

ILC Magazine

Institute for Logic, Language and Computation



#15

January 2016

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Guest column by
Lev D. Beklemishev:
New technologies,
old habits

A special anniversary
section with photo-
graphs

Beyond the realm of
logic, language and
computation: what
students & staff do
in their leisure time

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Dear friends of the ILLC,

We are very pleased to present the latest issue of the ILLC Magazine, No. 15. This issue appears at the beginning of 2016, the year in which the institute celebrates its 25th Anniversary as the Institute for Logic, Language and Computation. As you can see, we have used this occasion as an excuse to have the ILLC Magazine re-styled; we hope you approve of the changes! No. 15 is also a somewhat thicker edition than usual, including among other things a special section with a selection of photographs from the ILLC-past, and an article by Frank Veltman, one of our previous directors, giving his version of the inception of the ILLC.

Of course, we also have our usual features: this year Lev D. Beklemishev is the author of the Guest Column, on New Technologies, Old Habits. In Research Highlights, our four VIDI laureates, Raquel Fernández, Floris Roelofsen, Christian Schaffner and Ivan Titov, give us an idea of what their projects entail. Arianna Betti tells us how her academic background and interests have inspired her and helped inform her perspective as a philosopher and an interdisciplinary researcher. Phong Le was interviewed during his internship at Xerox Research Centre Europe, and Luca Spada elucidates the research he carried out during his EU MC fellowship at the ILLC.

Along with the interviews with many of the new PhDs and postdocs who started up in 2015, there are two longer interviews with ILLC Alumni: Amélie Gheerbrant (PhD in 2010), who is currently assistant professor in computer science at Université Paris Diderot; and MSc in Logic alumnus Nikhil Maddirala, who has been working as a junior consultant at Deloitte Consulting in India since graduating in 2014.

The ILLC celebrated the 20th Anniversary of the Master of Logic in 2015; together with the photographs, MoL student Sirin Ozturk's write-up on the MoL party will give you a general idea of the festive celebrations. In 'Passing the Torch', former MoL director Ulle Endriss and new MoL director Maria Aloni are interviewed.

The section 'Beyond the realm of logic, language, and computation' shows that our staff and students possess many unexpected talents. 'Rethinking the UvA' gives the views of some ILLC staff and students who were actively involved in the movement for more democracy within the university organization.

We hope that you will enjoy this issue of the ILLC Magazine at the start of the jubilee year. We would like to thank all the contributors for their contributions.

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Many thanks to all contributors

Projects awarded

EU MC Global Fellowship for Sam van Gool

Sam van Gool received funding from the EU Marie Curie programme for a three-year postdoc fellowship for his project 'Duality for Logic on Words (DFLOW)'. Sam will carry out the first two years of his project at CUNY in New York, returning to ILLC for the final year.

'AAA' UvA-VU cooperation in Digital Humanities

As a part of the Amsterdam Academic Alliance (AAA), the UvA and VU were awarded 3 million euros for the new Data Science research programme. Rens Bod (ILLC) and Julia Noordegraaf (FGW), together with VU researchers, landed a project entitled "Quality and Perspectives in Deep Data" on which two postdocs will be appointed.

EU MC Fellowship for Tamara Dobler

Tamara Dobler received funding from the EU Marie Curie programme for a two-year postdoc fellowship for her project 'Radical Contextualism and the Science of Meaning'. The overall purpose of the project is to investigate the impact that radical contextualism has upon certain foundational issues

in philosophy of language, formal semantics, and philosophy of science.

Google RPF project Ivan Titov extended

Ivan Titov received a further year's funding from Google for Ehsan Khoddamhammadi, PhD candidate on his project 'Knowledge Graphs and Compositionality in Web-scale Natural Language Understanding'.

New collaboration with Yandex

As a part of collaboration between Yandex (Russia) and ILLC, a new PhD student, Anton Frolov, joined ILLC. Anton will be jointly supervised by Khalil Sima'an and Ivan Titov.

Amazon Web Services grant for Ivan Titov

Amazon granted Ivan Titov access to their computational infrastructure to support his research on induction of semantic parsers from large-scale textual data.

Four Vidi grants at ILLC

The ILLC is extremely proud that NWO awarded VIDI grants to four ILLC researchers in 2015. This is one of the most prestigious research grants in the Netherlands, enabling researchers who have already spent five years doing postdoctoral research to develop their own innovative lines of research. The four researchers are:

- Raquel Fernández has received funding for her VIDI project: Asymmetry in Conversation. Besides partly funding her own position, the project will also fund a postdoc and a PhD candidate.
- Floris Roelofsen has received funding for his VIDI project: Inquisitiveness below and beyond the sentence boundary. Besides partly funding his own position, the project will also fund two postdoc positions and a PhD candidate.
- Christian Schaffner has received funding for his VIDI project: Cryptography in the Quantum Age. Besides partly funding his own position, the project will also fund a postdoc and a PhD candidate.
- Ivan Titov has received funding for his VIDI project: Learning Open-domain Semantic Parsers with Big Data and Little Supervision. Besides partly funding his own position, the project will also fund two postdoc positions and a PhD candidate.

Two ERC Starting Grants at ILLC

On top of the VIDI grants they received, Floris Roelofsen and Ivan Titov were each also awarded a five-year ERC Starting Grant (approx. 1.5 million euros) for talented researchers. The ILLC is proud that these

talented researchers received two of the six ERC Starting Grants awarded to UVA-researchers.

- Floris Roelofsen was awarded an ERC Starting Grant for his project 'QuModQu: Quantification and Modality in the Realm of Questions'. Current PhD student Ivano Ciardelli made important contributions to the QuModQu research proposal and will play a prominent role in the project as a postdoc. Besides partly funding Roelofsen's own position, the project will also fund two postdoc positions and two PhD candidates.
- Ivan Titov was awarded an ERC Starting Grant for his project 'BROADSEM: Induction of Broad-Coverage Semantic Parsers'. Besides partly funding his own position, the project will also fund two postdoc positions and one PhD candidate.

SAP Project Ivan Titov

Deep Collaborative Clustering and Prediction is a joint project between ILLC (Ivan Titov), Ivi (Max Welling) and the well-known software company SAP. Titov and Welling have each received funding for a PhD position.

NWO Open Competition grant for Rens Bod

Rens Bod was awarded an

NWO Open Competition grant to carry out his project "The Flow of Cognitive Goods". The grant, 735 kEuro, will fund two PhD positions and one postdoc position. Co-applicant is Jeroen van Dongen from the Institute of Physics (IOP).

Prizes and awards

Sonja Smets awarded Lotze Medal 2015

Sonja Smets received the Lotse Medal 2015, awarded to scientists who have made significant contributions to experimental philosophy and pragmasemantics. The prize was awarded during the Szklarska Poreba workshop, held in Poland in February 2015.

Raquel Alhama awarded best student poster at ICCM

Computational linguist Raquel Alhama won best student poster award at the International Conference on Cognitive Modelling (ICCM'15) with her work on: "How should we evaluate models of segmentation in artificial language learning?" (with Remko Scha and Jelle Zuidema).

Best Poster Award for Mostafa Dehghani

Mostafa Dehghani won the Best Poster Award of European Conference on Information Retrieval (ECIR2015) for his poster presentation of the paper

entitled "Sources of Evidence for Automatic Indexing of Political Texts" (co-authored by Hosein Azarbonyad, Maarten Marx, and Jaap Kamps).

Best Student Paper Award for Bill Noble

The paper "Centre Stage: How Social Network Position Shapes Linguistic Coordination", by MoL student Bill Noble together with Raquel Fernandez, received the Best Student Paper Award at the Cognitive Modelling and Computational Linguistics Workshop, part of NAACL-2015, Denver, Colorado.

Roosmarijn Goldbach wins UvA Thesis Prize 2015

MoL graduate Roosmarijn Goldbach was awarded the UvA Thesis Prize 2015 for the best Master's thesis defended at the University of Amsterdam over the past year. This distinction comes with a cash award of €3,000. Roosmarijn's thesis, entitled "Modelling Democratic Deliberation", brings together ideas from political philosophy, social choice theory, and modal logic.

Nina Gierasimczuk and Jakub Szymanik

were awarded Senior Visiting Fellowships at The Munich Center for Mathematical Philosophy (MCMP) in the Spring of 2016, to collaborate on the

project "Cognitively Motivated Probabilistic Proof Systems".

Benedikt Löwe Secret Speaker at UNILOG 2015

Benedikt Löwe was the Secret Speaker at UNILOG 2015 in Istanbul (27 June 2015). The World Congress on Universal Logic has a tradition that the only plenary lecture is given by a secret speaker whose identity is revealed at the talk. According to UNILOG, "previous secret speakers at UNILOG include Saul Kripke, Jaakko Hintikka, Grigori Mints and exclude Brigitte Bardot, Kurt Gödel, Arnold Schwarzenegger."

Best Paper Award for Julian Schlöder

Julian Schlöder received the Best Paper and Oral Presentation Award for his paper "A Formal Semantics of the Final Rise", presented at the Student Session during ESLLI 2015 in Barcelona. The paper offers a formal model formulated in the SDRT framework of how final rise intonation in English affects the discourse structure of a dialogue.

1st Luxembourg Art Prize

MoL student Albert Janzen was awarded the first Luxembourg Art Prize 2015, receiving a grant to produce a solo exhibition to be held at La Galerie Hervé Lancelin in Luxembourg in 2016.

Remko Scha 1945-2015

On 9 November 2015 Remko Scha passed away. Remko was a professor of computational linguistics at the ILLC, and from the early nineties until his retirement in 2010 he was one of the leading researchers at our institute. Remko made significant contributions to the semantics of plurals, to the formal theory of discourse, to Data-Oriented Parsing, and various other areas. The Dutch computational linguistics community has lost one of its founders and the international community an influential researcher.

Remko was born in Eindhoven in 1945 and graduated in physics in 1970 at the Technological University in the same city. His first job at Philips Natlab in 1970 brought him in contact with natural language processing in the context of the pioneering question-answering system PHLIQA. His PhD thesis on natural language questions and answers (University of Groningen, 1983) as well as his early paper on plurals in natural language are still necessary references for any work on the subject. They contain ideas and observations that are not yet properly absorbed in ongoing discussions. For example, few people can do the full range of readings observed for definite plurals. Many, in their attempts of dealing with cumulative readings introduced in Remko's paper, break either the normal syntactic structure of the sentence or the principle of compositionality.

In 1988 Remko accepted a full professorship in computational linguistics at the University of Amsterdam. There he developed, together with his students and colleagues, Data-Oriented Parsing (DOP) as a major paradigm in natural language processing and machine translation. In the DOP framework, sentence processing does not operate with grammatical rules but with a corpus of previous language experiences. New sentences are processed by combining sub-analyses from previously analyzed sentences in the most probable way. This approach was especially successful in dealing with the longstanding problems of ambiguity and robustness of language processing. The model was used in various applications, leading to an impressively large number of funded projects in the Netherlands and abroad.

An enthusiastic and inspiring educator, Remko's legacy remains at the ILLC as a flourishing Language and Computation group. Several of his former PhD students have become full professors themselves, including Rens Bod and Khalil Sima'an. Besides being a scholar, Remko was also a performing artist working on aleatoric music, algorithmic art, facial art and artificial body manipulation. In 1990, he founded the Institute of Artificial Art Amsterdam which became a breeding ground for algorithmic artists. Remko's concerts with The Machines, an automated guitar band where the strings of the guitars are played by electronically controlled fan motors were unforgettable.

Remko was a most versatile researcher – he is vividly remembered and will be sorely missed.

