volume 1 of CLASP Papers in Computational Linguistics, pages 42–53, Gothenburg, Sweden, November 2017. Department of Philosophy, Linguistics and Theory of Science (FLOV), University of Gothenburg, CLASP, Centre for Language and Studies in Probability.

S. Dobnik and S. Lappin 2017. editors. CLASP Papers in Computational Linguistics: Proceedings of the *Conference on Logic and Machine Learning in Natural Language* (LaML 2017), Gothenburg, 12 –13 June, volume 1, Gothenburg, Sweden, November 2017. Department of Philosophy, Linguistics and Theory of Science (FLOV), University of Gothenburg, CLASP, Centre for Language and Studies in Probability.

M. Ghanimifard and S. Dobnik 2017. Learning to compose spatial relations with grounded neural language models. In C. Gardent and C. Retor ́e, editors, *Proceedings of IWCS 2017*: 12th International Conference on Computational Semantics, pages 1–12, Montpellier, France, September 19–22 2017. Association for Computational Linguistics.

S. Chatzikyriakidis, R. Cooper, S. Dobnik, and S. Larsson 2017. An overview of natural language inference data collection: The way forward? In C. Gardent and C. Retoré, editors, Proceedings of IWCS 2017: 12th International Conference on Computational Semantics, Workshop on *Computing Natural Language Inference*, pages 1–6, Montpellier, France, 19–22 September 2017. Association for Computational Linguistics.

S. Dobnik and R. Cooper 2017. Interfacing language, spatial perception and cognition in Type Theory with Records. *Journal of Language Modelling*, 5(2):1–29, 2017.

M. Ghanimifard and S. Dobnik 2017. Learning to compose spatial relations with grounded neural language models. In H. A. Mallot, editor, Conference abstract and poster: *Second International Workshop on Models and Representations in Spatial Cognition* (MRSC), page 21, Schloss Hohentübingen, Tübingen, Germany, April 6–7 2017. Cognitive Neuroscience, Department of Biology, University of Tübingen.

S. Dobnik and A. Åstbom 2017. (Perceptual) grounding as interaction. In V. Petukhova and Y. Tian, editors, Proceedings of *Saardial – Semdial 2017:* The 21st Workshop on the Semantics and Pragmatics of Dialogue, pages 17–26, Saarbrücken, Germany, August 15–17 2017.

S. Dobnik and E. de Graaf 2017. KILLE: learning grounded language through interaction. In C. Howes and H. Rieser, editors, Proceedings of the *Workshop on Formal Approaches to the Dynamics of Linguistic Interaction* 2017 co-located within the European Summer School on Logic, Language and Information (ESSLLI 2017), volume 1863, pages 12–16, Toulouse, France, July 17–21 2017. CEUR-WS.org, urn:nbn:de:0074-1863-7, http://ceur-ws.org/Vol-1863/paper 11.pdf.

S. Dobnik and J. D. Kelleher 2017. Back to the future: Logic and machine learning. Conference abstract and talk: *Conference on logic and machine learning in natural language* (LaML), Department of Philosophy, Linguistics and Theory of Science (FLOV), University of Gothenburg, Gothenburg, Sweden, June 12th- 14th 2017.

S. Dobnik and E. de Graaf 2017. KILLE: a framework for situated agents for learning language through inter- action. In J. Tiedemann, editor, Proceedings of the *21st Nordic Conference on Computational Linguistics* (NoDaLiDa), volume 131 of Link ̈oping Electronic Conference Proceedings and NEALT Proceedings Series Vol. 29, pages 1–10, Gothenburg, Sweden, 22–24 May 2017. Northern European Association for Language Technology (NEALT), Link ̈oping University Electronic Press.

W. Adouane and S. Dobnik 2017. Identification of languages in Algerian Arabic multilingual documents. In Proceedings of The *Third Arabic Natural Language Processing Workshop* (WANLP), pages 1–8, Valenica, Spain, April 3–7 2017. The European Chapter of the Association for Computational Linguistics (EACL), Association for Computational Linguistics.

