

Interview with Walter Carnielli

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In this edition, we interviewed the professor, researcher and author Dr. Walter Carnielli, professor of logic at the State University of Campinas (Unicamp) and ex-director of the Centre for Logic, Epistemology and History of Science (CLE).



Graduate, Master and Doctor of Mathematics from Unicamp, Walter Carnielli is Professor of Logic at the Department of Philosophy of the same institution. With important works on both technical results and philosophical aspects of logic, Carnielli is one of the pioneers of the Brazilian School of Paraconsistent Logic. Member of several international scientific societies and editorial board of several scientific journals, our interviewee was also president of the Brazilian Society of Logic for two terms and founded the ANPOF Logic WG. He published several books in the field of Logic and Philosophy of Logic, as well as books for the general public. Grantee of the Alexander von Humboldt Foundation, Carnielli received several national and international awards, such as the Telesio Galilei Academy of Science Gold Medal for 2013 and third place in the 2007 Premio Jabutí, in the Exact Sciences, Technology and Information Technology category. In 2019 he received the CAPES Prize for the best PhD Thesis in Philosophy, together with his student Bruno Mendonça. Carnielli has interests in the area of Artificial Intelligence, and is currently Vice-President of the Advanced Institute for Artificial Intelligence (AI2) and member of the Scientific Council of the Modal Institute (Brasilia).

1. Although you have a mathematical background, you work with philosophy and teach at the Department of Philosophy at Unicamp. To the uninitiated, the link between the two disciplines is not always clear. To what extent does your background as a mathematician contribute to your career as a philosopher? How is the relationship between mathematics and philosophy in your professional practice?

The relationship between mathematics and philosophy is very old, but often conflicting. Originally there were no scientists or mathematicians as we have them today, but so-called natural philosophers. The methods of natural philosophers differed from those of later scientists, especially from the seventeenth century, with Francis Bacon and Galileo. Natural philosophers did not test their ideas in practice, but took a speculative approach typical of philosophy and mathematics, and relied on tradition and authority in making their statements about the natural world.

In the strong historical links between mathematics and philosophy, logic played an exceptionally important role in acting as a natural bridge between philosophy and mathematics, and a guide to the philosophy of mathematics. The profound investigation between philosophy and mathematics helps significantly in understanding each of them.

In my particular case, my background as a mathematician contributed to my career as a philosopher (at least as a philosopher of the formal sciences) because of my interest in the infinite, the rational methods linked to the infinite, and the consequences of the infinite in reason. Several of my works and articles are devoted to such things, as for instance research on infinite Ramsey-type problems inspired by finite properties. This study leads to a new principle that contradicts the Axiom of Choice, called the Principle of Ariadne. This principle, although a rival of the Choice Axiom, can be consistently added to the axioms of ZF set theory under certain conditions. The Principle of Ariadne, taken as an axiom, preserves all finite contents of mathematics, but deviates from the pattern in the infinite contents, and can help us to understand the finite-infinite division in mathematics. In other words, the principle shows that several infinite principles are possible from the same finite content. Although the study is over 30 years old, we have published a recent article explaining the issue in terms of games: "The Wonder of Colors and the Principle of Ariadne", co-authored with Carlos Di Prisco, which appears in the book "How Colors Matter to Philosophy" (Springer, 2017, edited by Marcos Silva, pp.309-317).

This work is a typical logical-mathematical result with not only philosophical inspiration but also philosophical consequences.

2. Still talking about your career path, we would like to know when did you become interested in philosophical problems and when did you start thinking about working in a philosophy department. Have you been interested in philosophical questions since graduation or did that interest come later?

I have always been interested in the deduction, the proof methods, the axiomatic method, and the role that language (formal and natural) plays in this whole process. I have never seen a great distinction between mathematics and philosophy, I have always read a lot, asked a lot, and unlike most of my fellow mathematicians, I was interested in languages, film and literature alongside mathematics. I remember that one of my teachers at the Unicamp math course always suggested to me, jokingly (but not too much), that I cross the street and ask uncomfortable questions at the Institute of Philosophy (the two institutes, Mathematics and Philosophy, are neighbors at Unicamp). After doing a Masters, Doctorate and Post-Doctorate in Mathematics, and teaching for years subjects such as Algebra, Integral Calculus, Analysis, and Combinatorics in the Department of Mathematics, I decided, along with colleagues from the group of Logicians working in Mathematics, to move to the Department of Philosophy because of the intolerant and prejudiced attitude of the leaders of the Institute of Mathematics in the 1990s.

In the Department of Philosophy, thanks to our joint role at the Centre for Logic, Epistemology and History of Science (CLE), an independent but historically linked body of philosophy, my logical colleagues and I have been able to work freely, though not always in complete peace...

3. In your curriculum we realized that the educational performance has always been present. Have you always thought about pursuing an academic career? Was there any decisive factor that motivated you in this choice?

I decided to pursue my academic career because I wanted to think, not get hung up on strict hours, stupid leaders, careerist colleagues and the lack of projects of Brazilian companies. Before I went to the University I worked at a multinational, and I could feel the weight of the backward and anti-intellectual attitude at the time - I don't even want to imagine what it must be like today.