Rens Bod



Appointed as professor

Jos Baeten, FNWI, LoCo, 1-11-2014, Chair: Theory of Computing

Other new appointments

- Wilker Ferreira Aziz, postdoc, FNWI, LaCo, 1 January 2015
- Sanna Kumpulainen, postdoc, FGw, LaCo, 1 January 2015
- Roberto Ciuni, EU MC research fellow, FNWI, LaCo, 1 January 2015
- Bushra Jawaid, postdoc, FNWI, LaCo, 1 January 2015
- Stella Frank, postdoc, FNWI, LaCo, 1 January 2015
- Benjamin Rin, lecturer, FNWI, LoCo, 1 February 2015
- Gideon Maillette, postdoc, FNWI, LaCo, 1 February 2015
- Fenneke Kortenbach, secretary, FNWI, 1 April 2015
- Pierre Bisquert, postdoc, FNWI, LoCo, 1 May 2015
- Tamara Dabler, EU MC research fellow, FGw, LoLa, 1 September 2015
- Diego Marcheggiani, postdoc, FNWI, LaCo, 1 September 2015
- Serge ter Braake, postdoc, FGw, LaCo, 1 October 2015
- Desmond Elliott, postdoc, FNWI, LaCo, 1 October 2015

New PhD candidates

- Joost Bastings LaCo (Sima'an), 1 January 2015
- Jouke Witteveen LoCo (Torenvliet), 1 February 2015
- Iris van der Pol LoCo (van Benthem/Szymanik), 1 April 2015
- Dieuwke Hupkes LaCo (Zuidema), 1 July 2015
- Nadine Theiler LoCo (Roelofsen), 1 August 2015
- Arnold Kochari LoLa (van Rooij), 1 September 2015
- Frederik Lauridsen LoCo (Bezhanishvili), 1 September 2015
- Anton Frolov LaCo (Titov), 1 September 2015
- Chong Wang LoLa (Stokhof), 1 September 2015
- He Shunan LoLa (Smets), 1 September 2015
- Breannán Ó'Nualláin LoCo (Torenvliet), 1 October 2015
- Sara Veldhoen LaCo (Zuidema), 1 November 2015

Personnel departed

- Hartmut Fitz, FNWI, 1 February 2015
- Gina Beekelaar, FNWI, 1 April 2015
- Harald Bastiaanse, FNWI, 1 May 2015
- Joshua Sack, FNWI, 1 June 2015
- Luca Spada, FNWI, 1 August 2015
- Sanna Kumpulainen, FGw, 1 August 2015
- Stefan Pliquet, FGw, 1 September 2015
- Inés Crespo, FGw, 1 September 2015
- Mathias Madsen, FGw, 1 September 2015
- Sumit Sourabh, FNWI, 1 September 2015
- Shengyang Zhong, FNWI, 1 September 2015
- Zhenhao Li, FNWI, 1 September 2015
- Facundo Carreira, FNWI, 1 September 2015
- Carola Werner, FGw, 1 October 2015
- Christos Louizos, FNWI, 15 November 2015
- Bart Karstens, FGw, 1 December 2015
- Jouko Väänänen, FNWI, 1 December 2015

Arianna Betti is Professor of Philosophy of Language and Chair of the Logic and Language group at the Faculty of Humanities. She tells us how her academic background and interests, past and present, have helped inform her perspective as a philosopher and to become an interdisciplinary researcher.

Radical interdisciplinarity

Arianna Betti

Often students of philosophy are after big questions. But that wasn't the reason I enrolled in philosophy. I just couldn't help searching for the most abstract way to look at things – often geometrically, like seeing and thinking in terms of places in a structure. No wonder the very first course in logic I took in Florence, Italy, was such a revelation for me. The teacher of that course was Ettore Casari. For me, there has been no other teacher, ever.

It is from him I heard for the first time of Stanisław Leśniewski, a Polish guy who, in the Twenties, in that by then still rather mysterious Eastern part of Europe, built a system of the foundations of mathematics that looked like an incredible mix of old and new – formalised Aquinas, or so. Leśniewski – better known as the master of his genius pupil, Alfred Tarski – was the galaxy's most precise logician, bordering on madness. He published little, mostly in Polish, in a crazy notation, and his writings were at the time untranslated. This was an incredibly attractive mix, so I left for Cracow to learn to read Leśniewski's works in Polish, and write my MA thesis. And so I became a historian of logic in a vertical market, the Polish tradition and its Austrian Roots.

Leśniewski was – and still is – one of my two heroes (if any there are in philosophy). The other one is the Bohemian polymath Bernard Bolzano. It is not by chance that all those who have come into contact with Bolzano's *Wissenschaftslehre*, barring none, have their philosophical heart stolen forever. Perhaps this is the reason why the entire community of Bolzano scholars is suffused with such kindness, and joyful humanity.

'[M]ankind is beset with innumerable evils simply because of ignorance and error, [...] we would be incomparably better off and happier on earth if only each of us could acquire exactly that information which would benefit us most under the circumstances.' (Bolzano 1837, §.1)

Now, when one's tender philosophical brain gets fed Bolzano and Leśniewski at an early age, and none (seriously), none of the standard analytic philosophy lot, that brain must take a rather distinctive shape. No other kind of philosophy tended to prompt more vivid disagreement in me than ordinary language philosophy ('we talk about facts in ordinary language so there must be facts'). Reflection on the grounds of that disagreement, and a parallel growing discomfort with certain practices in present-day analytic metaphysics and mainstream philosophy of language made me turn to metaphilosophical reflection on method. The 100-page *reductio* argument in *Against Facts* (2015) against so-called propositional facts is the result of disagreement and discomfort. (My colleague Jelle Zuidema started his inspiration piece on a similar theme.)

You can reflect on method on your own, the typical solo way of many philosophers, and that's all very good. Nevertheless, inspiration for real reflection on method comes with interdisciplinary engagement – especially radical interdisciplinarity. Radical interdisciplinarity is, in my case, what is represented in the attempt to take a computational turn in the history of logic, or more generally, the history of philosophical ideas – a meeting of the oldest disciplines, philosophy and history, with the youngest, computer science. Philosophy is

fastidious as much as computer science is problem-solving. I wish philosophy were a bit more like computer science. (Little wonder *Against Facts* ends on a methodological note inspired to consensus in metaphysics.)

Working with my fellow computational colleagues is one of the most inspiring experiences I have had so far. It made me realise I love philosophy at its best when it is in its most serviceable form: as a structuring of conceptual architecture for others, and an adventurous search for new (ways of posing) abstract questions in a sound way.

Whether radical interdisciplinarity is an eye-opener for all parties involved, I don't know. It is for me, and a wonderful one.



'Working with my fellow computational colleagues is one of the most inspiring experiences I have had so far. It made me realise I love philosophy at its best when it is in its most serviceable form...'

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four VIDI grants

In May 2015, the ILLC was very happy to hear that no fewer than four of our staff members had been successful with their applications to the NWO VIDI grant scheme:

Raquel Fernandez, Floris Roelofsen, Christian Schaffner and Ivan Titov. This means a new influx of postdocs and PhD candidates to the ILLC. Together with the two ERC Starting grants awarded to Floris and Ivan in November 2015, we expect about 16 new people to start up in the next year or two.

In the following four pieces, the VIDI laureates give us an impression of what their individual projects are about and what their plans are. They also comment on how they experienced the selection process, and give some advice to those who are planning to apply for a VIDI grant in the future.

Christian Schaffner is an assistant professor at the ILLC who is affiliated with the CWI, the national research institute for mathematics and computer science. He is interested in quantum cryptography, cryptographic protocols, and information theory.

Cryptography in the quantum age

About the project

Quantum cryptography can provide security. Its best-known achievement is Quantum Key Distribution (QKD) which allows the generation of cryptographic keys based on the laws of quantum mechanics. However, modern cryptography studies a broad variety of other scenarios such as identification, secure collaboration, electronic voting, etc., that go far beyond the task of key distribution. For all these tasks, most of the classical protocols used today become insecure once an adversary is in possession of a quantum computer. Even worse, not much is currently known about possible options to replace these protocols with secure variants. On the other hand, quantum effects can also be used by honest parties to obtain more secure protocols. My VIDI project studies this double-edged sword.

The project consists of two parts. First, together with a PhD student, I will investigate the field of position-based quantum cryptography. In standard cryptography, a password or digital key is used to identify a player. The goal of position-based cryptography is to use the geographical position as a cryptographic credential. The combination of relativistic constraints (assuring that information cannot travel faster than the speed of light) and quantum mechanical effects (such as the impossibility to perfectly copy a quantum state) enables entirely new cryptographic applications like sending a message in such a way that it can only be read at a particular geographic position. Second, together with a postdoc, I will work on systematically developing a quantum-cryptographic toolbox that can be used to prove the security of quantum protocols for more demanding tasks than key distribution.

Taken as a whole, this project will make cryptography ready for the quantum age and improve the privacy of individuals, companies and public administration. My research expertise in both the fields of classical cryptography and quantum information theory allow me to undertake such an exploration.

About the selection process

It is quite time-consuming to draw up such a big project proposal, so start early enough. On the positive side, it forced me to think about and formulate clearly in which directions I want my research to develop. It is an additional difficulty that in basic research, it is usually hard to predict what the exact results will be.

I received positive reviewer feedback about the proposal, but I knew that that is no guarantee for success, as an earlier version of the VIDI proposal was also selected for the interview round in the previous year, but eventually not funded. It was a good idea to call NWO a while after receiving the rejection letter to get more feedback about the interview phase. Somebody was taking notes and could inform me in more detail how my proposal scored in the different categories (and therefore the points which could be improved). It is important to keep in mind that a non-negligible fraction of the final grade is determined by the “valorisation” criterion which should be addressed precisely according to the NWO guidelines. It could very well be that the improvements on this point allowed me to be awarded the project this time.

The “grilling sessions” for the interview preparation can be very nerve-wracking, but fortunately, I was pretty well-prepared from my previous interview experiences. This time, the interview went rather

smoothly, with mainly content-related questions asked by the committee. The moment of the positive notification was a great experience of joy and relief, and celebrating together with three more ILLC VIDI laureates was even more fun!



Scaling semantic parsing to unrestricted domains



Ivan Titov is an assistant professor at the ILLC. He works on natural language processing and machine learning, with a focus on statistical modelling for semantic parsing and natural language inference.

About the project

In recent years, in the natural language processing (NLP) community, there has been a renewed interest in semantic analysis. We are starting to realise that, without some form of abstraction, without some form of inference, we cannot make significant progress in any serious application we are interested in: be it machine translation, question answering or text summarisation. Consequently, we are getting obsessed with semantic parsing – developing methods for producing meaning representations of texts. Significant efforts are being invested in annotating data, and in designing new parsing models and algorithms.

Despite major efforts, the open-domain semantic parsing problem remains unresolved and, moreover, there is no general agreement how this problem should be approached. The standard supervised learning scenario (inducing a parser relying on text collections annotated by experts), will not yield accurate methods, no matter what kind of statistical models or extra annotation efforts are used. We will simply never have enough annotated data. Moreover, semantic representations in such annotated resources often do not provide abstractions suitable for reasoning and, consequently, are not useful for applications. In order to tackle these challenges, we need to rethink the semantic parsing problem, including understanding what kind of data and knowledge we can rely on in learning parsers, and developing a new framework for inducing semantic parsers from this data.

In my VID I project, I aim to introduce such a framework. The key idea of the project is, to induce semantic parsers from the un-annotated data (for example,

the huge amount of text available on the Web), rather than relying on annotation provided by linguists. Moreover, rather than modelling sentences in isolation (as standard in NLP), we will model relations between facts, both within and across different texts. We will also use links between texts and facts present in knowledge bases. This ‘linked’ setting allows us to both discover inference rules (i.e. learn that one fact implies another) and induce semantic representations more appropriate for applications requiring reasoning. Unlike previous approaches, instead of using annotated data as a ground truth, we will incorporate evidence from such data (as well as other forms of linguistic knowledge) as soft constraints to guide induction of semantic representations.

About getting support

I am very excited that the proposal received support of the NWO. Diego Marcheggiani – a new post-doc at the ILLC – and I have just started with the project, and soon we will be joined by a new PhD student. I am sure that this would not have happened without the support and advice of numerous colleagues at the ILLC (and beyond). My advice to future applicants would be to use these opportunities, and discuss your proposal and your ideas not only with your close colleagues, but also with researchers outside of your community. Interestingly and somewhat surprisingly to me, some of these discussions have not only improved the presentation but also sharpened the ideas and affected some of the research questions we will be studying.

Raquel Fernández is an assistant professor at the ILLC and the leader of the Dialogue Modelling Group. She works on computational semantics and pragmatics, and her main focus is on linguistic interaction.

Asymmetry in conversation

About the project

I’m interested in investigating linguistic interaction; that is, I’m interested in how people use language to communicate with one another in spontaneous conversation. In particular, my VID I project focuses on interactions where there is some prominent *asymmetry* between the dialogue participants. There are a number of illustrative examples of asymmetry. First, when a native speaker of, say, Dutch converses with a non-native speaker who is learning the language, there is a *linguistic asymmetry* (the non-native speaker has fewer linguistic abilities). Second, in a dialogue between a doctor and a patient, there is typically a *knowledge asymmetry* regarding the subject matter of the conversation (the doctor is an expert). Third, when a boss converses with a subordinate employee, there is a *power asymmetry* stemming from the social roles of the interlocutors (the boss is more powerful). Similar asymmetries are also present in human-computer interaction. For instance, when people talk to the intelligent personal assistant in their smart phone, several types of asymmetry materialise: the artificial agent has more limited linguistic abilities and (hopefully) less social power, although it may have more knowledge on certain domains (e.g., on how to get to a particular location).

The research programme that I propose in my VID I project aims to understand how communication takes place in asymmetric situations such as those mentioned above. We want to uncover the dialogue features that help us to communicate better and that contribute to bring about change – for instance, how does linguistic interaction between humans or in human-computer interaction contribute to language learning, to boosting domain expertise, or to social persuasion?

To study these issues, we will look at large amounts of data from actual conversations and will develop formal and computational models inspired by ideas in psychology, sociology, and obviously linguistics.