Talks:

2017-03-30 Presented a popular science talk on own research and Masters student's projects. FLOV Open House Day. Department of Philosophy, Linguistics and Theory of Science (FLOV), University of Gothenburg.

2017-04-07 Presented an invited talk "Towards a computational model of frame of reference alignment in dialogue" at *Second International Workshop on Models and Representations in Spatial Cognition* Tübingen, Germany, April 6 - 7, 2017, http://www.cog.uni-tuebingen.de/workshop.html

2017-06-01 Presented a talk "KILLE: a Framework for Situated Agents for Learning Language Through Interaction" at Dialogverkstaden 2017 - *Swedish Dialogue workshop*, KTH-TMH (Speech, Music and Hearing, https://www.kth.se/en/csc/forskning/tmh), 1-2 June, Stockholm https://docs.google.com/document/d/19mRRjdvxnxg9g3wdxsCYZCO8uqMshetII9UUDMDl4Ag/edit

2017-06-12 Presented a talk with John D. Kelleher "Back to the Future: Logic and Machine Learning" at *LAML Conference on Logic and Machine Learning in Natural Language*, June 12-14, 2017, Wallenberg Conference Centre, University of Gothenburg http://clasp.gu.se/news-events/conference-on-logic-and-machine-learning-in-natural-language--laml-/programme

2017-07-26 Chris Howes presented a joint work at JAM VII (2017), *bi-annual Joint Action Meeting*: July 22 - 26, Queen Mary University of London, United Kingdom. https://somby.ceu.edu/jam "Towards a computational model of frame of reference alignment in dialogue"

<https://somby.ceu.edu/sites/somby.ceu.edu/files/attachment/basicpage/35/jam7programonline2.pdf>

2017-11-30 Presented a talk "KILLE: a Framework for Situated Agents for Learning Language Through Interaction" at The *7th annual CLT workshop*, 2017, on 30 November to 1 December. Gullmarsstrand, Fiskebäckskil. http://www.clt.gu.se/event/2017-11-30/clt-workshop-2017

**Mehdi Ghanimifard**

Pubications:

Ghanimifard, M., & Dobnik, S. (2017). Learning to Compose Spatial Relations with Grounded Neural Language Models. In IWCS 2017-12th *International Conference on Computational Semantics*.

Bizzoni, Y., Chatzikyriakidis, S., & Ghanimifard, M. (2017). " Deep" Learning: Detecting Metaphoricity in Adjective-Noun Pairs. In Proceedings of the *Workshop on Stylistic Variation* (pp. 43-52).

Talks:

Ghanimifard, M., & Dobnik, S. (2017). Learning to compose spatial relations with grounded neural language models. Second International *Workshop on Models and Representations in Spatial Cognition* (MRSC). Schloss Hohentübingen; Tübingen, Germany; April 06 - 07, 2017

**Christine Howes**

Grants:

VR (Swedish Research Council) Project grant 2016-01162 -- 3 600 000 SEK (2017-2020)

Incremental Reasoning in Dialogue

Project leader: Christine Howes; Co-investigators: Ellen Breitholtz, Robin Cooper

Publications:

Breitholtz, E., Howes, C. & Cooper, R (2017). Incrementality all the way up. In Computing Natural Language Inference *Workshop at the International Conference on Computational Semantics* (IWCS).

Dobnik, S. & Howes, C (2017). Towards a computational model of frame of reference alignment in dialogue. In Proceedings of the *7th Joint Action Meeting* (JAM). London, UK.

Howes, C. & Eshghi, A (2017). Formalising backchannel relevance spaces. In The *first Dynamic Syntax conference.*

Howes, C. & Eshghi, A (2017). Feedback relevance spaces: The organisation of increments in conversation. In Proceedings of the 12th International *Conference on Computational Semantics* (IWCS 2017). Association for Computational Linguisitics.

Howes, C., Lavelle, M., Healey, P. G., Hough, J. & McCabe, R (2017). Disfluencies in dialogues with patients with schizophrenia. In Proceedings of the *39th Annual Meeting of the Cognitive Science Society*. London, UK.