4. Teaching seems to be an activity that attracts less and less young people. Do you have any advice or encouragement words to the young people who think about being a teacher?

I never liked to give lessons. I have always had a mild disregard for schedules, plans, educational management, and things like that. On the other hand, teaching is one of my passions. I do not confuse one thing with another. Being a "teacher" was never enough for me - I always wanted to teach thinking, to teach young people to create, to imagine, to be scientists. And I can say that I was very successful: I taught and advised exceptional students who today occupy prominent positions in science, not only national. I won't mention them, because it would occupy a lot of space in this interview.

5. What about the academic production? What is your secret to producing so much quality material? Would you give the reader any tips?

I think the great keys to success in having a prominent academic production are: first, get inspired by figures of real prominence, avoid admiring fools (I don't think I need to name them, we have some highlighted in the media and in high political positions) and, secondly, to enjoy understanding interesting things, be it the grammar of the Tupi language, Karl Marx's economic ideas of surplus value, or the theory of matroid, and most of all, to like to solve problems. This is my recipe.

6. You have awards, collaborations and professional performances in almost a dozen countries. Tell us a little about your career abroad: what are the biggest difficulties? What can Brazilians expect when searching in the countries in which you worked?

I studied and worked in Chile, the United States, Italy, France, Luxembourg, Germany, and Portugal, as well as shorter periods in Venezuela, Argentina, Poland, and Spain. I have never had much difficulty, mainly because of my interest in languages and culture. I never found it weary or boring to learn languages, for example: I learned Spanish in two months, quite fluent German in three months, and in two weeks in Poland or Turkey I could articulate some sentences. It's not about any superior capability; I just find it fascinating, as I find it boring to watch sports. The big difficulty is acting like local people, paying attention to what is important to them, like having an organized schedule, meeting schedules, to follow local norms, etc. Once that is done, there are few problems. From the point of view of scientific work, the essential thing is to have results that interest foreign colleagues. This is achieved with a lot of dedication, a bold attitude and a little luck.

7. In the field of philosophy, we are sometimes asked about what practical contributions the

discipline gives to the average citizen. You have a book, co-authored with Richard L. Epstein, called "Critical Thinking: The Power of Logic and Argumentation." Can we say that the logic applied to argumentation is one of the most significant contributions of philosophy to non-philosophers? Tell us a little about the importance of logic and argumentation to the general public.

Informal logic applied to argumentation theory is indeed a major contribution to rational thought. To philosophize is basically to argue, and the logic used in the critical thinking operates at the level of natural language. From there the student matures to understand the symbolic language of formal logic, and sophisticated philosophical arguments such as Descartes' Cogito or Socrates' Apology.

But for the general public, notions of argumentation are vital. This is the only way to defend against conspiracy theories like the flat Earth, or against the idea that human activity is not responsible for climate change. False flat-earth "theories" can be refuted by simple trigonometry or basic physical laws, but people need to learn how to assemble their arguments. Another key aspect nowadays is how to defend yourself against fake news. The recent fourth edition of "Critical Thinking: The Power of Logic and Argumentation" (Editora Rideel, 2019) brings a chapter devoted to this, which is nothing more than a compilation of the major pillars of argumentation particularized against social media abuse.

8. Still on practical applications of philosophy, it is well known that you and others Brazilian philosophers play a key role in the development of paraconsistent logics. Could you discourse about some practical applications of Paraconsistent Logic?

Contradictions often occur in everyday life. We often find out that we have inconsistent beliefs, or make inconsistent claims, and we are always subject to contradictory information. Thus, the care to identify contradictions and avoid the trivializing explosion becomes highly relevant in databases, discourse analysis, evidence-based medicine, Big Data, etc. Recently, we counted 70 foreign scientists outside well-known philosophical circles proposing applications of Paraconsistent Logic in linguistics, engineering, computing, machine learning, quantum physics and probabilities, among other fields.

9. Do you see in logic any special role within philosophy? Tell us a little about what most fascinates you in the field.

In my opinion, and this is a central theme in my investigation, logic in the broadest sense is a tool of

reason. From this perspective, the role of logic in philosophy is clear. When we study multivalent logics, fuzzy logics, paraconsistent logics, new probability theories based on these logics, new proof methods for these logics, or new paradigms of argumentation based on alternative logics, we are investing in our arsenal of rational methods.

10. Do you have any perspective on the future of philosophy and logic in Brazil? What are the trends? What to expect? And what should we do to build a good future?

The future of philosophy, logic and the humanities in Brazil, unfortunately, is hopeless. In a society that sees no alternative but to choose rulers who hate knowledge, who despise rationality in favor of speeches made to please their entourage of followers, who do not care to divide the country, there is no place for enlightened thinking. This is reflected in the policy of cutting research funding, dismantling funding agencies, and supporting obscurantist religious beliefs. We are entering the Dark Ages diffused by Twitter, Instagram, YouTube and Facebook. It's up to logic and philosophy the role of resistance.