Newsletter Vereniging voor Logica

Fall Edition - November 2022

Message from the Board

The VvL is growing in size, and this allows the association to represent the community of individuals interested in logic in the Netherlands, and to better address their interests. The VvL aims among others to participate in activities that help spread knowledge of logic among the general public, to strengthen our position in organizations that decide on research policy and funding, to function as an alumni organization for students in logic-related areas, and to organize activities to help bring the community of logicians in the Netherlands together. In this newsletter you will find some of the current initiatives that the VvL is involved in that help it achieve its aims. Input on or ideas for other initiatives in these areas are of course always welcome.

If you have any comments or suggestions, or if you would rather not receive this newsletter, please send an e-mail to bestuur@verenigingvoorlogica.nl.

Members of the VvL

The *Dutch Association for Logic and Philosophy of the Exact Sciences (VvL)* represents not only logicians and philosophers in academia, but considers itself to represent everyone with an interest in logic or philosophy of the exact sciences. An update about our current members:

- The VvL currently has **231 members**. Compared to the last newsletter in May 2022, this is an increase of **33%** (and 58 members).
- We have members from many different institutions, based in Amsterdam, Utrecht, Groningen, Nijmegen, Tilburg, Eindhoven, Delft, Twente, Leiden and Rotterdam, and we even have some internationally based members.
- Among the 90 most recent membership registrations, 21% are bachelor or master students, 32% are PhD students, 29% are other academic staff, and 16% fall under logic alumni working outside an academic setting and members from the general public.

News

- **Membership IPN**. The VvL has recently become an extra-

ordinary member of [IPN](#) (ICT Research Platform Nederland). IPN unites all Dutch academic research groups that have ICT science as their core, and as such acts as a single point of contact for all matters relating to ICT innovation and its importance for our current and future society. VvL board member Helle Hvid Hansen represents the VvL in IPN. Nick Bezhanishvili, VvL president, was [interviewed](#)

LOGICAL COMBINATION

Nick Bezhanishvili from the Institute for Logic, Language and Computation of the University of Amsterdam is president of the Dutch Association for Logic and Philosophy of the Exact Sciences (VvL). He explains why VvL joins IPN.

By Leendert van der Ent
Image Ivar Pel

What is logic exactly?
Logic is the study of correct reasoning using formal methods and the formal study of methods. It is situated between the disciplines of mathematics, philosophy and computer science. Logic has been called 'the calculus of computer science', since it is a central part of the foundations of computer science and its methods allow us to understand the scope and limitations of computing. For instance, we can prove that a question is impossible to be solved by an algorithm.'

How can logic and computer science strengthen each other in practice?
'Especially in the medical realm, applications of black box AI are regarded with great scepticism. The ability to explain why a particular medical intervention was executed – that may have resulted in certain (adverse) outcomes for the patient – is predominant for a plethora of reasons. We believe that a rule-based logic approach might help to provide the ability to explain. My own rather theoretical work on spatial logistics has connections to medical imaging that can have wide-ranging applications.'

What does the VvL do?
'The Dutch research community of logic is recognised as particularly innovative and world-leading. The VvL was established in 1947 by Evert Beth, Arend Heyting and Andreas van Melsen as the learned society representing this inter-

disciplinary community. Currently, we have about two hundred members who represent the community internally and also reach out to a more broadly interested public. Instruments for this are our master's thesis prizes and the annual virtual 'logic at large' lectures aimed at a broader audience.'

Why did the VvL decide to join IPN?
'Logic is a crucial piece of theoretical computer science that we plan to represent within IPN. Given the recent surge of research in AI and the focus on methods that don't allow opening up a machine to see its inner workings, logical approaches stand for methods that enable a higher degree of control over models. An example of this is Explainable AI.'

What are the mutual benefits of integration?
'It's a two-way road. The logic community can help IPN to fill present knowledge gaps, for instance on the subjects of Explainable and Symbolic AI. It can also strengthen the important links to the disciplines of mathematics and philosophy. For the VvL, being represented via IPN is important for making our voice heard. The future will reveal to what heights we can push each other, but we are certain that the union will be mutually beneficial.'

More information on:
www.verenigingvoorlogica.nl

'Nick Bezhanishvili (1978) obtained his master's degree in Mathematics with honours from Tbilisi State University (Georgia) in 2000 and his PhD in logic from the Institute for Logic, Language and Computation (ILLC), University of Amsterdam in 2006. He has been an assistant professor at the ILLC since 2014. He became chair of the VvL in 2021.

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by I/O Magazine about this new membership: "The logic community can help IPN to fill present knowledge gaps, for instance on the subjects of Explainable AI and Symbolic AI. It can also strengthen the important links to the disciplines of mathematics and philosophy. For the VvL, being represented via IPN is important for making our voice heard. The future will reveal to what heights we can push each other, but we are certain that the union will be mutually beneficial."

- **VvL PhD Committee**. The VvL is looking for more input and activity among its early-career members, especially PhD candidates. From this, the idea arose to set up a "VvL PhD Committee", and several PhD candidates participated recently in a first brainstorm on what such a committee could do. PhDs could look into the organization of several activities involving student and PhD members of the VvL, such as: the continued organization of the Dutch Logic PhD Day, setting up an alumni logic seminar, encouraging research collaborations within the Netherlands, but also by being involved in logic-related activities for undergraduates and the general public. In case you are a PhD member and interested in being involved in this committee, please send an e-mail to r.a.martinot@uu.nl.

