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Report on the manuscript
Logical Pluralism from Historical Perspective.

To the Chairman of the Examination Committee,
Dr Vladimir Svoboda

The manuscript that has been submitted by the author Pavel Arazim, hereinafter A, comprises 179 pages, and is divided into nine chapters, out of which seven are substantial, and, out of those seven, six are mainly historical.
A is concerned to investigate the role, purpose and possibility of pluralism in LOGIC.
Does the conception of *rival* logical systems make philosophical good sense?
To this end he offers us a series of essays on Kant's logic (in Chapter 3), where the historical parallel with geometry is first adumbrated, and then elaborated. A stresses rightly that Logic for Kant was something else than it is for us, especially in that Kant still used logic in its traditional guise of Aristotelian S/is/P judgments. Issues about the usefulness of logic are raised, and contrasts with Frege's views are introduced. The author's exposition is useful for the modern reader, and his views are to some extent borrowed from the dissertation of John MacFarlane. Already in this chapter also a connection the themes from Wittgenstein's *Über Geweissheit* emerge and Quine is mentioned in connection with analyticity and (w)holism, which latter topic l forms the subject matter of Chapter Four. In this chapter theories of Quine, Frege, and Michael Dummett are contrasted and spelled out and Austinian speech act theory, especially in the later guises of Robert Brandom and the teacher of A, Jaroslav Peregrin is discussed. To this rich chapter belong also treatments of logical constants, and the demarcation of logic and logicality via a demarcation of logical constants. A also demonstrates mastery

of some technical aspects of mathematical logic, to wit the theory of embedding's of intuitionistic logic into modal systems.

The demarcation problem sets the agenda for Chapter Five in which the geometrical theme, but now regarding Felix Klein's Erlangen programme, rather than non-Euclidean geometry, is interestingly deployed, with respect to the model theoretic approach of automorphism invariant from Tarski, Mostowski, Sher and others. The criticisms and caveats offered by A of the model-theoretic method's demarcation are well taken. This area is already rich and complex and A. does a nice job of spelling it out and making clear, for instance, the contrast between Gila Sher and Feferman, and taking into account also the technical results Vann McGee. However, I do miss references to other relevant works, for instance Dag Wesrståhl's early doctoral dissertation [1976] from Gothenburg which to a large extent covers the work of the much later doctoral dissertation of Sher [1989!], as well as Peter Simons' fine study 'Bolzano, Tarski, and the Limits of Logic' in *Philosophia Naturalis* from 1987, which is especially relevant to the work of A, and the later work of Westerståhl and Denis Bonnay, which perhaps, remains the last word on the technical aspects of the subject. .

The very rich Chapters Six and Seven constitute the main body of the dissertation. Here A works his way to discussing the works of Brandom and Peregrin on inferentialism. He finally also tells us what Logic is: 'the science which examines the rules that we must obey in order to be reasoning at all' (BL, p. 101) and the proof-theoretical theme that is adumbrated there with respect to inferentialism is worked out in chapter seven, taking into account works by Brandom, Peregrine, Hacking, Kosta Dosen and others. In 7.2 in a lengthy quotation from Brandom we get the explanation for A's mode of proceeding. He like Brandom transforms the question: what is logic? Into the question: how do we demarcate logical constants? One may wonder with respect to these chapters why the natural deduction approach of Michael Dummett, Dag Prawitz, and, especially, the meaning theory of Per Martin-Löf, has been left out of consideration.

In his chapter Eight A finally ties together his themes by first adhering to monism:

Logic is a system of concepts for making rules of inference explicit, and then allowing for *development* of (or ***in***?) concepts, which leads to a *logical dynamism*: there are many logical systems on the market and hence there are many ways in which development can take place. And herein, for A, lies the secret of a viable pluralism.

The manuscript as a whole bears witness to considerable erudition as well as wide-ranging knowledge in the history and philosophy of logic. Thus, each of the historical essays reds well on its own. The bibliography is a reasonably full one. One may, of course (! We are, after all, philosophers…) quibble with individual points in the various chapter essays, but that is rather for the defence, but not for the report.

The sole weakness of the manuscript concerns it cohesion. As A himself notes on p. 172 in his Chapter Nine which covers only a third of a page: 'The links between the parts could have certainly been rendered more clear.' He is certainly right there, but, in fact, I think that A is also right that such cohesion is there to be found. However, it takes considerable effort on part of the reader to find and discern it; dare I say to "make it explicit"?

Reading the chapters in the *opposite* order from which they are presented would help, or at least would have helped *this* reader: begin with 6 and 7, and go back to the treatments of chronologically earlier topics from there, would yield an exposition that may be easier to follow.

I wish to make a few comments that might be of use for the author, if and when a published edition is contemplated.

(1) We are treated to *LOGIC*, *logicS*, *logical SYSTEMS,* and *logical THEORIES*, as well as *logical CONSTANTS*, and discussion of these variants takes place without careful elaboration of their interconnectedness, **if any**, and without it being clear that discussion of logical systems are relevant for a demarcation of LOGIC.

(2) The difference between inference and consequence is ignored; for a discussion of Frege this will lead to problems since (logical) consequence is a notion that does not occur in his oeuvre, nor for that matter does logical truth appear there.

(3) The watershed metamathematical turn around 1930 could be used as a red thread: prior to 1930, the formal (and other) languages of logicians were contentful and one demonstrated theorems, say of mathematics in the systems. After the metamathematical turn the formal languages become "object languages", that is, objects of study only.

The manuscript uses a number of similar lines of thought ("red threads") to provide stability and cohesion, for instance, analogies with changes in the conception of geometry (non-Euclideanism, Erlangen project, Kant), or interesting observations from Wittgesntein's *Über Gewissheit* with which the text is larded throughout.

The points (2) and (3) suitably deployed might provide the author with further such anchor lines for his presentation of historical material (and might as well lead to interesting chapters in their own right).

In spite of these cavils, my overall impression is positive: the author has documented a wide knowledge of the philosophy and history of logic and contributes worthwhile observations on matter of detail throughout the manuscript.

Accordingly my answers to the three questions I have been asked to answer are uniformly positive:

(1) Does the work meet the standard customarily required for a doctorate **YES**

(2) Do I recommend the dissertation be admitted to a public defence? **YES**

(3) I do propose the grade **PASS**.

Yours faithfully

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