Howes, C., Lavelle, M., Healey, P. G., Hough, J. & McCabe, R (2017). Self-repair in dialogue with patients with schizophrenia. In *Communication and Cognition - Miscommunication: Getting lost in language(s).*

Howes, C., Lavelle, M., Healey, P. G., Hough, J. & McCabe, R (2017). Do patients with schizophrenia do dialogue differently?. In Proceedings of the *7th Joint Action Meeting (JAM). London, UK*.

Howes, C. & Rieser, H., editors. (2017). Proceedings of the workshop on Formal Approaches to the Dynamics of Linguistic Interaction (FADLI), number 1863, In *CEUR Workshop Proceedings*, Aachen.

Howes, C., Thompson, L. & McCabe, R (2017). Effect of questions used by psychiatrists on therapeutic alliance and adherence. In *WPA XVII World Congress of Psychiatry*. Berlin.

Hård af Segerstad, Y., Kullenberg, C., Kasperowski, D. & Howes, C (2017). Studying closed communities on-line: Digital methods and ethical considerations beyond informed consent and anonymity. In Zimmer, M. & Kinder-Kurlanda, K. (editors), *Internet Research Ethics for the Social Age: New Cases and Challenges.* Peter Lang.

Kempson, R., Chatzikyriakidis, S. & Howes, C (2017). Cognitive science, language as a tool for interaction, and a new look at language evolution. In Howes, C. & Rieser, H. (editors), Proceedings of the *workshop on Formal Approaches to the Dynamics of Linguistic Interaction (FADLI),* pages 32-36. CEUR Workshop Proceedings.

Talks:

Breitholtz, E. & Howes, C (2017). Dialogical reasoning in patients with schizophrenia - Invited Talk. *In (In)Coherence of Discourse* 4. Nancy, France.

**Shalom Lappin**

Publications:

Jean-Philippe Bernardy and Shalom Lappin (2017), Using Deep Neural Networks to Learn Syntactic Agreement, *Linguistic Issues in Language* Technology 15.2, pp. 1-15.

Yuri Bizzoni and Shalom Lappin (2017), Deep Learning of Binary and Gradient Judgements for Semantic Paraphrase, Proceedings of the *International Workshop on Computational Semantics* 2017, Montpellier, France, September 2017.

Devdatt Dubhash and Shalom Lappin (2017), AI Dangers: Imagined and Real, *Communications of the ACM*, Vol 60. No. 2, February 2017, pp. 43-45.

Talks:

Shalom Lappin (2017), Doing Intensional Semantics without Possible Worlds, *Centre for Logic, Language, and Mind*, University of Stockholm, October 2017.

Shalom Lappin (2017), Intensional Semantics without Possible Worlds, *University College London reading Group*, September 2017.

Jean-Philippe Bernardy and Shalom Lappin (2017), Learning Agreement with Deep Neural Networks, *Israel Seminar on Computational Linguistics*, Hebrew University of Jerusalem, September 2017.

Shalom Lappin (2017), Learning Syntax with Deep Neural Networks, *University of Dusseldorf Linguistics Colloquium*, July 2017.

Shalom Lappin (2017), Deep Learning and Semantic Interpretation of Natural Language, *University of Dusseldorf Semantics and Pragmatics Colloquium*, July 2017.

Shalom Lappin (2017), Learning Syntax with Deep Neural Networks, *Cambridge Linguistics Society*, May 2017.

**Staffan Larsson**

Publications

Larsson, S., Berman, A., Krona, A., & Kronlid, F. (2017). Integrating the Talkamatic Dialogue Manager with Alexa. Proc. *Interspeech 2017*, 3431-3432.

Larsson, S., & Myrendal, J. (2017). Dialogue Acts and Updates for Semantic Coordination. *SEMDIAL 2017* SaarDial, 59.

Larsson, S. (2017). User-initiated Sub-dialogues in State-of-the-art Dialogue Systems. In Proceedings of the *18th Annual SIGdial Meeting on Discourse and Dialogue* (pp. 17-22).