About the selection process

Given the interdisciplinary character of this type of research, I decided to submit the project proposal to the interdivisional section of the NWO (rather than to the Humanities or the Sciences divisions, which could also have been appropriate). This was not an easy decision to make though, and I kept changing my mind until the very day of the submission deadline. As scientists, we are often more comfortable speaking about the details of our research to a specialised audience. But, personally, I also enjoy the challenge of making a topic accessible and exciting for a mixed crowd. Thus, I finally decided to go for this option. Overall, however, I don’t necessarily recommend this strategy: contrary to what most people (including myself) tend to assume, the success rate within the interdivisional section is often lower – in this round, the success rate was five percentage points below the average success rate across all NWO divisions. The committee who interviewed me included computer scientists, philosophers, astronomers, historians... They gave me a hard time during the interview – to the point that I was 90% sure I would not get the project. It therefore was a huge surprise to receive the good news in the end!

The project will get properly started in 2016, with a PhD student and a postdoc later on joining the team. I’m excited about the possibilities this opens. Besides the concrete research we will carry out during the project, perhaps most importantly, I see the VID I grant

as an opportunity for establishing a new research group at the ILLC – the Dialogue Modelling Group – dedicated to investigating linguistic interaction using a varied toolbox, including empirical, formal, and computational techniques. Exciting times.



Inquisitiveness below and beyond the sentence boundary

Floris Roelofsen is an associate professor at the ILLC. His areas of interest include formal semantics, pragmatics, the interface between syntax and semantics, and intonational meaning. His main focus is on inquisitive semantics.



Problem description

Language is the primary means of human communication. The interpretation of linguistic expressions has been investigated from various theoretical perspectives, ranging from linguistics and philosophy to logic and cognitive science. Insights from these investigations have led to many practical applications in computer science, ranging from automated reasoning to dialogue systems and search engines.

The focus in this endeavour has predominantly been on assertions. However, an equally important role in communication is played by questions. Neither assertions nor questions can be fully understood in isolation, since assertions may involve embedded questions (e.g., “Bill asked me *who called*”) and questions may involve embedded assertions (e.g., “Who told you *that Susan won*?”). Moreover, the interpretation of an assertion often depends on the question that it addresses. For instance, if you ask “What did you *do* this morning?” and I respond “I only read the newspaper”, then you can conclude that I did not do the laundry. But if you had asked “What did you *read* this morning?”, my assertion would not have warranted that conclusion.

These observations show that we need a semantic framework in which questions and assertions can be analysed in an integrated way.

Inquisitive semantics

The framework of inquisitive semantics, developed recently at the ILLC, addresses this need. It is based on a new logical notion of meaning, which does not only capture the information that a sentence provides (which is what the traditional notion does) but also the issues that a sentence may raise. The logical and philosophical foundations of this generalised notion of meaning have been investigated intensely in recent years, and a number of linguistic case-studies have demonstrated its potential to shed new light on the interpretation of questions and many related constructions across a wide range of languages. However, in order to develop the fundamental building blocks that are in place right now into a full-fledged framework, a number of significant steps are yet to be taken. Two of these, in our view the most urgent ones, will be pursued in the proposed project.

Below the sentence boundary

First, we need to understand how the meaning of a sentence is built up step-by-step from the meanings of the words that the sentence consists of. In the traditional, information-centred setting, this problem was first addressed in the 1970s by Montague. This work is seen as one of *the* major breakthroughs, if not the major breakthrough, in the history of the field. Our aim will be to generalise Montague’s approach to the inquisitive setting, where not only the information that a sentence provides has to be determined step-by-step, but also the issues that it may raise.

Beyond the sentence boundary

Second, we need to understand how the interpretation of a sentence may be influenced by preceding sentences in the discourse. For instance, if I say “Bill called” and then continue “He found a house”, the first sentence affects the interpretation of the second by fixing the referent of the pronoun “he”. The example about the newspaper above, where the interpretation of my assertion was partly determined by your preceding question, is another case in point. In the traditional, information-centred setting, this problem was first addressed by Kamp, Heim, and Groenendijk and Stokhof in the 1980s. This led to a dynamic conception of meaning, which identifies the meaning of a sentence with its potential to change the conversational context, rather than just the information it provides. This shift in perspective constituted the second major breakthrough in the field. Our aim will be to develop a dynamic inquisitive semantics, and to show that such a framework sheds new light on a range of long-standing issues involving the interpretation of questions and assertions.

Academic impact and practical applications

Besides substantially advancing current semantic accounts of questions and assertions, the envisioned framework is expected to have implications for epistemology and cognitive science as well, and to facilitate new practical applications in automated reasoning and dialogue systems, which will be pursued in collaboration with two industrial partners (Oracle and LogicBlox).

Some grant writing tips

Many things about grant writing are rather obvious: start well in advance (I started thinking about this project about two years before submitting it), make sure you have already done some preliminary work that shows the potential of the approach that you would like to pursue, seek the right balance between novelty and familiarity, i.e., look for unexplored territories but make sure that the project is feasible and that the reviewers and committee members still recognise the kind of enterprise that you are proposing.

Besides these, I can think of two things that are perhaps less obvious for people writing their first grant proposals. First, it is good to keep in mind that grant writing is really fundamentally different from your usual research: it is not primarily about finding *solutions*, but rather about finding *problems*. And second, try to use many concrete *examples*. I used examples like the one above about the newspaper in my VIDI proposal. The first time that someone suggested that I should use more concrete examples – I think it was either Jeroen Groenendijk or Frank Veltman, when I was writing my VENI proposal – I thought it would make the proposal look “too simple” and blur the generality of the ideas proposed. But in fact, when you pick the right examples, they help enormously in clarifying what it is that you would like to do and why that is so interesting and important.

‘Grant writing is really fundamentally different from your usual research: it is not primarily about finding solutions, but rather about finding problems.’

Alumni

For this year's alumni section we interviewed Amélie Gheerbrant and Nikhil Maddirala. Amélie obtained her PhD degree from the ILLC in 2010. She continued her academic path and is now an assistant professor at the computer science department of the University Paris Diderot. Nikhil made a different choice. After graduating from the Master of Logic programme in 2014, he moved back to India to work as a junior consultant at Deloitte Consulting.

ideas of concept and object (Leibniz, Frege...). So I found a special programme that allowed me to study both Philosophy and Logic and I went for that. In doing so, I ended up realising that I liked writing proofs more than writing philosophy and I decided to go more seriously into that. Hence the three Masters...

Why did you decide to do a PhD and why did you choose the ILLC to do it?

I decided to do a PhD because I wanted to become a researcher. So when I heard about an open position at the ILLC – which I knew of already – I applied. I was lucky enough to get the job. Given my interests at the time, I felt the place was the right one for me.

Please explain in a few sentences the main topic of your PhD project.

I was recruited in the context of a broad European project oriented towards Logic and Games. I was given a lot of freedom and I could even pick my supervisors. I ended up working with Johan van Benthem and Balder ten Cate on Logic in Computer Science. More precisely, I focused on model-theoretic aspects of a variety of logics on finite trees. These are especially of interest in the context of programme verification and database theory. So I progressively discovered these communities and I started feeling at home there.

How was your experience at the ILLC, both academically and socially?

The openness of the ILLC allowed me to find my own academic way. I also built two very strong friendships with Gaëlle Fontaine and Olivia Ladinig, who were also doing a PhD there at the time. We were

colleagues, friends, flatmates... We were also working voluntarily at the O.C.C.I.L., a great independent music venue that matters a lot to us.

What were the best and the worst moments during your time as a PhD candidate?

Discovering the Logic in Computer Science community was a revelation. I knew Logic mainly from Philosophy and I did not suspect there were so many concrete problems to which it could be applied, as well as so many people working on them. From Philosophy of Meaning, I hence turned to Logic and Automata. But my favourite question was still the same: given (some fragment of) a language, how powerful is it? I enjoyed taking this turn very much. However, saying that I felt ecstatic the whole time in the process would be a lie: I continuously had to struggle with some lack of self-confidence.

You obtained your PhD degree in 2010 and then went to Edinburgh as a postdoc. How did you make this decision?

I had been studying finite trees in my thesis. In this context I had heard about “data trees”, which are actually much more complex objects than trees, and which are used as a theoretical abstraction for XML documents. I was already very attracted to database theory, as it deals with fragments and extensions of first-order logic (my favourite logic, given the fact that I find model theory very pretty), focusing on their expressive power. But discovering data trees nailed it: I decided to become a database theorist. I was very lucky to be offered a postdoc in Edinburgh by Leonid Libkin. I very happily accepted.

‘Discovering the Logic in Computer Science community was a revelation, from Philosophy of Meaning, I hence turned to Logic and Automata.’

Now you are an assistant professor at the computer science department of the University Paris Diderot. After spending many years abroad, how is it to be back in Paris?

Being back in Paris is great. I love both my city and my lab, the LIAFA, which is one of the top French labs in Theoretical Computer Science. On the other hand, being an assistant professor in France is not that easy. We teach 192 hours a year and most of us find that this is way too much. If you are not an expert at multi-tasking, you cannot do anything correctly, neither your research, nor your teaching... I am still trying to learn multi-tasking.

How is your relation to the ILLC now? Do you still collaborate/meet with your colleagues from the ILLC?

I have been collaborating with Gaëlle and I still meet some ILLC colleagues from time to time in conferences. But I am more active in database theory.

You said in the ILLC magazine from 2007 that you draw your inspiration from women in science. Is this still true? Does being a female researcher play a special role for you?

Yes. If I feel the urge to deconstruct concepts, this also has to do with the fact that I am not satisfied with the rigid categories in which women are usually enclosed.

Girls can do everything, just like boys, science like anything else. But this is tougher to impose yourself as a female scientist in our world. I try to do my best to give self-confidence to all my students, but I am especially careful with the few female students who follow my classes. I know by experience how badly some of them need it.

What are your plans for the future?

In the continuation of my last works, I am very much interested in incomplete information in databases. Incomplete data is everywhere on the Web. Yet we still do not know how to answer queries correctly and efficiently over it. We are currently working towards a general theoretical framework that would allow handling these problems, as well as many other related ones. From the logical point of view, things are exciting and we are revisiting classical areas (e.g., preservation theorems in model theory) under some new light.



Amélie Gheerbrant

You joined the ILLC in 2007 as a PhD candidate. Before, you finished two Bachelor programmes and you hold Master's degrees in Cognitive Sciences, Philosophy and in Artificial Intelligence. How did you end up studying in so many different areas?

Back when I was in high school I was obsessed with one very specific question: what exactly is “meaning” and how do we manage to articulate it? I was a greedy reader and in order to tackle the question I started reading a lot of Philosophy and Anthropology (Merleau-Ponty, Levi-Strauss, many feminist classics from the 70's...). In the process, I became really attracted by the Philosophy of Mind and Epistemology. I also heard about Logic as a topic. It was very vague at the time for me, but I really liked this idea of stripping to the bone the mere

‘Although business consultants are not fond of dwelling on the paradoxes of philosophy, mathematics or logic they certainly do strive to be logical thinkers.’

Nikhil Maddirala

You graduated from the MoL programme in 2014. Can you tell us about your (academic) background leading up to your masters at the ILLC?

My high school studies in Hyderabad, in India, were devoted exclusively to mathematics, physics and chemistry, and then I began college at the University of Chicago hoping to major in mathematics or physics. While I was immediately captivated by the rigour of college level mathematics, I also began to develop a misguided picture of an epistemological hierarchy according to which mathematics provides the foundation for physical science, which in turn provides the foundation for life science (and social science and so forth...).

It was this view, coupled with a curious predilection for foundations on my part, that motivated me to descend into (what I thought of as) the deeper levels of this hierarchy: the foundations of mathematics, set theory, logic and eventually philosophy.

At Chicago I ended up majoring in philosophy and also ended up jettisoning the aforementioned hierarchical picture of human knowledge (under the influence of philosophers such as Wittgenstein and Sellars), but logic and mathematics were crucial pathways along the intellectual journey leading me there, and it was a desire to revisit these pathways that brought me to the Master of Logic programme at Amsterdam.

How was your experience in the MoL programme, both academically and socially?

The two years that I spent as a Master of Logic student in Amsterdam have undoubtedly been the most intellectually stimulating and inspiring years of my life. My experiences were primarily shaped by people of the ILLC community and the MoL programme in particular. It was wonderful to be part of a community comprising such a diverse range of academic, social and national backgrounds all of whom are bound together by a common intellectual pursuit. “A Chinese computer scientist, an Indian philosopher, a German mathematician and an American linguist walked into a bar in Amsterdam...” might sound like the beginning of a formulaic joke, but it was a typical Friday evening for me as a MoL student, and I really enjoyed that. Besides, one of the incidental benefits of the programme is that I now have interesting friends from all over Europe (and the world)!

Soon after graduating from the MoL programme, you started working at Deloitte Consulting in India. What led you to join a consulting company?

