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Commentary on: Marcin Koszowy's "Polish logical studies from an informal logic perspective"

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I think Professor Koszowy is quite right to see significant similarities between the Lvov-Warsaw school of philosophy, founded in Lvov by Twardowski at the end of the nineteenth century, and the informal logic movement. (At this conference, I wouldn't dare to suggest where, when, or by whom the latter was founded.) The idea, however, comes at first as a bit of a surprise. This is because the Polish school is so much better known, at least outside Poland, for its formal logicians.[1] And yet, as Professor Koszowy indicates, there was much more to the school than formal logic, including substantial contributions to philosophy of language, philosophy of mind, philosophy of science, and even aesthetics. Moreover, they took a very wide view of what constituted logic and, this, together with their insistence on clarity and precision, and their promotion of logical thinking, "the practical ability to think correctly", as Ajdukiewicz (1965, p. 1) put it, the Lvov-Warsaw school had a lot in common with the informal logic movement.

Moreover, like the informal logic movement, the members of the Lvov-Warsaw school pursued these ends in a wide variety of different ways. As Wolenski (1989) repeatedly emphasizes in his excellent history of the school, it was not held together by common doctrines. The school exhibited what Wolenski (1989, p. 5) nicely calls a "philosophical minimalism" and took a piecemeal approach to philosophical problems. The philosophical work of the school, Wolenski writes, "did not center on fundamental philosophical assumptions, but dealt with concrete problems and solutions" (1989, p. 304). Nor did it share a common set of methods but rather a common set of values, including "the requirement of clarity, intellectualism, interest in logic and logical analysis ... [and] anti-irrationalism" (Wolenski, 1989, p. 304), the demand that philosophy "should be clear and logically responsible" (*ibid*.) and that philosophy should impart "above all a clear and critical way of thinking" (Wolenski, 1989, p. 5). These the school surely shares with the informal logic movement.

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[1] Z.A. Jordan (1963) in fact suggests that there were two separate schools: a Lvov school of philosophy and a Warsaw school of logic. I am in no position to weigh in on this dispute, but I am happy to go along with Professor Koszowy's contrary view. And I note that Jan Wolenski (1989, pp. 305-6), probably the school's most distinguished historian, argues against Jordan's view.

But Wolenski also includes in his list a number of broad philosophical positions commonly held by members of the Lvov-Warsaw school - e.g., epistemological realism, the classical conception of truth, and intentionalism in psychology. On these, I think, there would not be universal agreement among informal logicians. But we have to be careful not to compare apples with oranges. The Lvov-Warsaw school was a group of philosophers working on a wide range of philosophical problems using a variety of methods which emphasized precision, rigour and clarity. The participants in the informal logic movement no doubt have equally wide interests, but as members of the movement their interests are restricted to the issues we bundle under the label "informal logic". Yet it is not correct to say simply that the Lvov-Warsaw school used the methods that the informal logic movement studies, for most members of the Lvov-Warsaw school spent a great deal of time thinking about and developing their methods and some were almost exclusively concerned with such matters. These methodological issues they tended to study under the broad heading of "logic". The narrowing of that term, of which Ralph Johnson complains (Johnson, 1996, p. 79), had not taken place when the Lvov-Warsaw school flourished between the wars. To try and summarize a pretty complicated situation, what held the Lvov-Warsaw school of philosophy together was a set of values having to do with logic in a broad sense and these were values which it shared with the informal logic movement. This, I think, is the core of Professor Koszowy's claim, and I think it is correct.

A case in point is Ajdukiewicz's posthumously published *Pragmatic Logic* (1965). The English title is misleading: it has nothing to do with pragmatism, the intended sense is rather that of a "Practical Logic", logic intended perhaps for everyday use, but especially for use in the sciences.[2] The emphasis on science, which was widespread among the members of the Lvov-Warsaw school, is an important difference with the informal logic movement, which has given surprisingly little attention to reasoning in science let alone scientific methodology.[3] Ajdukiewicz's book grew out of a pre-war booklet called *The Logical Foundations of Teaching* which was intended to teach logic to teachers. Ajdukiewicz later described the booklet as providing "elementary information about logical semantics and scientific methodology, information which in my opinion was necessary as a foundation of teaching and as an element in the education of any teacher" (1965, p. v). The subsequent book serves a similar purpose and covers the same material but at much greater length and at a more advanced level. Ajdukiewicz's main organizational principle is a distinction between deductive and non-deductive sciences, with the latter getting by far the larger share of attention. The book is divided unequally into

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[2] Because it has this specialized purpose *Pragmatic Logic* is perhaps best compared, not with a general text on informal logic, but with specialized critical thinking texts such as those directed at physicians (Jenicek & Hitchcock, 2005) or lawyers (Walton, 2002), or better still at science teachers (if there is one).

[3] I think the relative neglect of reasoning in science by the informal logic movement is not only surprising but regrettable. There is a considerable area of overlap, largely unexplored, between informal logic and philosophy of science and science is full of arguments which deserve the informal logician's attention.

three parts: the first deals with language. But in addition to the usual basic material one might expect on semantics there are also chapters on vagueness, definition, and questions. Part II is on inference, but with a much greater emphasis on non-deductive inference than deductive. Part III is longer than the first two parts together, and deals with the deductive and inductive sciences. Again the emphasis is on the latter, with long chapters on measurement and statistics. The disproportion would no doubt have been even more pronounced had the book been completed; for Ajdukiewicz planned to add chapters on explanation and theory construction in the empirical sciences. In terms of coverage and balance the book more resembles Mill's *System of Logic* than it does any contemporary logic text (although, of course, it lacks Mill's hard-core commitment to empiricism).