Larsson, S. (2017). Compositionality for perceptual classification. In IWCS 2017—12th *International Conference on Computational Semantics*—Short papers.

Chatzikyriakidis, S., Cooper, R., Dobnik, S., & Larsson, S. (2017). An overview of Natural Language Inference Data Collection: The way forward?. In Proceedings of the *Computing Natural Language Inference Workshop*.

Larsson, S., & Myrendal, J. Towards Dialogue Acts and Updates for Semantic Coordination. In Howes and Rieser, Proceedings of *FADLI 2017.*

Talks:

Staffan Larsson (2017): Modeling intensions as classifiers. Invited talk. In Loukanova & Liefke (eds.) Proceedings of the Workshop on *Logic and Algorithms in*

*Computational Linguistics* 2017 (LACompLing2017).

Staffan Larsson (2017): Approaches to Compositionality for Perceptual Classification. Presentation at *Conference on Logic and Machine Learning in Natural* Language (LaML).

**Vlad Maraev**

Publications:

Efraim, O., Maraev, V., and Rodrigues, J. (2017). Boosting a rule-based chatbot using statistics

and user satisfaction ratings. In *Conference on Artificial Intelligence and Natural Language*, pages 27–41. Springer.

Maraev, V., Saedi, C., Rodrigues, J., Branco, A., and Silva, J. (2017). Character-level convolutional neural network for paraphrase detection and other experiments. In *Conference on Artificial Intelligence and Natural Language*, pages 293–304. Springer.

Rodrigues, J. A., Saedi, C., Maraev, V., Silva, J., and Branco, A. (2017). Ways of asking and

replying in duplicate question detection. In Proceedings of the *6th Joint Conference on Lexical and Computational* Semantics (\* SEM 2017), pages 262–270.

Saedi, C., Rodrigues, J., Silva, J., Maraev, V., et al. (2017). Learning profiles in duplicate question detection. In *Information Reuse and Integration* (IRI), 2017 IEEE International Conference on, pages 544–550. IEEE.

Talks:

Maraev, Vlad 2017. Laughter-Infused Spoken Dialogue Systems: the Starting Point, poster presented at: The 7th annual CLT workshop, Nov 30–Dec 1, Fiskebäckskil, Sweden.

Maraev, Vlad 2017. Dialogue systems, Dec 9, 2017, Minsk Knowledge Office, Belarus.

Maraev, Vlad 2017. Laughter in conversation, Dec 9, 2017, Minsk Knowledge Office, Belarus.

Maraev, Vlad 2017. Boosting a rule-based chatbot using statistics and user satisfaction ratings, AINL 2017, Sep 20– 23, St Petersburg, Russia.

**Asad Sayeed**

Publications:

Asad Sayeed. 2017, to appear 2018. Towards an annotation framework for

incremental scope specification update. Proceedings of *Logic and Machine*

*Learning in Natural Language* (LaML). Gothenburg, Sweden.

Asad Sayeed, Pavel Shkadzko, and Vera Demberg. To appear 2018.

Rollenwechsel-English: a large-scale semantic role corpus. *Language*

*Resources and Evolution Conference* (LREC). Miyazaki, Japan

Talks:

Asad Sayeed and Alessandra Zarcone. 2017.07.17-2017.07.21. Explicit world-knowledge and distributional semantic representations. Five lectures at *European Summer School of Logic, Language, and Information* (ESSLLI). Toulouse, France.

Asad Sayeed. 2017.10.10. Incremental scope processing: at the nexus of cardinality expectation and semantic structure. University of Gothenburg *Linguistics Colloquium*.

Asad Sayeed. 2017.10.28. Language Science and Technology at the University of Gothenburg. Poster presentation at the 25th *Anniversary of the Department of Computational Linguistics and Phonetics, Saarland University*. Saarbrücken, Germany.