The decision was driven partly by a disillusionment with academia as a career path and partly by a desire to explore new things. Unlike academia, working as a consultant allows me to constantly explore new industries, functions and even geographies & cultures as I move on from project to project. Although I’m still very much interested in philosophy and logic, I’m happy to pursue those interests as personal projects or hobbies rather than as a career: this year I attended two academic conferences in philosophy and logic (I even

presented a paper at one of the conferences), completed an online course in mathematical philosophy and worked towards co-authoring a popular philosophy article with a former classmate.

How does your daily work as a junior consultant look like?

Consulting firms are in the business of helping their clients (typically large corporations) solve complex business problems across a range of issues such as growth strategy, business model transformations, mergers and acquisitions, etc. For example, a client may approach a consulting firm with the following problem statement: “Our company is considering a merger or acquisition as a means of entering the European market and we need some advice on how best to approach this decision.”

After some exploratory conversations, the project manager will put together a small team of two to five junior level consultants (such as myself) to work on such a project, the duration of which is typically anywhere between six weeks and six months.

Most of our team’s working time is spent on (1) research, (2) analysis and (3) reporting. The research consists of information and data collection through a combination of primary research (sourced directly from clients or subject matter experts through email exchanges, phone calls and / or live meetings) and secondary research (sourced online from research databases, analyst reports, news reports, etc.). After collecting the data and information, the output is analysed qualitatively and quantitatively in an effort to determine whether our working hypothesis should be rejected or not. Finally, we spend a lot of time reporting our analysis in the form of

a logically structured and convincing presentation (with nice visualisations, etc.). The whole process is iterative and collaborative, with regular meetings to ensure that everyone on the team is on the same page.

Once the project is completed, you may choose to take a short vacation before moving on to a new project (which may involve a completely different client / industry / geography / team). As a junior level consultant, you start out as generalist and have a lot of freedom to explore different industries and functions; however, as you progress further in your career path you are expected to develop some kind of specialisation, e.g. you may become an expert in growth strategy for technology companies.

Was it hard to adapt to the business world? (Is it very different from academia?) What do you like most about it? What do you like the least?

Business consultants and academics are both two species of the same genus: knowledge workers, i.e., workers whose main capital is knowledge. The above described process of research, analysis and reporting should be familiar to almost any knowledge worker, including academics. The main difference is that business consultants put a lot more emphasis on optimising the economic, organisational and operational parameters of their work.

What I like most about the business world as opposed to the academic world is the fast paced and vibrant work environment which allows me to explore a wide range of industries, functions, geographies and cultures.

What I like least about the business world as opposed to the academic world is that I do not feel a strong sense of ownership over

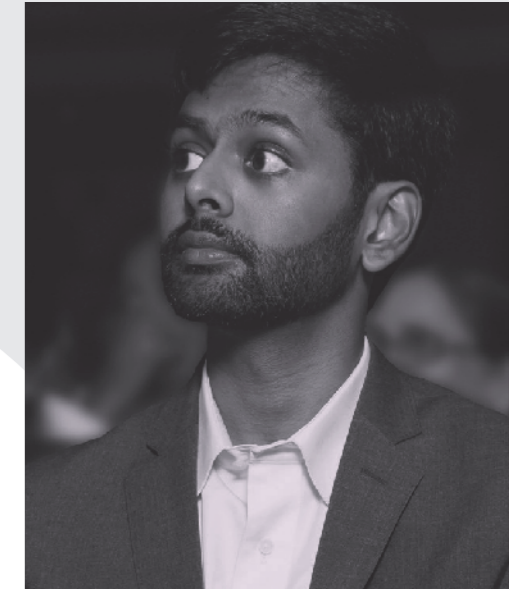
my time and my work, because I am always working with problems and constraints defined by my client, whereas in the academic world I enjoyed the freedom to define my own problems and constraints. But then again, perhaps this view of academic freedom is a bit too idealistic and does not account for the pressures of peer reviewers, tenure review boards, grant committees, etc.

How does your academic experience connect to your current work?

Although business consultants are not fond of dwelling on the paradoxes of philosophy, mathematics or logic, they certainly do strive to be logical thinkers. This is evident in the internal training programmes that one often sees at consulting companies with course titles such as “hypothesis based consulting”, “logical structuring”, etc. The skill of being able to translate a client’s real world business problem into a tractable logical and hypothesis based structure is one of the core skills of a consultant. Moreover, there is a very strong methodological connection between academic work and consulting in so far as the process of research, analysis and reporting is central to both types of work.

What is it like to be back in India, after studying in the US and Europe for several years? And what are your plans for the future in terms of where to live, career path, etc.?

It’s certainly great to reconnect with my family, friends and hometown after several years of living abroad. However, having been raised as a third culture kid (Wikipedia: “children who were raised in a culture outside of their parents’ culture for a significant part



of their development years”) and having lived nearly half of my life abroad, I tend to suffer from the syndrome of feeling at home everywhere and therefore nowhere, so it’s very difficult for me to say where I want to live in the future! At least in the near future, I imagine that I’m best suited to lead the globetrotting lifestyle of a so-called “global citizen”, and this goes hand in hand with my plan to continue working as a business consultant (which is eminently suited to such a lifestyle). In the long term I also hope to find some way to combine my academic interests with my business interests, but I’m not entirely sure how I plan to do that. Perhaps I can convince business schools and corporations that future business leaders need to be trained in logic and philosophy!?

Before ILLC's official foundation, researchers from the areas of logic, language and computation at the UvA were already actively collaborating with each other. Frank Veltman shares with us his memories about the beginnings of the ILLC and tells about the institute's unofficial foundation via its first logo. Frank is Emeritus Professor at the ILLC. He was Professor of Logic and Cognitive Science from 2001 to 2014 and was the director of the institute from 2004 to 2009.

the illc logos

Frank Veltman

In the course of 2016, the ILLC will have existed for 25 years as an official research institute of the University of Amsterdam. That is something to celebrate; but actually, the ILLC was founded 30 years ago as the ITLI: the Institute for Language, Logic, and Information. (The acronym represents the Dutch name "Instituut voor Taal, Logica en Informatie"). Back then it was not an official institute; it was just a bunch of people from different faculties who wanted an institute. They co-operated a lot, moreso with each other than with colleagues from their own faculty. They taught courses together, they wrote textbooks¹ together, they organised a big conference² every two years, they participated in a huge European research project³ – they did all kinds of things that people in real institutes do.

Yes, we badly wanted an institute of our own. Aside from our desire to

collaborate, there was also a political reason for this. The mid-eighties were years of large budget cuts – up to 20% – at the Dutch universities, and since logic did not belong to what was considered the core business of either the Faculty of Philosophy or the Faculty of Mathematics, and since computational linguistics was considered to be of only marginal interest to the Faculty of Arts⁴, for all of us there was the constant danger of being made redundant. So, why not join forces in a new interdisciplinary institute and become our own "core business"?

That's how it all started; we just bluffed our way into the administrative system, putting the institute's name and logo on all of our letters, research reports, slides, and announcements.

Not everybody could appreciate this. Some of our colleagues in

Utrecht wrote an angry letter to the board of the University of Utrecht and the board of the University of Amsterdam, accusing us of false advertising and of unfair competition. But this did not stop us. And in 1991 the Institute became real. Well, these are just vague memories. It would be good if somebody sorted out the details. Isn't this 25th anniversary a good occasion to do so? I forgot, for example, who decided on the name "Instituut voor Taal, Logica en Informatie", although I remember endless fights about the word order: what should come first, "Taal" or "Logica"? If I remember correctly, the reason "Taal" was chosen was because the acronym "ITLI" sounded better than the acronym "ILTI"⁵.

I would also like to know who devised the ITLI logo (see figure a). Some of us spent many office hours

designing the ideal logo, but I forgot who won. My own design, if I remember correctly, looked a lot like the one in figure 1, but it did not have these fancy shadows. Who added these? When, in 1991, the institute's name changed to the ILLC we needed a new logo: see figure b. Who was responsible for that one? Next, in 1994, we got a logo designed by a professional graphic designer (see figure c), probably because the one from 1991 looked too amateurish. And in 2000, the logo changed again (see figure d). That one is definitely the prettiest of them all. It is still used in the dissertation series and the Master of Logic theses, but it is no longer the ILLC logo. You won't find it on the web site, or on the ILLC letter format. The university does not allow research institutes to have their own logo – for reasons of corporate identity they have to use theirs. Too bad.

- 1 See for example L.T.F. GAMUT, *Logic, Language and Meaning*, Volumes 1 and 2, the Dutch version of which appeared in 1982.
- 2 Now known as the Amsterdam Colloquium, which had its 20th installment in December 2015.
- 3 This was the ESPRIT Basic Research Project DYANA (where "DYANA" is an acronym of "Dynamic Interpretation of Natural Language"), in which the universities of Amsterdam, Edinburgh, München, Oslo, Stuttgart, Tübingen, and Utrecht participated.
- 4 At the time these were all independent faculties.
- 5 Remember the following argument: ITLI sounds like "Italy", the way CSLI sounds like "Sicily". So... (Indeed, we wanted to have an institute like CSLI, the Center for the Study of Language and Information, that was founded in Stanford in 1983).

a



b



c



d





Lev D. Beklemishev

New technologies, old habits

The world we live in is rather absurd, sometimes in a funny, sometimes in a grim, kind of way.

The technology around us is changing at a tremendous pace while the conceptions that each of us live by change much too slowly, if at all. Let me give you a couple of examples from academic life.

Ideally, computers and networks were created to make information much easier to store, retrieve and exchange. In fact, they have done this. They were meant to take the routine tasks – filling in forms, writing letters and reports and other paperwork – off our hands. With this new technology, the life of an academic would be concentrated on the essential issues: doing research, teaching students and the like. Is that how we live today? Well, the problem is with the society's response to new technology. Administrators of all kinds, from top to bottom, see the possibility of gathering and storing more information as an opportunity. Getting more data seems essential for those in control; the more tasks being formalised the better; why not make use of the new technology? As a result the paperwork required of a working university professor (even without actual paper) has dramatically increased.

The internet affects many things in our academic life. There are wonderful things brought to us by individuals and public initiatives: exchanging emails with the colleagues all over the world, Skype, Wikipedia, the Stanford Encyclopedia of Philosophy for that matter, and so on. But our adaptation to the new lags behind, and our reaction to technological changes

often has the effect of undoing the best opportunities they have to offer. Publishing is getting cheaper, but the papers we publish, for the same reason, are getting longer and wordier. We publish more, but we read less (there is not much the internet can offer in terms of the speed of understanding what we read). Cheap mass production means less care.

When the Russian government introduced a regulation that the electronic copies of all dissertations should be put in a centralised databank and made publicly available, it was a typical bureaucratic measure primarily meant to show off. What it eventually led to was hardly intended by its initiators. After a few initial cases of plagiarism in PhD dissertations were brought to public eye, a group of enthusiasts founded the initiative called "Dissernet" (www.dissernet.org). Its aim was to find and disclose cases of plagiarism in Russian dissertations. Suitable software that greatly facilitated the task was soon developed. A typical report on a plagiarised dissertation looks like an array of squares painted with different colours; each square represents a page, and each color represents a source the text on that page has been copied from. Among those whose dissertations contained considerable coloured areas were several federal ministers (including the minister of culture), twenty five members of parliament, several university rectors and many smaller varieties of fish. Dissernet revealed that plagiarism is an extremely wide-spread phenomenon in certain academic disciplines. The official reaction to all this was mute at best: only in a few cases the degrees were revoked. The ministers and MPs mentioned still hold their degrees and posts despite the outcry in the

academic community (to which they mostly never belonged).

Rather than lamenting the poor ethical standards in academic life, here I would like to make a different point: neither the plagiarism nor the disclosure of the plagiarised dissertations would be possible without new technology. The technology of copying and pasting only came earlier, when the search engines were not that efficient and there was not much reason for the plagiarisers to hide the fraud.

Absurd, isn't it?

About the author:
Lev D. Beklemishev lives in Moscow and is affiliated with the Steklov Mathematical Institute of Russian Academy of Sciences, the M.V. Lomonosov Moscow State University, and with the National Research University Higher School of Economics. His research area is mathematical logic, in particular, proof theory and provability logic.

He describes his connection to the ILLC as follows: "...I visited the ILLC several times in the 1990s as a guest researcher at the invitation of Dick de Jongh. Dick supported Moscow logicians a lot during the difficult transitional period after the collapse of the Soviet Union. For me, then a PhD student brought up in Moscow, at the ILLC he played the role of a host who introduced me to the very different realities of life in the Netherlands. From 2000 to 2005 I held a position at the Department of Philosophy, Utrecht University, and regularly visited the ILLC. We organized regular seminars together with colleagues from the ILLC, including a mathematical logic colloquium that alternated between Utrecht and Amsterdam."