One thing that the book makes apparent is that the distinction between formal and informal logic does not coincide with the distinction between deductive and non-deductive logic. Ajdukiewicz treats deduction informally, and statistical reasoning relatively formally. And this provokes a further thought and then a moral that I want to draw and then to illustrate. The thought is this: that "formal" and "informal" are not exhaustive terms: they represent points in a continuum. They are not even end points: absolute formality and absolute informality are states that are never achieved (and only confusedly desired). Some formal logic texts are more formal than others, and so, too, are some informal logic texts. Moreover, the distinction between formal and informal is not a distinction in subject matter, but in the way it is treated. What has been treated formally can always be treated informally (or less formally). But the converse fails: there are many things that we do informally that we don't know how to do formally (or more formally). A corollary of this is that the formal and informal approaches are not incompatible. Obviously, different people have different interests and different abilities, but many philosophers have used both successfully. Tarski's *Introduction to Logic and to the Methodology of the Deductive Sciences*[4] is a relatively informal book (compared, say, to Mendelson's *Introduction to Mathematical Logic*), though Tarski was evidently a great formal logician. One does not need a full axiomatization with model-theoretic semantics for all purposes, though for some purposes one does.

The moral I would like to draw from this is that it is a mistake to shun either approach, when pursuing the sort of broadly logical projects that animated the Lvov-Warsaw school and which are now pursued by informal logicians. And I would like to suggest that, in part at least, the great success of the Lvov-Warsaw school was that it embraced both - despite the apparent hostility of its founder to formal logic. I have not been able to find a copy of Twardowski's amusingly titled "Symbolomania and Pragmatophobia" so I am not entirely sure what he was objecting to. Two possible targets are suggested by Professor Koszowy's paper - a concern for symbols without a concern for what they symbolize and a failure to give an adequate account of cognitive processes - but neither of these is necessarily an objection to formal logic itself. The former might be an objection to formalism rather than to formal logic. The latter would be to condemn formal logic for not doing

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[4] The full title of Tarski's book again reflects the scientific interests of the Polish school.

something it had never been intended to do: one should no more blame formal logic for not explaining the workings of the mind than one should blame a brewery for not making bricks.

I want to end by giving an example where combining the two approaches produced something quite remarkable and certainly well ahead of its time, namely Stanislaw Jaskowski's 1948 discussive logic (Jaskowski, 1948, 1949). Jaskowski was interested in arguments, not in the formal logical sense of drawing conclusions from premisses, but in the ordinary sense of discussions and in particular of disagreements. In this, it is evident that his concern was entirely of a piece with the concerns of many informal logicians.[5] But he faced a considerable problem in providing a logical representation of disagreements, for it is of the nature of disagreements that the participants do not agree; that is, what is asserted by one participant is denied by another. It is notorious that when a proposition is both asserted and denied in a system governed by classical logic, the system explodes and becomes trivial in the sense that every proposition is a thesis of the system. In such a case Jaskowski said that the system was "overfilled". His problem, therefore, in representing discussions was to find a propositional logic which could be applied to systems containing both A and 5A without the system becoming overfilled and which would allow ordinary reasoning to take place in the system.

Jaskowski's ingenious solution was to model the discussion in the modal logic S5. He introduced a sentential operator "d" such that "A^d" read "it is asserted by one of the participants that A" and treated "d" as if it were the S5 possibility operator. Thus the assertions of each participant in the discussion were treated as the propositions that were true at some world in an S5 model M. Thus A was said to *hold in the discussion* if A was true in some world in M. Since A may be true in one world but not in another, it follows that both A and ¬A may hold in the discussion. Thus Jaskowski has a logic which allows both A and ¬A to be asserted in a discussion. Moreover, the discussion does not become overfilled as a result. For suppose an S5 model M in which A holds at world w and ¬A holds at w' but B does not hold at any world in M. Then both A and ¬A hold in the discussion, but B does not hold in the discussion. So Jaskowski starts with a problem that we associate with informal logic rather than formal, and ends up creating an early paraconsistent logic.[6] The result is a bit clunky, since modal logic is not really a suitable base for the project. For example, *modus ponens* fails in discussive logic for material implication ($\{\Diamond A, \Diamond(A \supset B)\} \vDash \Diamond B$ fails in S5) and Jaskowski has to define a new connective, discussive implication $(A \supset_d B =_{df} A^d \supset B)$ for which it holds.[7] But discussive logic

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[5] It is worth noting that, in keeping with the strong interest of the Lvov-Warsaw school in science, Jaskowski was also concerned with the occurrence of contradictory hypotheses in the sciences (and also with Marxist treatments of contradiction). See Wolenski, 1989, p. 137.

[6] Not quite the first, that honour goes to the Russian mathematician Ivan Orlov who, astonishingly, axiomatized the relevant logic R in 1928 (Orlov, 1928).

[7] It is worth noting that discussive logic is not a relevant logic. Since there is no world in any S5 model where A ∧ ¬A holds, the inference {A ∧ ¬A} ⊨ B is valid in discussive logic. Instead adjunction, {A, ¬A} ⊨ A ∧ ¬A, fails. Again, Jaskowski gets around the problem by defining discussive conjunction, $\wedge_d$, $A \wedge_d B =_{df} A \wedge B^d$ (or $=_{df} A^d \wedge B$) for which adjunction holds.

is an important advance which took the rest of the world another ten years at least to improve on and is a striking vindication of doing what the Polish logicians were so good at: combining formal with informal logic.

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