**Charalambos Themistocleous**

Publications:

Themistocleous, Charalambos (2017). Effects of two linguistically proximal varieties on the spectral and coarticulatory properties of fricatives: Evidence from Athenian Greek and Cypriot Greek. Frontiers in Psychology. DOI: 10.3389/fpsyg.2017.01945

Themistocleous, Charalambos (2017). Classifying linguistic and dialectal information from vowel acoustic parameters. Speech Communication 94, 13 – 22. DOI: 10.1016/j.specom. 2017.05.003.

Grohmann Kleanthes, Papadopoulou Elena and Themistocleous Charalambos (2017). Acquir- ing Clitic Placement in Bilectal Settings: Interactions between Social Factors. Frontiers in Communication 2:5. doi: 10.3389/fcomm.2017.00005.

Themistocleous, Charalambos (2017). Modern Greek vowels and the nature of acoustic gradience. Phonetica 74, 157–172. PMID: 28268213, DOI: 10.1159/000450554.

Fyndanis, Valantis, Themistocleous, Charalambos, & Christidou, Paraskevi. Time reference and aspect in agrammatic aphasia: Evidence from Greek. Frontiers in Human Neuroscience. doi:10.3389/conf.fnhum.2017.223.00080. (short paper)

Bernardy, Jean-Philippe, & Themistocleous Charalambos (2017). Modelling prosodic structure using Artificial Neural Networks. Experimental Linguistics 2017. 17-20

Fyndanis, Valantis, Themistocleous Charalambos, and Christidou Paraskevi (2017). Time reference and aspect in agrammatic aphasia: Evidence from Greek. Academy of Aphasia. 55th Annual Meeting November 5-7th, 2017 Baltimore, Maryland, USA. (Conference Presentation).

Georgia Angelopoulou, Dimitrios Kasselimis, Maria Varkanitsa, Panagiotis Fotiadis, Charalambos Themistocleous, Dimitrios Tsolakopoulos, Christally Grillou, Foteini Christidi, Efstratios Karavasilis, George Argiropoulos, George Velonakis, Sofia Karanassou, Zoi Nikitopoulou, Petros Roussos, Dionysios Goutsos, Nikolaos Kelekis, Ioannis Evdokimidis, Constantin Potagas (2017). Effects of cortical thickness on pause duration in neurotypical adults’ speech: Evidence for the role of the left middle temporal gyrus in lexical retrieval. Society for the Neurobiology of Language 2017. November 8-10 in Baltimore, Maryland.

Anastasi, Eva, Logotheti, Ageliki, Panayiotou, Stavri, Serafim, Marilena, and Themistocleous, Charalambos (2017). A sociophonetic study of Standard Modern Greek and Cypriot Greek Stop Consonants. Paper presented at the 12th International Conference on Greek Linguistics (ICGL12), 16 – 19 September 2015. Freie Universität Berlin, Germany. Talks:

December 4, 2017 Acoustic predictors from prosody and segmental structure of atypical speech productions. Department of Swedish Unit: the Swedish Language Bank (meeting organizer Dr. Dim- itris Kokkinakis).

November 30th, 2017 Deciphering the speech signal: speakers and communities of speakers. http://www.clt.gu.se/event/2017-11-30/clt-workshop-2017

**Research Groups**

The four main research groups have been established:

1. Dialogue Group led by Christine Howes and Sylvie Saget
2. Machine Learning group led by Asad Sayeed and Yuri Bizzoni
3. Type Theory group led by Stergios Chatzikyriakidis, Jean-Philippe Bernardy, and Vlad Maraev
4. Situated Language and Perception group led by Simon Dobnik and Mehdi Ghanimifard

The Dialogue and Situated Language and Perception groups have started meeting regularly every other week. The other two groups will start their seminars in 2018.

**Cooperation with Other Institutions and Programmes**

We continue to enjoy close research connections with the Machine Learning group at Chalmers, headed by Devdatt Dubashi. Lappin is on the supervisory committee for one the ML group’s PhD students, Mikael Kågebäck, and he is on the thesis committee of a second ML PhD student, Olof Mogren,

We have sustained our relationship with the Type Theory group at Chalmers, actively collaborating with them (particularly Aarne Ranta’s group) on the application of type theory to the analysis of natural language.

