# Newsletter Vereniging voor Logica

*Autumn Edition - October 2023*

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## Message from the Board

With a new start of the academic year and the arrival of autumn, the VvL introduces another newsletter. This year, you can expect to see the usual recurring activities ready to be hosted in different cities. Aside from that, the younger VvL members are supporting the VvL in setting up several new initiatives, such as a PhD seminar and a logic overview in the Netherlands. Keep reading to find out more details about these events.

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.

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## Members of the VvL

- The VvL currently has **253 members**. Compared to the last newsletter in May 2023, this is an increase of **5.9%** (and 14 members). If you meet potential new members, don't hesitate to encourage them to apply!
- 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 100 most recent membership registrations, 20% are bachelor or master students, 34% are PhD students, 30% are other academic staff, and 16% fall under logic alumni working outside an academic setting and members from the general public.

## News

- **Jeroen Groenendijk (July 20, 1949 - October 17, 2023).** With great sadness we share the news that Jeroen Groenendijk has passed away on October 17, 2023. Jeroen was professor of philosophy of language at the University of Amsterdam from 1998 until 2014. He has played a crucial role in the development of multiple modern trends in the study of formal semantics and pragmatics of natural language, and helped foster the research communities in logic and the philosophy of language in the Netherlands and internationally, both as a researcher and as an organizer. A more detailed in-memoriam can be found here.

- **Overview of logic in the Netherlands.** The VvL aims to create more awareness of the connections between research groups within the Netherlands, and to forge a more unified Dutch logic community. Currently, a large part of logic-related research is unknown to a lot of researchers and to the VvL, and the VvL is not always able to reach its desired audience. In order to create the overview, we need the active contribution of researchers throughout the country. If you hold a research position (postdoc or higher) at a Dutch university or institution and would like to be listed on the website, you can fill in this form. Participating could be relevant for VvL members in order to get more attention for open positions within their group and their research output. Additionally, such an overview is useful for logic students (or researchers) who would like to make use of the expertise in different cities.
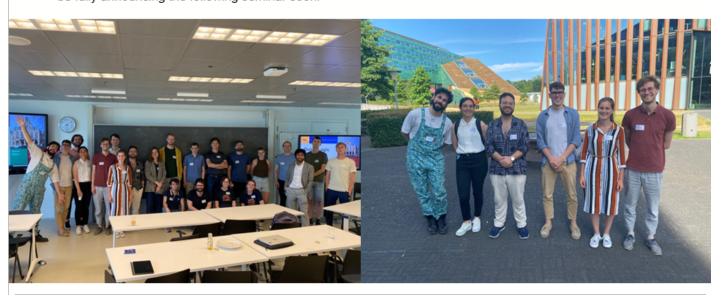
# Upcoming Events

- **November 28, 2023 - Second "VvL Essentials" PhD Seminar.** We are happy to introduce the seminar VvL Essentials, aimed primarily at PhD students, as well as master students and postdocs (although other VvL members are welcome to attend if they see a talk they are interested in). VvL Essentials talks are relatively high-level and broad overviews, that introduce early-career logicians to a field they may not be familiar with. This forms a low-threshold way to broaden their knowledge of the field at large, and encourages collaborations. The talks will be hosted at different universities within the Netherlands, and they will have a hybrid format - for those who attend in person, drinks and snacks will be provided afterwards! The second edition will take place on November 28, and will be concerned with dynamic epistemic logic. More details will follow soon.

- **December 8, 2023 - VvL Joint Seminar.** The second edition of the VvL Joint Seminar is coming up: Utrecht University will host the event this year, organized by *Colin Caret* and *Johannes Korbmacher*. Not only will there be an interesting main speaker (TBA), we will again host an awards ceremony and presentation opportunity for the winners of the MSc Thesis Prize 2022. Of course, a dinner will be organized in the Academiegebouw in Utrecht, followed by drinks. More details will follow in the next month, but make sure to save the date! See the picture below for an

  impression of last year's successful edition.



# Past Events

- **April 14/15, 2023 - Nationale Wiskunde Dagen**. On April 14 and 15, the National Mathematics Days were hosted at Utrecht University. This year, K.P. Hart talked about "150 years of uncountability of R", and Benno van den Berg and Rogier Bos presented "Logic is cool!". We are glad to see logic represented at this event, as it may enourage high school mathematics teachers to introduce students to logic in an early stage.

- **May 17, 2023 - Nationaal Wiskunde Symposium.** The theme of this year's National Mathematics Symposium was mathematical logic, and it was organized by the mathematics student association Desda and held in Nijmegen. Titled *Logic: the rules of the game*, the symposium provided introductions to various fields of mathematical logic. The programme included the interesting collection of talks "Infinite Games" by Wim Veldman, "Computability and Complexity" by Sebastiaan Terwijn, "Relational and Topological Models of Modal Logic" by Nick Bezhanishvili and "The Game of Logic and Logic for Games" by Dominik Klein.

- **June 6 - Logic at Large Lecture.** In June, the 2023 installment of the yearly VvL Logic at Large Lecture was held, online, with *Lukasz Kaiser* (OpenAI) speaking about connections between logic and modern developments in machine learning. The presentation (titled: *How Logic Shapes Transformers*) was followed by a lively panel discussion on the role of logic in modern AI, including Jan Broersen (UU) and Nina Gierasimczuk (TU Denmark). The event had 115 registered attendees. The VvL Logic at Large Lectures are annual, public lectures featuring globally prominent researchers in logic or with a connection to logic, across different areas of research, aimed for a broad audience.