Upcoming Events

- **December 2022/January 2023 - Joint VvL Seminar.** The VvL is collaborating with the LLAMA and LIRA seminar in Amsterdam, the TULIPS seminar in Utrecht and GroLog in Groningen to organize a joint VvL seminar. The event aims to bring together logicians from all over the Netherlands, and to give the speaker the opportunity to present to a broad audience. In addition to a main speaker, the [winners of the VvL Msc Thesis Prize](#) will be invited to this event, and will be given the opportunity to present their thesis to the audience. More details about the event will follow soon.

- **April 2023 - Nationale Wiskunde Dagen.** The Nationale Wiskunde Dagen (National Mathematics Days) are organized yearly for mathematics teachers in secondary schools. During these days, various lectures are given so that new developments can be discussed among teachers, and that they are motivated to come up with new ideas and look at mathematics from a creative perspective. On 14-15 April 2023, at the Nationale Wiskunde

Dagen there will be a series of lectures of a logical nature, organized in collaboration with the VvL. Among others, Benno van den Berg and Rogier Bos will present their material on Logic for Wiskunde D, and K. P. Hart will talk about 150 years of uncountability of the reals.

Past Events

- **July 1, Dutch Logic PhD Day 2022.** Just before the summer break, a group of PhD students from all over the Netherlands (Nijmegen, Utrecht, Amsterdam, Groningen, Leiden) gathered in Utrecht for the first edition of the [Dutch Logic PhD Day](). Invited speakers Maria Aloni (UvA) and Revantha Ramanayake (UG) provided the beginning and ending sessions, while ten talks were given in between by PhD students about their research. Talks varied from research on social choice, philosophy of mathematics, and program verification to epistemic logic and even an application of logic in economics. The breaks were filled with plenty of coffee and snacks, and the day ended with drinks in the centre of Utrecht. We conclude that the day was a great success, and we already look forward to the Dutch Logic PhD Day in 2023. In case you are interested in the organization of the next Dutch Logic PhD Day, please contact r.a.martinot@uu.nl or e.baccini@rug.nl.

Geef de Pen Door

In this section, a VvL member introduces themselves, so that the association can get to know its diverse collection of members better. For the second edition, Raheleh Jalali (Utrecht University) will introduce herself.

"My name is Raheleh and I am currently a postdoc at Utrecht University. My work is mostly in proof theory, specifically structural proof theory, and studies on non-classical and modal logical systems. I became interested in logic while doing my master studies in Iran in the field of pure mathematics. As is the scenario with many people and their fascination in their field of study, I became interested in mathematical logic after taking some courses on the subject with an inspiring instructor, Mohammad Ardeshir. I studied constructive and intuitionistic set theories, which led to my master thesis under his supervision. Until now, the passion has led me in going deeper in

the field and also wondering about other related areas. For my PhD, I studied proof complexity as an interesting lively subfield of mathematical logic.

I did my PhD studies in Prague, one of the most beautiful cities with a melancholic atmosphere, where I enjoyed many film and music festivals. Shortly after I moved to the Netherlands I heard about the VvL association and I became a member to be more in contact with logicians around the country. As for the things I do in my free time, I love walking in nature, watching movies and reading classical literature. And of course, playing chess is my favorite."

Questions in Logic

In this section, a VvL member explains what drives their research in logic. They illustrate a question (with or without an answer) in logic in an accessible way: this can be a problem they are currently working on, the motivation behind a broader area of research, or an already known result that they simply find interesting. This time Frederik van de Putte (Erasmus University Rotterdam) will talk about his research.

"How should we organize society? In the absence of agreement, how can we at least argue for or against any given answer? What is the logic of such arguments?

Original position arguments start from the assumption of rational, self-interested individuals making choices behind a veil of ignorance, and thus not knowing their position in society. On Rawls' well-known account, this leads them to choose in line with the *difference principle*, evaluating options in terms of the welfare of the worst off. Other scholars such as Harsanyi and Parfit have argued for different conceptions of justice, based on different notions of individual rationality behind the veil of ignorance. Even if such arguments may not lead to a unique policy or social choice rule, they still serve as a useful tool in sorting out our intuitions regarding fairness and social choice.

In joint work with Thijs De Coninck, currently finishing his PhD at Ghent University, we develop a formal model of original position arguments for social choice rules; a model that is rich enough to account for a range of philosophical positions, and yet in line with standard decision theoretic accounts of individual rationality. We mainly focus on cases of choice under ignorance, i.e. cases where the distribution of welfare that results from a given choice depends in part

on the (unknown) state of the world. One key insight we gained is that we have to enrich the standard model of decisions in such settings, if we want to achieve the right sort of model of original position arguments. In future work I also hope to develop formal languages and axiom systems that allow one to make original position arguments more modular and tractable."

Logic Puzzle

Solve the puzzle!

The answer will be given in the next edition of the VvL Newsletter.

75. The Case of McGregor's Shop. _____

Mr. McGregor, a London shopkeeper, phoned Scotland Yard that his shop had been robbed. Three suspects A,B,C were rounded up for questioning. The following facts were established:

(1) Each of the men A,B,C had been in the shop on the day of the robbery, and no one else had been in the shop that day.
(2) If A was guilty, then he had exactly one accomplice.
(3) If B is innocent, so is C.
(4) If exactly two are guilty, then A is one of them.
(5) If C is innocent, so is B.

Whom did Inspector Craig indict?

The solution to the puzzle in the previous newsletter is given here.

26. _____

It is impossible for either a knight or a knave to say, "I'm a knave," because a knight wouldn't make the false statement that he is a knave, and a knave wouldn't make the true statement that he is a knave. Therefore A never did say that he was a knave. So B lied when he said that A said that he was a knave. Hence B is a knave. Since C said that B was lying and B was indeed lying, then C spoke the truth, hence

is a knight. Thus B is a knave and C is a knight. (It is impossible to know what A is.)

Source puzzle: Raymond M. Smullyan, What Is The Name Of This Book? (2011)