25 anniversary



The year 2016 will have a silver lining for the ILLC since we will celebrate our 25th anniversary. The institute has gone through many ups and some downs in this period: there have been various academic successes, many prizes and prestigious grants, but once or twice the institute also very narrowly escaped abolition... Overall, the institute has grown quite a bit since 1991, while at the same time we managed to keep a very pleasant atmosphere. In any case, our silver jubilee is plenty of reason for celebration, and the preparations for festivities in the autumn of 2016 are under way. Yde Venema, Director



'Informatie is de enige grondstof die groeit in het gebruik.'

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Dualities & many-valued logics

Luca Spada

Luca Spada is an assistant professor at the Department of Mathematics at the University of Salerno. He was a Marie Curie Fellow at the ILLC from August 2013 to August 2015. He discusses the application of his work in many-valued logics, along with some of his findings.

duality for Heyting algebras are pivotal results in the study of the corresponding logical systems.

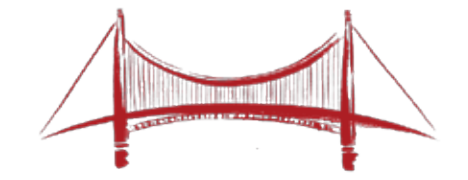
In these two years I tried to understand how the known dualities for logical systems can be generalised to many-valued logics. One of the most surprising findings is that all these dualities can be seen as instances of just one general scheme! And since history repeats itself, this scheme was already introduced in the 17th century by René Descartes: all these dualities are nothing more than doing algebraic geometry over structures different from commutative rings.

This is best explained by taking a formula $\varphi(p_1, \dots, p_n)$ depending on the propositional variables p_1, \dots, p_n , and a valuation v . Since valuations commute with connectives one has that $v(\varphi(p_1, \dots, p_n)) = \varphi(v(p_1), \dots, v(p_n))$.

This can be read as saying that on the one hand, formulas in a logical system are points on which the valuations act, on the other hand, valuations are points on which formulas act. So, valuations (truth tables for classical logic, possible worlds for modal logics) are points in a geometric space and logical formulas describe shapes in this space. The logic apt for the game in the first paragraph is called Łukasiewicz logic and its associated “geometry” is given by polyhedra with vertices lying on rational points.

Marie Curie project at the ILLC was just about this: finding alternative and more intuitive tools to better understand many-valued logics. Everybody that has struggled to understand complex formulas in some logical system knows that what makes a logic easier to grasp is an intuitive semantics: classical logic has truth tables, modal logics have Kripke frames. The most common link between syntax and semantics is what is called *completeness* of the system. But there are more intimate and deep connections between syntax and semantics: they are called categorical dualities.

One can think of categorical dualities as taking different perspectives on the same phenomenon. Take for instance the wave-particle duality of light in physics: you can look at the behaviour of light as waves or as a stream of particles. Phenomena in mathematics, just as in quantum physics, can be viewed from different perspectives. Categorical dualities are the mathematical conceptualisation of this *change of perspective*. There are many fundamental dualities, and many important fields of mathematics are based on these; e.g., Algebraic Geometry, Fourier Analysis, etc. Stone’s duality for Boolean algebras, Priestley’s duality for distributive lattices, and Esakia’s



The logo of the project: dualities firmly connect seemingly different topics in mathematics.

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programme
director

Passing the torch

For the last five years, Ulle Endriss has served as the programme director of the Master of Logic (MoL) in addition to his teaching activities and his research in computational social choice. At the beginning of the current academic year Maria Aloni took over as the new programme director, a responsibility on top of her teaching activities and her research in formal semantics. We asked Ulle and Maria to reflect on and anticipate their respective roles as MoL director.



Ulle Endriss

You were the programme director of the MoL for the past five years. Can you explain what your job as programme director consisted of?

As director, your job is to coordinate the various forces pushing and pulling at the MoL: (1) the students and the applicants, (2) the individual lecturers and the ILLC at large, and (3) the higher levels of the administrative hierarchy at the UvA, together with the support staff and infrastructure they oversee.

Concrete tasks include (re)presenting the MoL to the outside world, running admissions, proposing students for scholarships and awards, designing the overall curriculum, organising the introductory guest lectures for new students, coordinating the work of the academic mentors, dealing with complaints and problems experienced by individual students, watching over the finances, preparing for the all-important accreditation exercise every six years, and filtering the vast amounts of

teaching-related administrative email flowing into the ILLC to make the work of your colleagues more enjoyable and effective.

Did you enjoy being the programme director? What part of it did you like the most?

Yes, it was both a pleasure and an honour. There is no one single thing I liked the most, but I very much enjoyed the special vantage point this kind of job gives you. I think it is fair to say that for those five years I knew more stuff about more people at the ILLC than anybody else.

What where your greatest achievements?

As every good manager knows, success is measured in numbers. Mine are 3,879 and 0. One of them is the number of emails I sent to Tanja during this five-year period, and the other is the number of other UvA programmes that, like us, currently are formally recognised as “excellent”.

Looking back at those five years, did you manage to accomplish all

of your plans? Which of your goals are not yet realised?

The MoL was in excellent shape when I took over and my goal was simply to keep it that way. I actually think that it is important that as director you don't have too many personal ambitions. The MoL works so well precisely because everyone can do pretty much whatever they want.

Are you happy that your term is over and that you have more time for research now, or will you (secretly) miss it?

Yes.

How do you see the (long-term) future of the MoL programme?

I hope it will stay as it is, in the sense that the curriculum is a direct reflection of research at the ILLC (which itself may, of course, change a lot over time), and also in the sense that it attracts mature students who are able to handle the slightly rocky climate that this entails, rather than requiring a stream-lined programme designed by someone who thinks they know what every logician must know.

Do you have any tips for Maria?

Yes, of course: Maria, you need to learn some kind of party trick to impress the new arrivals.

Maria Aloni

At the beginning of this academic year, you became the programme director for the Master of Logic (MoL). Why did you agree to take on this position?

I accepted because I am very proud of the programme and of the generations of researchers that it has generated.

What do you think will be the most enjoyable part of being the programme director of the MoL? What do you think will be challenging?

At the moment the most enjoyable part is getting to know the content of the programme, which includes reading the work of my colleagues and attending

their excellent LoLaCo presentations. The biggest challenge will be to manage to find enough time in the next five years to do significant research.

What are your goals for your five-year term as programme director?

The primary goal is to guard the scientific quality of the programme and I think that the best way of doing it is by continuing to facilitate the close connection between teaching and research within the ILLC. Let me add that I am allergic to inequalities at any level so I see it as one of my further personal objectives to arrive at a system where (i) opportunities and work load are more equally divided between the members of our two faculties, and (ii) the financial inequalities between European and non-European students are minimised.

Are you planning to make any (major) changes to the MoL programme?

I am not planning any major top-down change, but the

programme will probably change in the following five years along with the research topics within the ILLC. In addition, I am investigating whether we can offer our students an even better training in preparation for the academic and the non-academic job market.

How do you see the (long-term) future of the MoL programme?

I am very optimistic about the future of the Master of Logic. The combination of extremely talented students, excellent teachers and capable administrators has created a unique programme that will continue to form high-quality researchers with a broad yet in-depth preparation, well-equipped to meet the challenges of a complex and dynamic future society.

What do you intend to do even better than Ulle?

I don't think I will be able to do anything better than Ulle, but there is probably one thing that might improve during my term: the quality of the pizzas at the introduction day and pizza evaluation ☺.



MoL party

Sirin Ozturk

Founded in 1985, the Master of Logic just had its 20th anniversary. The Master programme has received an “excellent” accreditation twice – in 2007 and 2014 – and Maria Aloni recently became its new director. These were some out of many reasons to throw a party! The ILLC invited staff, students and alumni to celebrate the master of logic and to thank its previous directors Dick de Jongh, Benedikt Löwe, and Ulle Endriss.

The event took place on the 7th of November 2015 in the classy North Sea Jazz Club in Amsterdam. Guests were treated to dinner, drinks, speeches and music. The night was expertly emceed by Master of Logic student Pablo Sierra Márquez. Speeches were held by the ILLC director Yde Venema, former MoL directors Benedikt Löwe and Ulle Endriss, and by former and current MoL students Raul Leal Rodriguez and Ottilia Kasbergen.

Not surprisingly, the speakers repeatedly voiced their gratitude towards Tanja Kassenaar – aptly addressed by Benedikt as “the mother of the Master of Logic” – for all that she does for the ILLC. In his opening speech, Yde spoke about the beginnings of the Master of Logic, and about how unique the programme truly is. The other speakers chimed in in harmony; the Master of Logic is something special, and we know how lucky we are at the ILLC.

Our new director and quizmaster extraordinaire, Maria Aloni, got the audience moving with a tough quiz on the history of the Master. There was a wide range of splendid musical performances. Unforgettably, the two barbershop quartets of the ILLC performed a medley of MoL-themed songs. In the late hours, Groove Supplier proved to be a DJ who does indeed supply groove, and guests did not need to be asked twice to get on the dance floor.

The event was an all-round success. Sources even report that only 60% of conversations revolved around research or work – a record low for an ILLC social event.



MoL-medley by Sirin Ozturk and Pablo Sierra Márquez

to the tune of...

“I’m a Believer” The Monkees

I didn’t believe their conjecture
How could $x + y = z$?
Their intuition seemed false, that’s what I believed!
A counterexample was my need
But then I saw their proof by contraposition, Not a doubt, Q.E.D.
So it’s true, I’m a believer – Couldn’t disprove it if I tried.

“Wannabe” Spice Girls

If you wanna be my student
You gotta read all my books
If you cite an author
It better be my friend
If you wanna be my student
I’ll never let you leave
I’ll make you work forever,
Even Christmas Eve

“It’s My Life” Bon Jovi

This is a song for the hardcore fregeans.
It’s my Sign, and it has a reference
I’ll call it like that forever
I just really meant the evening star
It’s my sign
My game is like an open language
Like Frege said
I call it my way
Don’t care if you meant the morning star
It’s my sign.

“Dancing Queen” ABBA

A machine with a tape and head
Computes everything,
It is said if it is the right function, it’s going to halt
But no theres no guarantee
It is the Turing Machine
Needs no screen
Has no battery

Turing Machine – if it can’t solve it then nothing will (oh yeah)
Moves its head, reads the cell, then it might write something there might not halt
Can’t play games – it is the Turing Machine.

“YMCA” Village People

Logic – so fun you forget your lunch we said: logic –
We’re a passionate bunch
You can come here –
To the ILLC and forget all real life worries

READ* *WRITE* *LEARN* *PROVE

It’s fun to work at the ILLC
It’s fun to work at the ILLC

There are free pens and books in the main corridor
Hide them as you walk out the door

It’s fun to work at the ILLC
It’s fun to work at the ILLC



Rethinking the University

The year 2015 has been a tumultuous one for the University of Amsterdam. In their fight for a more democratic university, students made their voices heard, most notably by occupying the Maagdenhuis. University wide, people were inspired by the students' energy and courage, and many joined their cause. Also, at the ILLC these events have not gone unnoticed.

We asked MoL students Daan Mulder and Bas Cornelissen to recap the highlights of the events for us, and to describe their impressions of the appropriation of the Maagdenhuis. Along with this, we interviewed Tanja Kassenaar and Rens Bod – both ILLC-staff members – about their personal motivations to support the protests and to join the Rethink UvA group.



This is our Maagdenhuis

Bas Cornelissen and Daan Mulder

“This is our Maagdenhuis.” Weeks, months, perhaps years of frustrations had culminated in this moment: around half past seven, on February 25th, 2015, the doors of the Maagdenhuis swung open. Three hundred students sat in the central hall. Hands waved orderly, but the tension was high. Louise Gunning, chair of the university's board of directors, had just arrived and summoned the crowd to leave: “This is *our* Maagdenhuis.” But for the next six weeks, it wasn't. It would be our Maagdenhuis.

By first occupying the Bungehuis and then appropriating the Maagdenhuis, the protesters demanded the end of Profiel 2016 and the remnants of the *Amsterdam Faculty of Science* (AFS). But the main goal went much further: *De Nieuwe Universiteit* (DNU) wanted to thoroughly democratise the university. They aimed for a university that did not have the economy as its main shareholder and accountants as its policy makers. One guided by actual education, actual research and not by their superficial reflections: crude, imprecise and often misused indicators. Where democracy replaces technocracy and power again lies in the hands of students and staff.

One way to fight for a more democratic university is by demonstrating how it can be done. For that reason, the Maagdenhuis was an open space, largely freed from hierarchical structures. Inspired by the Occupy movement, most decisions were made in *General Assemblies* (GAs): meetings anyone could join and have an equal say in. Outside of the GAs, students and researchers pondered the problems of the marketised university – and often broader themes such as capitalism and climate change – in daily lectures, workshops, and discussions.