- **June 23, 2023 - Dutch Logic PhD Day 2023.** At the end of June, a successful second edition of the Dutch Logic PhD Day was organized in Groningen. The enthusiastic organizers (below on the right: Valentina, Daira, Nima, Edoardo, Maaike and Daniël) put together a well-filled schedule with talks by PhDs on topics ranging from epistemic logic to algebraic logic, and with keynote speakers Herman Geuvers (RU) and Natasha Alechina (UU). The day brought together PhDs from various cities in the Netherlands, including Nijmegen, Utrecht, Amsterdam, Groningen, and even Helsinki and Vienna. We are looking forward to the next edition!

- **October 23, 2023 - "VvL Essentials" PhD Seminar.** The very first edition of VvL Essentials was organized by *Rodrigo Almeida* (PhD student at the ILLC) and *Giovanni Varricchione* (PhD student at Utrecht University). Marianna Girlando (ILLC) presented the talk Proof Theory Essentials. We thank her for starting off this lecture series, and will be fully announcing the following seminar soon.

## 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 fourth edition, Johanna Wolff (University of Twente) will introduce herself.*

"My name is Johanna Wolff, and I am a PhD student at the University of Twente. I moved to the Netherlands a year ago and joined the VvL to get to know the logic community here. Through this newsletter I heard about the Dutch Logic PhD Day, which was a great way to meet some other PhD students who are working in logic.

My PhD is a part of the Hybrid Intelligence project which aims to create systems in which artificial agents and humans can work as a team to achieve a common goal. In my work I am looking into various non-monotonic logics and how these

could help us when formalizing the reasoning process of an artificial agent. At the moment I am exploring how autoepistemic logics of knowledge and belief could be used to create user models and which effect different interpretations of the belief operator have on these models. I am also curious about ways to combine knowledge-based methods with data-driven methods when creating an artificial agent.

In my free time I really enjoy playing games, my favorites are competitive board games like Sushi Go Party or cooperative video games like Overcooked 2. Occasionally my friends and I even try making our own games, either for a game jam or just for fun."

## 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 Andrea De Domenico (VU) will talk about his research.*

"The idea of being able to formalise the very notion of 'mathematical proof' within mathematics, so that we can study its properties, is what got me interested in proof theory when I started my PhD two years ago.

Beginning with the work of Gerhard Gentzen, sequent calculi have been used to investigate interesting properties of many logics, such as their decidability and various flavours of interpolation, as well as automated deductions.

It soon became clear to those who have tried to create sequent calculi for various non-classical logics that Gentzen's original formalism is not expressive enough to capture all the logics of interest to us without giving up important properties such as the admissibility of the cut rule.

Several variants of the calculus originally proposed by Gentzen have emerged over the last fifty years, motivated by the need to broaden the expressiveness of our proof-theoretic instruments. The best known of these variants include: hypersequent and tree hypersequent calculi, display calculi, higher-order sequents, nested sequents, and labelled calculi.

I began to feel the need to investigate what the interconnections among these different formalisms are, and to study their relative expressiveness. Some results are quite straightforward (for example, it's easy to transform a hypersequent into a labelled one: just assign a different label to each sequent in the given hypersequent), but in general translating between different formalisms is an interesting and non-trivial problem. In the last years, we learned that we can translate from hypersequent to display calculi (Ramanayake, 2014), and we have also some results for the translation between display and labelled calculi  (Ciabattoni, Lyon, Ramanayake, Tiu, 2021). The quest is still on!"

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## Logic Puzzle

Solve the puzzle!

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

### 163. A Trial. _____

On a neighboring island of humans and zombies "Bal" and "Da" are again the native words for *yes* and *no*, but not necessarily in that order. Some of the natives answer questions with "Bal" and "Da," but others have broken away from the taboo and answer with the English words "Yes" and "No."

For some odd reason, given any family on this island, all members are of the same type. In particular, given any pair of brothers, they are either both human or both zombies.

A native was suspected of high treason. The case was so important, that Inspector Craig had to be called over from London. The three key witnesses were A,B, and C— all natives of the island. The following transcript is from the court records; Inspector Craig did the questioning.

*Question (to A)* / Is the defendant innocent?
*A's Answer* / Bal.
*Question (to B)* / What does "Bal" mean?
*B's Answer* / "Bal" means *yes*.
*Question (to C)* / Are A and B brothers?
*C's Answer* / No.
*Second Question to C* / Is the defendant innocent?
*C's Answer* / Yes.

Is the defendant innocent or guilty?

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

### 158. _____

It is not possible to tell what "Bal" means, but we can tell that the speaker must have been human.

Suppose "Bal" means *yes*. Then "Bal" is the truthful answer to the question whether "Bal" means *yes*. So in this case, the speaker was human.

Suppose "Bal" means *no*. Then "No" is the truthful English answer to the question whether "Bal" means *yes*, therefore "Bal" is the truthful native answer to the question. So again, the speaker is human. So, regardless of whether "Bal" means *yes* or *no*, the speaker is human.