We are in regular contact with the Språkbanken group in the Swedish Department at GU, with whom we share common research interests in NLP and corpus work. Lars Borin and Shalom Lappin have submitted a joint proposal to the Faculty of Humanities at GU for renewed support of the Centre for Language Technology as a common forum for NLP research in the Gothenburg area. This proposal was made in the context of the Swedish national AI initiative.

We are actively exploring research cooperation with the Centre for Logic, Language, and Mind at the University of Stockholm. Shalom Lappin presented a paper in the Centre’s seminar series in October, 2017. This contact led to the Gothenburg-Stockholm Workshop on Proof Theory, Model Theory, and Probability in Natural Language scheduled for February 7, and described below.

Stergios Chatzikyriakidis has established an ongoing research relationship with the computational linguistics and the linguistics program at the University of Oslo, as part of their research project SynSem. He has visited Oslo twice, once as a representative of CLASP to participate in one of the project’s internal workshops, and the second time as a guest lecturer, giving a three day tutorial on computational semantics at the Centre of Advanced Study. We are currently organizing a half-day workshop in Gothenburg, where both groups, SynSem and CLASP, will meet, present their work and discuss future research collaboration.

We have active connections with the NLP group in the School of Electronic Engineering and Computer Science at Queen Mary University of London. Shalom Lappin is a Visiting Professor in this group, and Christine Howes continues to work with its members on research that she was involved in when she was a Post Doctoral Researcher there, prior to coming to GU in 2014.

**Responding to Feedback from Our Scientific Advisory Board and the VR**

In their comments on our first annual report the members of our Scientific Advisory Board pointed out the need to integrate more fully the research activities of CLASP members, so that they promote the long term objectives of the Centre, as specified in our original VR application. We have taken several steps to implement this recommendation.

First, we have activated our four research groups in order to structure the research of our members around our main mission goals. Second, we have instituted more regular internal seminars and a series of widely attended PhD courses to promote greater communication within CLASP, and the sharing of research results among our members. Finally, we have actively cultivated more joint projects that bring together people from different scientific perspectives, using a variety of method to solve common problems. This has resulted in a large number of cross group collaborations and publications.

In its response to our first annual report the VR indicated the need to work towards a more equitable gender balance. We have since appointed two female researchers, Chris Howes (Associate Senior Lecturer), and Sharid Loáiciga (postdoctoral researcher). Moreover, our latest PhD appointments have maintained the gender equality of the program (3 male and 3 female students).

**Plans for 2018**

1. **Gothenburg-Stockholm Workshop on Proof Theory, Model Theory, and Probability**

We have organised a high profile one-day workshop on the application of proof theory, model, and probability to the semantics of natural language, to take place on February 7, 2018. This is a joint forum involving speakers from the University of Stockholm (Peter Pagin, and Dag Westerståhl), Chalmers (Thierry Coquand and Aarne Ranta), and CLASP (Staffan Larsson, Robin Cooper, Simon Dobnik, Shalom Lappin, and Jean Phililppe Bernardy). It brings together researchers in computer science, logic, and linguistics to address several foundational issues concerning the formal method used to represent and interpret natural language. The program is posted at <https://clasp.gu.se/news-events/gothenburg-stockholm-workshop>.

1. **Conference on Dialogue and Situated Perception in Language**

Following the success of LaML, CLASP is organizing a second conference in one of its core areas, Dialogue and Situated Perception in Language. It will be a two day conference that will involve a combination of invited talks, regular talks, posters plus free discussion on the interaction of these two topics. The call for papers is going to be out soon. Selected post-proceedings will be published electronically under CLASP publications.

1. **Participation in International Conferences**

We are submitting papers to most of the major international conference in NLP and computational linguistics (NAACL, ACL, COLING, and ELREC). Several of our members are giving invited talks in high profile seminars abroad, and a number of us are teaching courses or organising workshops at summer schools, specifically ESSLLI and NASSLLI.