

## **Logic and Philosophy in the Century That Was**

It is a great pleasure to write in honour of Georg-Henrik von Wright. We met around 1980, when he came as a distinguished visitor to the philosophical institute in Groningen, where a Dutch student defended a dissertation on von Wright's intellectual Werdegang. The student had carried his enthusiasm to what some might consider extremes, by also learning Finnish and marrying a Finnish lady. But our visitor turned out to be a modest and highly accessible person. I recall that, when praised for starting the famous Finnish school of logic, he merely said: "Oh no, I did very little. I just taught Jaakko Hintikka".

Von Wright's address makes many points which I would consider 'received history', but of course, lucidly and intelligently. He describes how modern logic came to influence modern philosophy in stages, through the foundations of mathematics, the widening of this methodology in the Vienna Circle, and finally the flowering of analytical philosophy, backed up by developments in philosophical logic. He also notices how this is the third time that logic entered philosophy concomitantly with a linguistic turn stressing the role of language in thinking – which fits the logical junction of 'structure' and 'language'. These are the still melodious strains of the great classical symphony of our golden age.

But then dissonants appear in the score, and Von Wright starts questioning the lasting value of all this. One is that successful logical theories move away into other disciplines: mathematics, computer science, cognitive science, or linguistics, leaving philosophy behind. As Austin once said: "Philosophy gets kicked upstairs". Or, in the words of my colleague Theo de Boer in Amsterdam around 1970, when ideological disputes reigned supreme: this is the 'left-overs view' of philosophy, where they can study the scrapings when the meal has gone. And even if this parting does not happen, it might just be that logic has played its role in clearing up the philosophical issues that were important in the past - or maybe these issues have just gone out of fashion. But there is absolutely no reason to think that it will be called in again to play the same role with the philosophical agenda of the future. Indeed, Von Wright thinks that it will not, in the 21<sup>st</sup> century.

Many academics see red at once when their utility and historical role is called into question. People collapse with anger over John Horgan's "The End of Science" – of course without having read his intelligent analysis and the facts he cites for his thesis. But I myself have no problem with devastating self-criticism and feelings of gloom. I find a lot of claims I hear about the Long March of philosophy and the sciences very naïve, and driven by the same sort of unthinking historical optimism that leads people to believe that things will just get better all the time: old Europe and America will (of course) remain rich and influential, other cultures just join in, and the family gets ever larger and happier. To be sure, I have nothing against such scenarios: they just do not seem very likely to me.

But *will* logic go down? Can substantial intellectual disciplines disappear? In the past, some have indeed come close to extinction. Steven Toulmin pointed out the fragility of mathematics in Antiquity, carried by just a few hundred people at the best of times. One century of darkness, and the continuity is broken. A witty Dutch historian of logic even said: "One good old-fashioned winter, and philosophy in The Netherlands is over". Yes, all this is possible, but it is not likely. Many social mechanisms are operative today that did not exist before: a web of funding processes, Ph.D. programs, tenured appointments. Appoint one young logician, and a university is stuck with the field for 40 more years. Also the organizational power structure of academia is conservative: it is hard for new disciplines to get in, and even harder for insiders to be kicked out. Please note, I am not saying that all this is good! In this organisational setting, academic fields can be active and powerful long after they are brain-dead. I long for some Darwinism sometimes.

These were generalities. Now for my more concrete views about logic and philosophy. Let me start with some 'negatives' in Von Wright's account that I agree with, perhaps even more so than he himself would have wished, being the cautious and considerate gentleman that he was. I will speak apodictically in what follows, but these are critical points I have made on various occasions, so my bridges are burnt anyway...

Yes, the grand foundational inspiration for logic and philosophy is largely over. Yes, one often does not notice this because old agendas are being rehashed for decades, piling comments on comments in the way of Antiquity, in boring inward-looking manners.

What is even worse is the historicizing remnant, in some circles, of foundational research that I call ‘fundamentalism’. Instead of thinking about new agendas, people preach a return to the past. As against this I say, if logic is to survive, we need something new.

More bad news! Yes, logic is under pressure, and that in many fields simultaneously. In philosophy, the heigh-day of philosophical logic is clearly over; in computer science, the momentum is with algorithmics rather than semantics; in cognitive science, the old logical-computational paradigm seems largely irrelevant to brain-centered neuroscience; in linguistics, corpus-based computational and statistical methods have dethroned formal semantics, and so on. Of course, this does not mean that logic plays no significant role in these fields today: but it is a diminished role. Even formal philosophers who work with mathematical tools will often turn to statistics, decision theory and game theory these days, rather than logic, for their conceptual analysis. The Queen is now a Concubine.