Yes, the appropriated Maagdenhuis was the university's finest garden. Not because of its neat hedges and skilfully cut grass, but because of its wild flowers, the overgrown walls. After six weeks, first the police and then the gardeners returned to cut back all that lived inside.

Luckily, the seeds have spread. The Maagdenhuis protest was not an isolated coincidence. As many pointed out, it was a political event that divided what came before from what came after. Trivial as it may sound, the consequences are quite real. Large numbers of dedicated students and staff are now organized in action groups that have also permeated many student and workers councils. Indeed, the debates keep going, in the three committees, the *Maagdenhuisdebatten*, the freshly squatted student center *Het Spinhuis* or at *De Omslag*, an online platform we started ourselves.

But much, much more importantly, university politics is becoming political again. Something you can have opinions about, even if you're not paid for having them. And evidently, people do have opinions about their education, their workplace, their research. The Maagdenhuis showed that bringing them together is the first thing you need to challenge the status quo. The second step is to seriously include these opinions in all decision-making, to give them actual power. After all, we at the ILLC have the clearest view on what improves our own education and research and what does not. Our task is to debate the issues we are facing, to propagate the conclusions and, critically, to fight for a system where they will be heard. We should not follow rules, but derive them ourselves.

The original, extended version of this article can be found at bascornelissen.nl/maagdenhuis.



About the authors: Bas Cornelissen and Daan Mulder are students of the Master of Logic programme and have been involved in the student protests. They founded *De Omslag* (omslag.nu), an online platform for debates about the university at large.





Interview Tanja Kassenaar

Could you introduce yourself?

I studied biology at the UvA back in the eighties when it was still the Gemeentelijke Universiteit, graduating in 1989. In 2002 I returned to the UvA as a secretary at the ILLC and am now the spider in the web for both the Master of Logic and the ILLC's PhD programme.

In March 2015, you wrote an email to the ILLC staff members, encouraging them to get involved in changing the university. When did you start supporting the student protests and Rethink UvA?

My daughter is studying Classics at the Faculty of Humanities and got involved in Profiel 2016. From what she told me I got really worried about what I consider to be the foundations of the University of Amsterdam: the Humanities. It seems the most obvious thing to do, like a company that's in the red, to cut back on those parts that bring in the least money and invest in the successful parts. However, for a university I find this way of thinking short-sighted and unworthy. I would at the very least expect that the value of a field of research and education would not be measured by what it delivers financially, but by its intrinsic importance for both society and academia itself. However, in the present way of allocating money within this university, the intrinsic

value of certain areas of research doesn't seem to be incorporated at all. Then the Bungehuis was occupied and right away I was thrilled; students did still care. And even more so after I read their manifesto and demands. They worded almost exactly the concerns that had been growing in my mind for years: *rendementsdenken*, the merger with the VU, overregulation, distrust in teachers, building prestigious buildings and selling old ones, and the top-down decision making. But I did not get myself involved until the Maagdenhuis was occupied and I went there together with my daughter.

Which of the issues that Rethink UvA raises affect your daily work?

My daily work is most affected by overregulation and *rendementsdenken*. Overregulation because I clearly have to keep track of so many more administrative things, that I nowadays have a very lengthy to-do list and need systems to avoid forgetting important steps, plus I often have to work more than I get paid for. More importantly it gets harder to help students with their individual needs. Besides that, the regulations are made centrally without looking at the needs of, in my case, the specific education programmes.

Rendementsdenken doesn't really affect my work, because it was decided that we will not actively do things to improve these figures. But even the MoL, which was accredited excellent twice, has to account for its *rendementscijfers* every once in a while. I know all our *rendementscijfers* personally. I know the stories of depressions or illnesses, of family issues back home, of financial struggles, or just making the wrong choices. And I know that whether these students graduate late or not at all, they will have learned a lot

nonetheless, and I am sure they will be able to contribute to society just as well or even better than those who did not have to cope with setbacks during their studies.

How do you feel about the developments since the beginning of the protests, have there been improvements?

I was happy to hear that the ILLC has decided not to get involved in a department, virtual or actual, with the mathematicians. And I am happy that Breannan (who works at the AUC, but is also doing a PhD at the ILLC, with Leen) is now the chair of the Central Works Council. He is an active Rethink member and one I often agree with.



Interview Rens Bod

Could you introduce yourself?

I am a professor of Computational and Digital Humanities and affiliated with both the Faculty of Humanities and the Faculty of Science.

You are involved in Rethink UvA, a university-wide platform of UvA staff members that was formed at the time of the student protests. Could you briefly explain the objectives of Rethink UvA?

Rethink UvA believes that ruling a university as a company is a fundamental mistake. The introduction of so-called New Public Management in universities (and many other places) in the late 1980s has led to choices guided by financial

returns rather than by scientific and scholarly needs. The university is not a commercial company and cannot be ruled as such. Rethink UvA believes that therefore a structural reform is needed where decisions are made on academic grounds. We are aware that such a reform cannot be carried out locally, at a UvA-level only, but needs to be operated at a national and perhaps even at an international level. Keep in mind that Rethink UvA is a movement; it has no internal structure or hierarchy, it is a forum.

When did you first join Rethink UvA, and what motivated you?

On the day that UvA-employees visited the students (mainly from Humanities Rally and De Nieuwe Universiteit) at the fresh occupation of the Maagdenhuis, I joined Rethink UvA – the name didn't exist yet on that day, but I helped to coin the name. The picture* on the original website of Rethink UvA (rethinkuva.nl) shows me sitting and pondering on that day (the person at the very left). During that particular joint staff-students meeting I was the first staff member to speak and I spoke out in favour of the students, and told them how proud I was of them. But at the same time I also told them that I was seriously concerned about the fact that the occupation of a building is an illegal act. I mentioned the dilemma of civil disobedience that we all may face. I remember that initially my words found rather broad agreement; this changed quite a bit, however, when I stated that according to my opinion it would be a mistake not to communicate with the CvB (governing board). I argued that we should try to find a compromise rather than create a division. I remember that from that moment onwards almost no one (students or staff) agreed with me, which was perhaps understandable given that the occupation had just taken place. I am happy to see that in the course of the weeks after the occupation, the willingness to cooperate with the CvB increased very substantially, to the point that the CvB took very seriously all the demands from the students and staff.

What, in your view, have been the successes so far?

The two main successes are the creation of two committees: one on *governmental transparency* (Democratisation en Decentralisation) and one on *finance*. The members of these committees come from Humanities Rally, De Nieuwe Universiteit, UvA-Rethink, the Unions, and the students and workers council. The committees have just started their work, and it has been agreed with the CvB that the outcomes and recommendations of these committees will be taken over by the university. This promise by the CvB is actually quite amazing if you think about it, and I'm very grateful to all (and I really mean *all*) parties for this achievement. But of course, the actual achievement will only become visible when the committees have completed their work.

Another major but more informal success is the observation that people at the UvA – from students to employees – dare to speak out without having to fear for their position or job. I remember that colleagues from other universities asked me whether I was afraid to air my opinion so frankly and directly. Well, if there was any reason for this at all, then it has been shown to be unjustified.

Do you have any advice for your colleagues or for students who would like to contribute?

Vote Rethink UvA for the *medezeggenschapsraad!*

* This picture is shown on page 38.

1969 16 May 1969 First occupation of the Maagdenhuis, establishing a national tradition. The occupiers demand student democracy at the UvA, leading to the formation of the student council.

1997 30 January 1997 Introduction of Modernising Universitaire Bestuursstructuur (MUB), a new law taking away power from works and student councils.

2013 20 December 2013 The UvA's works and student councils reject the AFS (the merger of the faculties of science of UvA and VU).

2014 27 June 2014 A small group of students occupy the Education Service Center at Science Park to protest the CvB's decision to push the AFS through.

2014 10 November 2014 The Faculty of Humanities announces huge budget cuts and reorganisation in the form of Profiel 2016, leading to huge uproar.

2014 25 November 2014 Humanities Rally organises a night of protest against Profiel 2016.

2015 13-24 February 2015 De Nieuwe Universiteit (DNU) occupies UvA location Bungehuis, demanding democratisation and cancellation of the AFS and Profiel 2016. At the request of the CvB, the police evict the Bungehuis on 24 February, arresting 45 students and a UvA teacher.

2015 25 February 2015 A demonstration is held, attracting around 1,700 people. In a spontaneous action, the protesters enter and appropriate the Maagdenhuis. It is decided to maintain DNU's demands, keep an open-door policy and to organise a daily programme with lectures and workshops.

2015 10 March 2015 In response to the protesters' demands, the CvB presents their 10-puntenplan.

2015 9 April 2015 DNU announces their departure on 13 April to focus on other forms of protest. As a farewell, DNU organises a grand Festival of Science and Humanities on Spui, which is disrupted by the riot police who come to "evict" an already empty Maagdenhuis.

2015 13 April 2015 A demonstration by hundreds of UvA students and staff members, many calling for the resignation of the CvB.

2015 19 April 2015 Louise Gunning, head of the CvB, announces her resignation.

Beyond the realm of logic, language and computation

The ILLC is a rich source of talent and experience, reaching far beyond the realm of logic, language and computation. Here we reveal what students and staff do in their leisure time.

Our men in Havana

Olim Tuyt

We are "Our Men in Havana", the ILLC's very own male barbershop quartet, currently consisting of three MoL students and one PhD candidate. Whenever we want a break from our daily logic, we apply our logical thinking to the singing of some nice a cappella harmonies. Traditionally, the barbershop harmonies consist of 4 a cappella voices, although we might sometimes bend the rules a bit – especially with our performance of John Cage's 4'33". If you are interested in joining us and upholding the tradition of a male MoL barbershop quartet, let us know!

Our Men in Havana consist of Daan Mulder (bass), Tim Coopmans (baritone), Olim Tuyt (tenor) and Giovanni Ciná (lead).

3 OUT OF 4 CREATURES ON THE PLANET ARE INSECTS



Karine Gigengack

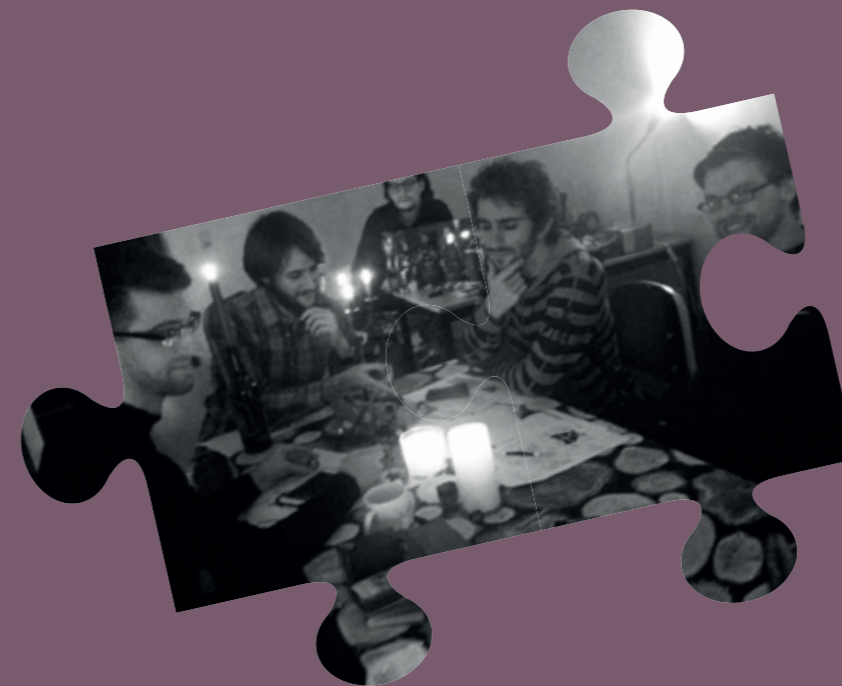
ANTS: WW > 12000 known species; @NL: 67 native species; @my home: 2 species, Harvester ant & Black garden ant. Ants are social insects, so also my ants are neat and stay in their nests, they behave! (as long as I feed them...) Say ants, see E.O Wilson^[1], myrmecologist, here standing next to the nests^[2] of red wood ants – these you can't see, too tiny... **EARWIGS:** WW > 1800 known species; @NL: 5 species; @my home: 2 species, Sand earwig & European earwig^[3]. Unusually for non-social insects, earwigs take maternal care of their breed – great to look at. I collected mine at the same location Donald McGillavry^[4] (correct!) collected his a 100 years ago. Though all earwigs look a bit the same, their pincers^[5] can vary much in shape and size from species to species and even between males and females – showing Nature as great sculptor.

Role playing games

Pablo Sierra Márquez

In a role-playing game – this particular one is set in the world of Mad Max – the director, sometimes called the dungeon master, develops a world and a plot in which the players get immersed. Each player has their own character to interpret. They find themselves in the middle of this imaginary scenario that they have to ameliorate by making the right decisions. The success of their decisions depends upon the outcome of the dice and the ruleset of the game they have chosen. Role playing games are not like usual games, as there are no winners or losers; it is all about creating a good story and having fun with your friends each week.

