and it's false that

Some [presently existing] x is such that Alexander rode x

and there's not much in Rybaříková's exposition which would help the reader see that, appearances to the contrary, Prior isn't inconsistent here, or that the reader should be confused because Prior, at least it in her view, is inconsistent.

Aside from these drawbacks, someone looking for a general overview of Prior's views on some fundamental logico-ontological issues, especially in relation to the thinkers mentioned above, as well as the nuts and bolts of some logics for which Prior was either an important innovator or sole inventor, will find it in Rybaříková's book.

Derek von Barandy

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Zuzana Rybaříková: *The Reconstruction of A.N. Prior's Ontology*
Univerzity Palackého v Olomouci, 2016, 134 pp.[1]

The study of Zuzana Rybaříková is presented as predominantly an historical work. It is mainly focused on ontological ideas of Arthur Prior. She tries to discover some influences and to trace Prior's ideas in debates with those contemporary thinkers that had significant impacts on his development. Her particular interest seems to be in Prior's connections with members of Lvov-Warsaw school.

[1]   ✉   Vladimír Marko

Department of Logic and Methodology of Sciences
Faculty of Philosophy, Comenius University
Gondova 2, 814 99 Bratislava, Slovak Republic
e-mail: vladimir.marko@uniba.sk

The study on Prior is divided into four sections: a character and origins of the concept of possible world; a way of handling non-nominal approach to quantification and interpretation of various prefixes as quantifiers; an interpretation of the concept of proposition; a comparison of the concept of names to the concept of individuals.

In the opening part of the work, Rybaříková tries to situate some basic assumptions at Prior's philosophical background. An appropriate definition of nominalism that could be ascribed to Prior, according to her, consists in complete denying the abstract entities. The idea is based on a distinction taken from *Objects of Thought* (Prior 1971, 3: "an object of thought is 1) what we think or 2) what we think *about*"). The position is further identified by Simons' fourfold demarcational definition and diagnosis of nominalism in Poland. Although this demarcation is usual, this idea was frequently criticized (see, for example Hugly & Seyward 1996, Ch. 2). Another basic point is Prior's nominalistic approach toward intensional logic and systems of modal logic – it consists of his denying the real existence of *possible worlds* and *possibilia*. The last point is his defence of presentism (Prior 1968, Chs. 1 & 12; 1970). It is here interpreted as a position linked with temporal realism – the conception that enables him quantifying over objects that are not present. This last formulation is only briefly exposed and seems to need some further elucidation for its stronger cogency.

Chapter 2 – devoted to possible worlds and time instants – ascribes sources of some Prior's ideas (following Suszko's interpretation) to Wittgenstein: possible worlds consist of propositions while world-proposition contains a conjunct of true propositions about the world. The development of formal systems of Prior is related to influence of Łukasiewicz and to his known attacks on determinism. Prior was well acquainted with works of Łukasiewicz. Soon after Łukasiewicz's death Prior took part in work of Meredith, Łukasiewicz's student who tried to formulate newly introduced values dealing with contingency and truth in a world alternative to the actual one. The criticism of Meredith's results on Łukasiewicz's work and some recognized outcomes of the three-valued logic later enabled Prior to independently develop his own systems of logic abandoning many valued logics. This step corresponds to his study on themes from history of logic and on discussions related with Diodorus' *Master Argument*. Here, for the first time, he explicitly expressed the connection between time and modality. Rybaříková's discussion of this issue consists of a too brief sketch of his ideas – there are many places Prior devoted to the defence of his conception of contingency and he frequently analysed the theme in his works with due care (for example, chapter 13 of his 1968), and he sometimes called these systems a (modal) logic of contingent existents.

According to Rybaříková, while Prior takes possible worlds useful as a tool, he never fully elaborated on the problem of the nature of non-existent individuals and the definition of possible state of affairs. For him, these questions remain open. Later, under the influence of Kripke and in accordance with his own indeterministic orientation, Prior introduced the concept of possible world in connection with the branching time structure with fixed past and open future. As it is known, the idea was based on recent researches that led to a structure expressed by Hamblin's lattices. Further development of temporal calculus in the book is characterized as corresponding to McTaggart's A- and B-series, respectively – where A-logical systems are related to his *presentistic* representation of time while U-calculus (*l*-calculus of *later than*) relates to B-series. Reduction of B-logical systems to A-logical systems of K_t led to some sort of hybridization of modal logic extensions, where a new sort of propositional symbols, called nominals, are linked to exactly one point (the idea should be ascribed, according to Rybaříková, p. 39, to an impact that came from Łesniewski's *Protothetic*).

Chapter 3 is devoted to Prior's theory of quantification. Here, modal, temporal and some other types of operators should be interpreted as quantifiers. The chapter consists of a longer introduction related to the confrontation of Quine, Ramsey and Łesniewski on nominal vs. non-nominal interpretation of quantifiers and of the questions regarding existential import, ontological commitment and *Barcan form*. Prior's response to the debate is characterized by attempting to make visible the distinction between existent and non-existent entities by introducing different kind of variables.