And to complete this litany of woes, yes, a lot of logic work done and published today is mathematical industry at best, devoid of larger intellectual significance.

But so what? Most of what I have said so far holds for many disciplines, who develop inevitable bouts of agenda inertia, and who periodically find themselves in tight spots under academic competition. But tight spots are not necessarily lost wars. Indeed, I think that, when we face the facts in the above frank manner, without the self-serving ‘Horgan Reflex’, we will see more encouraging signs than those that Von Wright pointed to.

First, I feel that Von Wright’s ‘philosophical history of ideas’, familiar as it sounds to those of us who were brought up on this line, gets the facts wrong, while also using the wrong literary metaphor for the relationship between logic and philosophy. In his story, abandonment is for good: the prodigal son leaves, never to return. But the historical realities are much more dynamic and interesting than that. My chapter in the *Handbook of the Philosophy of Logic* shows this for seven key themes at the interface, including conditionals, compositional semantics, epistemology, and so on. Crucial insights often arise within philosophy, perhaps with the help of logical tools, then they migrate into other academic fields, then they return to philosophy, and so on. For instance, the study

of conditionals from the 1940s until now runs from the philosophy of science to philosophical logic, then into artificial intelligence, computer science, and nowadays also cognitive science, and then back into philosophy. Or, epistemic logic started around 1960 in philosophy, then made its way into computer science and economics, and it is now returning to philosophy in various innovative manners. I see all this as befitting the position of philosophy at a cross-roads of academic disciplines: one leaves, and one returns. I do not have the space here to back up the above points, but I will just say this. The true history of the relationship between logic and philosophy in the 20<sup>th</sup> century remains to be written. And it is not Von Wright's.

My second point concerns the 'new agendas' and competitors that would threaten the role of logic in philosophy. Shudders have run through the community from time to time, say, when Kuhn and others started introducing historical and social accounts of the actual functioning of science. When ephemeral beliefs, power, 'social construction' and gossip come in through the front door, it is time for logic to leave... But is it? In reality, many of these challenges have turned into substantial and successful agenda items for logical study. Belief revision is now an established area of logical research, and multi-agent interaction is even at the heart of logic, according to some. In other words, the challenge provided a much-needed push to the logical agenda, upsetting old internal equilibria, and creating room for new topics. And the same points can be made for other 'challenges': brain function and neural nets lead to default logics and conditionals, and the success of probabilistic methods leads to new merges of logical and quantitative methods which may add a whole new dimension to our current understanding of logical systems. If these challenges did not exist, we would have to invent them!

Of course, the preceding two phenomena: transdisciplinary migrations and responses to challenges do change our conception of what Logic is. *Which discipline* is it that survives this whirlpool of events? Surely, there is no contemporary consensus on that. Von Wright states the traditional view of logic as the study of reasoning, though he adds the analysis of language, meaning and concepts as a second, not necessarily reasoning-centered item. In my own view, modern logic will only come into its own if we view it as a general study of informational processes and intelligent interaction, moving on beyond, though

building on the earlier foundational phase. But that is just to put my cards on the table. The only point here is that I would not hold such views if our history were over...

My final point of disagreement with Von Wright is the way he presents the partnership between logic and philosophy. To me, 'clearing up of confusions' is an uninspiring, and when used by others, a condescending image of a field. Moreover, letting logic help in just that echoes the role of a logician as a lawyer (Arthur Prior's famous analogy), or maybe a CIA advisor in more unsettled times. They come, clear up something at best, then leave. In my view, the true relationship is *symmetric*. There are natural conceptual questions in philosophy, and logical tools are one useful way of approaching these – in addition to other mathematical tools, linguistic analysis, and just plain common sense. Moreover, logical systems provide a sort of conceptual laboratory where one can play with philosophical ideas in some isolation from the true complexities of life, find new notions, input these into the philosophical discussion, and so on. Moreover, when logicians start doing research on the 'automatic pilot', merely producing formal systems and meta-theorems, it is often philosophers that ask the conceptual questions that breathe some life into the machine again. Thus, philosophers and logicians are partners!

My optimistic conclusion. Peel off the crust of fossilized research agendas, give up the 'standard grooves' of interpreting the field of logic, look at what really happened between logic and philosophy in the 20<sup>th</sup> century, and there will be much more light at the end of the tunnel than you would think. There may not even be a *tunnel*...