Played by Julian Schlöder, Esteban Landerreche, Christopher Badura, Dan Frumin, and Pablo Sierra Márquez on Thursdays.





Classical dressage

Zoë Christoff

I found my horse Haro in 2013 during a dressage training week in the south of Spain. After contemplating the idea for a year, I finally bought him last year and brought him to Amsterdam. He stays in a cosy stable in Diemen, just a fifteen minute bike ride away from Science Park. I train him in classical dressage four to five times a week. Of course it is a very time-consuming hobby, but ultimately it helps me stay focused during my daily logic work. Just like logic, dressage requires you to be precise, rigorous and consistent. Otherwise, the horse will misunderstand you. But you also need to be completely present in the moment, physically and emotionally. It is a bit like meditation, I think.



Climbing

Iris van de Pol

Quite a few people at the ILLC enjoy climbing or bouldering. We managed to get some of them together on a rainy Sunday afternoon. In this picture you see (from left to right) Daan van Stigt, Line van de Berg, Jakub Szymanik, Shimpei Endo, and Giovanni Ciná.

It's the desire for adventure that draws most of them to this hobby. Daan adds that climbing is like a puzzle that you solve by finding the right position for your body. In a way it is like logic. There is a goal that you want to reach, and at first that seems impossible. Then you break it up into smaller pieces, and you try out different ways of getting there. In the end, you solve it!



No Almonds, just barbershop

Ottillia Kasbergen

You might have heard our sugary voices echo through the hallways of Science Park 107, late on Wednesday evenings. Our quartet No Almonds came into existence by the unprecedented passion of Eileen Wagner for barbershop singing. Originally, the quartet existed of Eileen (bass), Ottillia Kasbergen (lead), Suzanne van Wijk (baritone), and Leanne Streekstra (tenor). Since Eileen moved to Berlin, her place as bass was gracefully taken by Paula Henk. The main objective of No Almonds is to transcend our pain and worries by getting into a state of musical ecstasy. We don't need drugs, we don't want almonds, we just do barbershop.



'My project at XRCE is about modelling the next utterance in a chat dialog.'

Internship at Xerox

Phong Le is a third year PhD candidate under supervision of Jelle Zuidema and Rens Bod. During the fall of 2015 he went on an internship at Xerox Research Centre Europe, in France. We interviewed Phong about his experiences when he was halfway through his stay.

To start, could you tell us what your research is about?

In my research, I build models that transform sentences in natural language into vectors. Sentences with similar desired properties, sentiment for example, should be represented by close points in a vector space.

When did you first think of doing an internship and why?

I have been thinking about doing an internship for a long time, probably since starting my PhD.

Actually, it was Jelle's idea. He encouraged me to work with other people and to try different working environments.

Where are you doing your internship?

I am now at Xerox Research Centre Europe (XRCE), in Grenoble, France.

How did the selection process go?

The selection process was very simple. There was an interview, but nothing challenging like IQ tests or coding quizzes. (I am rather curious how competitive it was, but I think it is better not to ask.)

Was it easy to convince the ILLC to approve your internship?

I am unsure because Jelle helped with this process. But, as far as I know, the ILLC and the Faculty of Humanities were extremely supportive. I appreciate their assistance very much. Honestly, it was more difficult to convince myself to leave my office, F2.25. :-)

How is life in the company? Is it very different from the ILLC?

Because XRCE is a research centre, life here is more or less similar to life at the ILLC. There are lab meetings, reading groups, seminars and people chasing deadlines.

The biggest difference is that XRCE has some very strict rules about security. For instance, the data and source code that I am working on are only allowed to be on XRCE's computers, which means that I can not work from home. One pro of this arrangement is that I am totally free on the weekends. One con, on the other hand, is that I have to travel to work each workday.

Can you say anything about what you are working on at XRCE?

My project at XRCE focuses on modeling the next utterance in a chat dialog, with the ultimate goal of building an automatic technical support system.

Do you have any time to check out the city? How is it?

Of course, because I can not work on the weekends :-).

Honestly, compared to other cities I have visited, Grenoble is just so-so. People here are friendly, but most of them do not speak English (and I, unfortunately, do not speak French).

However the food is really good and there are some budget restaurants serving very good dishes. I am especially pleased to have found a "true" Vietnamese restaurant :-). Also, the mountains surrounding the city are beautiful. I love to view them from the top of a building close to my apartment.

What were the best and worst moments of your stay so far?

The worst was when I arrived in Grenoble. The city looked dead because most shops and restaurants are closed on Sunday. So, instead of enjoying delicious French food, I had no choice but to get burgers from McDonald's.

It is hard to pick a best moment because I have had many good ones. It might have been the moment when I realised that I would get to visit Barcelona.

From the time of publication of the last ILLC magazine in December 2014 to December 2015, 10 PhD students and 9 postdocs have joined the ILLC.

A selection of the newcomers from all programmes at ILLC have responded to our questions.



Shunan He
Guest PhD Candidate

Who are your supervisors?

Sonja Smets.

What is your academic background?

I pursued a Master of Philosophy between 2011-2014 from Nankai University, and since 2014 I have been a PhD candidate at Beijing Normal University.

What is your research topic?

Dynamic logic, Topological semantics and algebra.



Joost Bastings
PhD Candidate

Who are your supervisors?

Khalil Sima'an and Ivan Titov.

What is your academic background?

I hold a BSc in Artificial Intelligence from Utrecht University and a MSc in AI from University of Amsterdam.

What is your research topic and what interests you about it?

I'm working on neural machine translation, as part of the project "Machine Translators: Teaching Computers to Translate Using Their Own Words". If you can explain something in your own words, then you really understand it. That's why we want computers to do the same.

What is your favourite game?

Koehandel (a.k.a. You're Bluffing) & Wordfeud!

Do you have any crazy, fun or ridiculous hobbies?

I play Floorball (Innebandy), a Scandinavian kind of hockey that is not on ice!



Sara Veldhoen
PhD Candidate

Who are your supervisors?

Jelle Zuidema.

What is your academic background?

I studied artificial intelligence in Utrecht for my bachelor's then in Amsterdam for my master's. I did a few research projects at the ILLC and my master's thesis was supervised by Jelle.

What is your research topic?

Distributional semantics. I currently try to figure out how we can be confident that a neural network is really doing what we would like it to do.

What is your favourite game?

I don't play video games, but I do like board games. At the moment, Tai Pan and Dixit are my favourites.

Do you have any crazy, fun or ridiculous hobbies?

I guess LARPing (live action roleplaying) is considered pretty crazy, and I love to cook and bake, which is just fun. Music is also important to me: I play guitar and piano, I sing and also write my own songs. There are many more.



Chong Wang
PhD Candidate

Who are your supervisors?

Martin Stokhof

What is your academic background?

Bachelor's and M.A. from Beijing Normal University

What is your research topic?

Understanding, not understanding and misunderstanding. In the fields of machine learning and artificial language, there is always a certain boundary between right and wrong. However, this is not so with natural language. I want to investigate

the vagueness between right and wrong, understanding and misunderstanding, and how does this ambiguity influences us.

What is your favourite game?

World of Tanks and LoL.

For what may we wake you up in the middle of the night?

I am awake at midnight, haha!



Anton Frolov
PhD Candidate

Who are your supervisors?

Khalil Sima'an and Ivan Titov.

What is your academic background?

I have a MSc from University of Glasgow.

What is your research topic?

Neural machine translation, deep learning, statistical machine translation.



Jouke Witteveen
PhD Candidate

Who are your supervisors?

Leen Torenvliet.

What is your academic background?

I have a Bachelor in Mathematics, a Bachelor in Computer Science, and a Master of Logic.

What is your research topic?

My research topic is parameterised complexity analysis. My interests are centred around computability and randomness and the parameterised approach gives a nice handle on many topics in that area.

What do you like and dislike about Amsterdam?

For the most part, I do not like Amsterdam. It is either too ugly or too much filled with tourists depending on where you are. Moreover, I find it hard

to really get away from all the asphalt and concrete. The people at the UvA have surprised me, though, because of their shared aversion to hierarchical decision making.

Do you have any crazy, fun or ridiculous hobbies?

I love to take my body to the extreme, endurance wise. Surprisingly, I am not alone in that regard over here :-).



Dieuwke Hupkes
PhD Candidate

Who are your supervisors?

Jelle Zuidema.

What is your academic background?

I did a bachelor in Physics and Astronomy at the UvA, then studied Russian for a year (also at the UvA) before I started the MoL. During my masters I spent one semester at the University of Edinburgh.

What is your research topic and what interests you about it?

I work on models of natural language processing. My hope is to build a (semantic) parser that is somewhat neurally plausible (or at least inspired by that). I have always found language extremely fascinating (as well as the human brain, actually). I am very happy I get to work on understanding it better every day!

What do you like and dislike about Amsterdam?

I love that Amsterdam is a big city and a small city at the same time. Whenever I arrive at the station after having been abroad, I always feel happy to be in my home town again.

What was your best moment at the ILLC so far? Or your most embarrassing moment?

There have been many good moments (I can't think of any embarrassing ones right now, but I might have repressed those memories ;)).



Frederik Möllerström Lauridsen
PhD Candidate

Who are your supervisors?

Nick Bezhanishvili.

What is your academic background?

I have a BSc in mathematics from the University of Copenhagen and a MSc in Logic from the UvA.

What is your research topic and what interests you about it?

I am work on the mathematics of non-classical logic: modal, super-intuitionistic and substructural. Using the toolbox of duality theory and abstract algebra I try to characterise certain logical and proof-theoretic properties of non-classical logics in terms of properties of the corresponding mathematical structures. I enjoy this building of bridges between seemingly unrelated concepts from logic and pure mathematics.

What is your favourite game?

I guess the witty answer to this question would be the Ehrenfeucht–Fraïssé game.

However, since in reality I am not that fond of game-theoretic semantics, the truthful answer must be chess.

What do you like and dislike about Amsterdam?

I like all the water in the rivers and canals - not so much the water coming down from the sky.



Arnold Kochari
PhD Candidate

Who are your supervisors?

Robert van Rooij and Jakub Szymanik.

What is your academic background?

I majored in psychology during my bachelor studies at Charles University in Prague and did a research master's

programme in Linguistics at Utrecht University afterwards. I am very much an experimental psycholinguist interested in brain and language processing and will need to catch up on logic while at ILLC :).

What is your research topic and what interests you about it?

During my PhD, I will be mainly designing and conducting experiments on context-sensitivity and vagueness in language processing by human subjects. I will start by looking at processing vague adjectives (e.g. big or tall) and quantifiers (e.g. many and few) and then see where the results and my thoughts take me. I am very excited about the topic, because vagueness is a pervasive feature of language, but almost no research has been conducted on it in psycho- and neurolinguistics. The project is part of Language in Interaction consortium and I will be conducting my experiments at Donders Institute for Brain, Cognition and Behaviour in Nijmegen.

What do you like and dislike about Amsterdam?

I really like Amsterdam and I am happy to stay here for the next four years. What I like most about it is that it is so incredibly international that I do not feel like a foreigner here.

Do you have any crazy, fun or ridiculous hobbies?

I am excited about the idea of traveling long distances by bike. Like traveling 500-1000 kilometres during a week or two. I expect to spend some weeks of my leave on such trips :).



Chenwei Shi
PhD Candidate

Who are your supervisors?

Johan van Benthem, Sonja Smets and Fenrong Liu.

What is your academic background?

I received both my bachelor degree in Philosophy and my master degree in logic from Tsinghua University.

What is your research topic and what interests you about it?

Broadly speaking, my research topic is

formal epistemology; Speaking more broadly, formalising everything interests me.

What is your favourite game?

Basketball

For what may we wake you up in the middle of the night?

Zombies are coming.

Do you have any crazy, fun or ridiculous hobbies?

Watching zombie movies and taking photos. Neither is crazy or ridiculous, just fun.



Nadine Theiler
PhD Candidate

Who are your supervisors?

Floris Roelofsen and Ivano Ciardelli.

What is your academic background?

I went the opposite way of many people, starting out with computational linguistics, then moving into formal semantics.

What is your research topic and what interests you about it?

Language has this intriguing ability to give us access to other people's thoughts, at least to some extent. Although it might not always feel this way, when we talk we exchange information with an amazing efficiency. There are several linguistic means of structuring a discourse that drive and facilitate this information exchange. Probably the most explicit way to express a request for information, for example, is by asking a question. I'm interested in the semantics and pragmatics of questions. This includes questions in the above sense, that is, as explicit information requests in dialogue, but also questions that appear as parts of larger sentential constructions, like in "Abby knows where you can get the best ice cream around here", and, finally, implicit questions, which can be used as a model for reasoning about discourse structure.