Chapter 4 is devoted to the ways Prior dealt with the notion of proposition. The influence of Ramsey and an inspiration taken over from studies on history of logic (especially Mates' accounts regarding Stoics logic and the logic of some medieval authors) inspired him to restate some of Quine's thoughts and take into consideration an ancient idea that the truth value of proposition is not fixed and can change throughout time (Prior 1968, Chs. 1, 13). Unlike Frege (interpreted here as adopting an indexical theory of proposition in which each sentence is unique regarding the circumstances of its utterance), Prior held, according to Rybaříková (p. 73), that the sentence is the same regardless of the circumstances in which it is uttered. Similarly as in the previous chapter, she tries to situate Prior's position in comparison with Frege's theory of propositional attitudes, Quine's rejection of intensionality and Ramsey's predicate analyses of proposition. Prior, preferring Ramsey's approach, held that a proposition is a logical construct and, at the same time, he criticized the view that propositions are genuine objects independent of the human mind. Rybaříková's final debate on his position that he left unelaborated and seems to be far from consistent is based exclusively on his posthumously published manuscripts *Object of Thought.* The

genesis of his opinions and some of his confrontations regarding the subject, however, could be found in many other places (for example in the opening parts of his posthumously published *The Doctrine of Propositions and Terms*).

Chapter 5 is devoted to Prior's notes on names and individuals mainly with respect to his studies on tense logic. The introductory part considers Russell's and Łesniewski's ideas on the subjects as a starting and explanatory point for forming Prior's own position exposed especially in his System Q (Prior 1957, Ch. vii) – consisting of the Russellian ΣT_1 (that admits logical proper names only for objects that have present existence), ΣT_2 (where any expression that makes a statement at any time makes a statement at all times) and ΣT_3 (that emphasizes difference between *the strong 'the'* and *the weak 'the'*, as proposed by Łesniewski (Prior 1957; Ch. viii)). The difference between these systems is exposed mainly with respect to Russell (and his differentiation between the definite and the indefinite article) and Łesniewski (with respect to the article-free use in Polish language, since he does not retain this difference, leading thus to different sorts of understanding of the verb "is"). The discussion continues with comments on Prior's rejection of some theorems of modal and predicate logic – with his interpretation of the *Barcan form* and with some peculiarities of the systems included in Q with respect to his temporal ontology where some problems arise in intensional interpretation of ΣT systems. For Prior, an advantage of Q could be obtained from ΣT_3 where some specifically defined individuals could be appropriately and successfully identified even in intensional context. The system was never fully axiomatized by its author, although he developed and improved some of its aspects in his latter works. The sub-chapter on *identifiable individuals* (and on Wilson's question "What would the world be like if Julius Caesar had all the properties of Mark Antony and Mark Antony had all the properties of Julius Caesar?") deals with Prior's comments related to the difference between truths about individuals that are *necessary* and those that *already happen* or are *possible with respect to some time while with respect to some other time impossible* (in the sense of unalterability of the actual state of affairs). The topic is further discussed in the following sub-chapter *Opposite numbers* in which epistemic reasons and the non-existence of two alternatives precludes us to comply with the future identity in the same way we deal with the actual one.

The book ends with a short concluding remarks. At this point, we would expect summarizing accounts related to the basic theme of book, namely the reconstruction of Prior's ontology. It is certainly hard to systematically grasp some work that is left unfinished by its author but some key points or concluding remarks related to the genesis of his opinions would be naturally expected.

There are redundant references at some places (an example is on p. 23: "in further section", "in further part"). Furthermore, the footnotes are hard to follow since they are printed in extremely small and paled font.

The assumption in the background of this work is that the reader is already acquainted with Prior's logical and philosophical contributions to some extent. However, although his texts are provocative to modern reader and are written in a quite stimulating manner, Prior is not so frequently discussed an author (this is usually explained in terms of his preference of the Polish symbolic notation). Given this, there was an opportunity to write this book for less informed readers; in such a case, however, many places in which technical aspects of Prior's systems are analysed should have been exposed in more details for the sake of transparency of his ideas and better readability of the text. Prior communicated with many persons of his age and was involved in many debates with those whose results have marked the development in many areas in logic and philosophy. Since the book is presented primarily as an historical study by reflecting mostly a dominance of Polish influences on Prior's work, it partly ignores some other important discussions in which Prior was involved and other influences that deeply or substantially affected him.

Beside the last remark Rybaříková's book is a rare and worthy attempt at throwing some light on thoughts of the philosopher who deserves our attention since in many realms he marked his own epoch and strongly influenced contemporary logic and philosophy.

Vladimír Marko

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