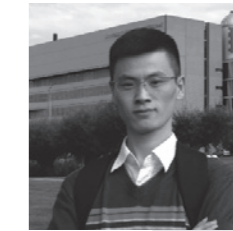
What do you like and dislike about Amsterdam?

The whole bike thing is brilliant. I can hardly imagine living anywhere without it anymore. Otherwise, I'm deeply in love

with the clouds here. In spring and autumn they are especially stunning. What I find less agreeable is the crazy housing market.

Is there anything else we should know about you?

Please speak Dutch to me if you can. Even if I protest.



LiFeng (Aaron) Han
PhD Candidate

Who are your supervisors?

Prof. Khalil Sima'an.

What is your academic background?

I finished a Bachelor degree in Mathematics, then a Master of Science degree in Software Engineering. I did some research work about machine translation evaluation, word segmentation, entity recognition and other related NLP topics during the Master stage in NLP2CT laboratory.

What is your research topic and what interests you about it?

Here at the ILLC, I am participating in Khalil's project of teaching computers to translate by themselves. So, I mainly focus on the semantic machine translation and MT evaluation. The most interesting point is to explore the semantic models and features for the statistical machine translation systems. We have been focusing on paraphrasing models recently as a semantic tool.

What do you like and dislike about Amsterdam?

I like the rivers and parks a lot. I do not like the cold weather in winter.

Do you have any crazy, fun or ridiculous hobbies?

I like jogging, swimming, reading.



Iris van de Pol
PhD Candidate

Who are your supervisors?

Jakub Szymanik, Iris van Rooij, Nina Gierasimczuk, Ivan Toni, Johan van Benthem.

What is your academic background?

I did a bachelor's in philosophy in Amsterdam (and actually before that a bachelor's - at an arts school - in theatre and drama in Tilburg), and the master of logic here at the ILLC.

What is your research topic and what interests you about it?

My project is about cognitive modeling of reasoning and (non-verbal) communication, and possibly about the role of theory of mind. It involves a bit of logic (perhaps game theory), computational modeling, philosophy, complexity theory and cognitive (neuro) science. It's exactly the interdisciplinary nature of the project that really interests me: I will get to do both formal stuff and actual (empirical) experiments!

Do you have any crazy, fun or ridiculous hobbies?

As a hobby I'm doing a yoga teacher training. It's four years and I've almost finished the third year, which will allow me to give weekly lessons. I'm not yet teaching right now, but if you're interested let me know. Perhaps we could organise something at the ILLC :-). Also, I recently started dancing rock 'n roll (with Giovanni). It's really fun and joyful, you should all join!



Tamara Dobler
Postdoc

Who are your supervisors?

Martin Stokhof, Floris Roelofsen, Maria Aloni.

What is your academic background?

Philosophy of language, philosophy of linguistics, Wittgenstein.

What is your research topic and what interests you about it?

The project I work on at the moment is about radical contextualism, Travis cases (i.e. cases of unsystematic contextual variation in truth-conditions) and their implications for the theories of natural language meaning.



Roberto Ciuni
Postdoc

Who are your supervisors?

Prof. Alexandru Baltag.

What is your academic background?

I graduated in Philosophy in 2003 at the University of Pisa. I also hold a MA in Humanities from the Scuola Normale Superiore in Pisa. I hold a PhD in Philosophy from the University of Florence (2008).

What is your research topic and what interests you about it?

I work on the project 'Ways of Doxastic Agency', which has been awarded a Marie-Curie Post-doctoral Fellowship. The project aims at integrating the STIT ('seeing-to-it-that') modal logic of agency with Dynamic Epistemic Logic. The rationale is that some relevant social phenomena involve a combination of agency (what agents accomplish) and belief change (what results from updating the agents' information). Taken in isolation, STIT and DEL cannot model this combination, and while the investigation of agency, on the one hand, and

information update, on the other, have reached a sophisticated level of understanding, a formal theory of their combination is missing. As a consequence, we have no clear conceptual and mathematical framework to capture distribution of responsibility among the agents involved in cases of action based on advice or testimonial belief. On the background of methods accumulated in decades of research in modal logic of agency and DEL, the project fills this lacuna and locates the problematic social phenomena in a framework of reference.

What do you like and dislike about Amsterdam?

I love Amsterdam. It's a cool place and I haven't felt so comfortable in a city in years. One thing I do not like is scooters driving on the cycling lane, though.



Serge ter Braake
Postdoc

Who are your supervisors?

Rens Bod (UvA) and Inger Leemans (VU).

What is your academic background?

I received a PhD in medieval history in 2007, worked until the end of 2011 for the Jewish Historical Museum (mainly for the Digital Jewish Monument) and have called myself a digital humanist since 2012 when I started working on a digital humanities project at the VU. I wrote books on life and politics in The Hague in the sixteenth century, on the Jewish contribution to the Dutch leather industry and on post war restitution processes of immobile goods. I also translated a key historical text of grand pensionary Johan de Witt into modern Dutch and was one of the main editors of proceedings on biographical data in a Digital World.

What is your research topic?

I am part of the humanities branch of the large AAA Data Science project, in which I look at the changes of concepts and perspectives through time in digitized historical texts, with the help of computational methods.



Desmond Elliott
Postdoc

Who are your supervisors?

Khalil Sima'an.

What is your academic background?

I have a Ph.D from the Institute for Language, Cognition, and Computation at the University of Edinburgh.

What is your research topic and what interests you about it?

I work on multimodal machine learning, in particular on modelling the relationships between images and descriptions.

What is your favourite game?

I like most games, especially co-operatives like Pandemic or The Resistance.

What do you like most about Amsterdam?

Cycling to work.



Wilker Ferreira Aziz
Postdoc

Who are your supervisors?

Khalil Sima'an.

What is your academic background?

I am a computer engineer (obtained my BA degree in Brazil) and I've got a PhD in computational linguistics (obtained in the UK).

What is your research topic and what interests you about it?

I am mostly interested in inference problems for structured prediction. In other words, this has to do with how we obtain sensible solutions out of a statistical model and how we gather information about a model's current beliefs. I particularly like doing it when the task is (close to) intractable. Thus far I've focused on applications such as parsing and machine translation, mostly because I like to play with formal grammars and algorithms involving them.

What is your favourite game?

Anything involving many people and lots of fun.

For what may we wake you up in the middle of the night?

- 1) A friend needs me.
- 2) To invite me for a late drink.
- 3) To let me know there was a fire in the department and all my Moleskine notebooks were destroyed (see hobbies).
- 4) Maybe to let me know that a paper I have co-authored has been accepted.

Do you have any crazy, fun or ridiculous hobbies?

Not sure this counts as a hobby: since 2012, I collect Moleskine notebooks which I fill with all sorts of random ideas.

Is there anything else we should know about you?

I love playing guitar.



Stella Frank
Postdoc

Who are your supervisors?

Khalil Sima'an.

What is your academic background?

I studied cognitive and linguistic sciences at Brown University as an undergraduate and then did my Master's and Ph.D. in Informatics at Edinburgh University.

What is your research topic and what interests you about it?

Currently I work on machine translation for morphologically rich languages. In general I'm interested in unsupervised learning, specifically how both humans and computers can learn linguistic structure from unstructured input.

What do you like and dislike about Amsterdam?

Cycling everywhere and being a pedestrian.

What has been your best moment at the ILLC so far?

Watching the ducklings grow up in the canal outside my office window (except when they got eaten by a heron).



Diego Marcheggiani
Postdoc

Who are your supervisors?

Ivan Titov.

What is your academic background?

I got my PhD in computer science from the University of Venice, Italy. During my PhD I worked as a researcher at the Italian National Research Council (CNR), and in particular at the Institute of Science and Information Technologies (ISTI). During this period I worked in a field at the intersection of information retrieval, natural language processing and machine learning with particular attention to probabilistic graphical models.

What is your research topic?

Since I visited the ILLC last year my research interests turned toward semantic representation of text. For example, to make a computer understand who did what to whom in a sentence. Right now I am focusing my research toward tensor factorisation models for unsupervised discovery of relations between entity pairs.



Benjamin Rin
Postdoc

What is your academic background?

I finished my PhD in 2014 at the department of Logic and Philosophy of Science, in the University of California, Irvine.

What is your research topic and what interests you about it?

I work on logic, computability, philosophy of mathematics, and the foundations of set theory. I am drawn to these topics because I find them to be deep and the questions raised within them to be of fundamental importance.

What is your favourite game?

It's hard to pick just one. For now, I'll say chess. But I also like a number of card games.

What do you like most about Amsterdam?

I like the cycling culture and the fact that the locals are generally friendly and helpful.



Bushra Jawaid
Researcher

Who are your supervisors?

Khalil Sima'an.

What is your academic background?

I am a PhD candidate at Charles University in Prague.

What is your research topic?

My PhD thesis is titled "Machine Translation with Significant Word Reordering and Rich Target-Side Morphology". My recent area of interests include producing correct inflected forms when translating from morphologically poor to morphologically rich languages.

What do you like most about Amsterdam?

Amsterdam is full of life, I really like it when I see people out with their families having fun on weekends.

For what may we wake you up in the middle of the night?

Only if the house is on fire!

Do you have any crazy, fun or ridiculous hobbies?

My husband says that he finds me eating all the time. He prefers if I count this as a ridiculous hobby and not as a fun or crazy one :-).



Christos Louizos
Scientific programmer

Who are your supervisors?

Khalil Sima'an.

What is your academic background?

I obtained my Bachelor on Informatics and Telecommunications at the University of Athens, Greece. Subsequently, I came to the lovely Amsterdam for my Master degree on Artificial Intelligence at the University of Amsterdam.

What is your research topic and what interests you about it?

The research topic is domain adaptation for machine translation. It is very exciting as it involves creating models that are able to better handle the latent heterogeneity of the machine translation corpora. This information is particularly useful as the translation can heavily depend on the underlying genre of the sentence. For example the meaning, and consequently translation, of the word "run" would depend on whether we are translating sentences from the software domain or sentences from the sports domain.

What is your favourite game?

I will answer with a quote: "It's me Mario!". I love Nintendo games and particularly the Super Mario series.

Be sure to check out the videos where Mario is controlled by AI algorithms!

For what may we wake you up in the middle of the night?

For a discussion about the latest papers on neural nets and machine learning, haha! I truly am a ML geek and quite fascinated about the recent deep learning paradigm. It has started to provide state of the art results on a variety of tasks, from speech and vision to NLP and machine translations.

PhD defences

Inés Crespo

1 September 2015

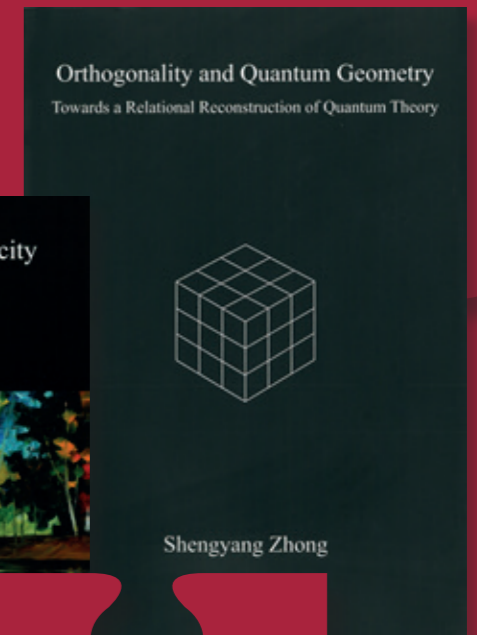
Affecting Meaning: Subjectivity and Evaluativity in Gradable Adjectives



Shengyang Zhong

9 September 2015

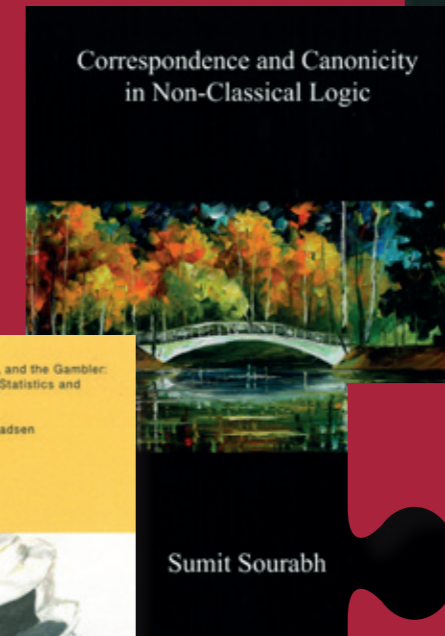
Orthogonality and Quantum Geometry: Towards a Relational Reconstruction of Quantum Theory



Sumit Sourabh

9 September 2015

Correspondence and Canonicity in Non-Classical Logic



Mathias Madsen

1 December 2015

The Kid, the Clerk, and the Gambler: Critical Studies in Statistics and Cognitive Science



Facundo Carreiro

11 December 2015

Fragments of Fixpoint Logics: Automata and Expressiveness

