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I would like to present *Articulating Medieval Logic* as the outline of a research program for medieval logic scholars. The book can be seen to belong to the first stage of a huge project: a serious attempt at considering together two different logical paradigms (the 'medieval' and the 'post-Fregean'), in the belief that they are comparable. The first stage, represented here, is the development of an artificial language that can translate both, and (accompanied by the corresponding semantics and deductive apparatus) can act as a medium for comparison.

Although the book might be used as a way of introducing medieval logic to non-experts (more specifically, to non-experts with a preference for contemporary formal techniques), it might rather be seen as a way of offering medieval logic scholars (more specifically, medieval logic scholars with an interest in contemporary formal techniques) a tool of analysis that is adapted to the peculiarities of the medieval way of doing logic. In fact, by using this tool in his own research, the author intends to show the systematic character of the medieval logical tradition (p. 1).

Of course, medieval logic is too vast and complex to be articulated as a whole. The author purposely ignores 'differences and disagreements' (p. 4), bases his work on published (and, mostly, translated into English) materials (p. 4), and selects a group of outstanding Western European figures (from Peter of Spain to Paul of Venice, or a bit further, to John Major in the Appendix) to illustrate his points (p. 5). But it is the adoption of the point of view of syllogistic doctrine that imposes the main restriction: many of the developments characteristic of the *logica modernorum* (sophisms, exposition, obligations, insolubles, etc.) are

intentionally left aside (p. 5).

The articulation offered in this book contains: a) a language of logical forms provided with translating algorithms (Linguish); b) a semantic apparatus for this language, which contains both interpretation for expressions and truth conditions for sentence-forms; c) a rule system for categorical syllogisms.

a) Concerning language, the lack of variables to express quantification is the main shortcoming of the logical language developed by medieval logicians. The artificial language proposed by Parsons borrows from modern linguistics the devices for incorporating variables without losing the predicative structure of noun-phrases and verbs: Linguish uses 'markers' to make grammatical roles explicit, and adds indexes to allow cross-reference in the case of anaphoric pronouns.

b) Concerning semantics, the theory of the properties of terms (in particular, the late medieval version of the theory of the modes of personal supposition) is given prominence as a semantic tool. Three particular devices developed by Parsons are worth mentioning. First, truth conditions are given by means of 'temporary names' as a way of incorporating the 'singulars' of a common term into a recursive semantics (pp. 99-113). Second, the complications around propositions with more than two terms are cleverly solved with the notion of 'global quantificational import' (pp. 223-226). Finally, difficulties about anaphoric reference are solved by allowing the construction of molecular formulas with unfilled roles (pp. 244-251).

c) Concerning the rule system, a powerful extension of Aristotle's original system is not only formally constructed, but also proven to be complete (pp. 113-122).

The structure of the book roughly reflects the development of the Aristotelian-scholastic tradition of logic: first, the elements of Aristotelian syllogistics are presented, conveniently supplemented with a modern notion of validity and a formal version of Aristotle's derivation rules (chapters 1 and 2); second, the late medieval treatment of the four basic propositional forms is described, and then articulated in terms of Linguish and the corresponding semantic and inferential apparatuses (chapter 3 about quantified predicates, singular predicates, and negative terms and chapter 4 about the basic syntax, semantics and derivation rules for Linguish, plus the first half of chapter 7 about the modes of personal supposition); then, some further extensions of that basic logic are introduced, in order to cover propositions of any form and of any degree of complexity (chapter 5 about new kinds of common terms, different kinds of complex terms, and new kinds of singular terms, plus the second half of chapter 7 with their respective modes of personal supposition, chapter 8 about anaphoric words, chapter 10

with some hints about tense and modality, and the Appendix on 16th century artificial quantifiers).

Chapter 6 illustrates three important aspects of the transformation of Aristotelian doctrines in late medieval times. First, the success in dealing with relational expressions, and incorporating them into the syllogistic system (pp. 160-164); second, the possibility of dealing with multiple quantification without abandoning the predicative structure of noun-phrases and verbs (pp. 164-173 and 176-183); third, the role of the doctrine of conversion as a trigger for the extension of the logical devices, making room, for example, for quantified predicates and negative terms (pp. 173-176). These illustrations might serve to quieten the complaints of contemporary formal logicians against the power of syllogistic logic, and (perhaps) to moderate their contempt for natural language and the predicative structure that it reflects.

Specially destined for people only trained in the 'post-Fregean' tradition (and either ignorant of or hostile to the 'medieval' one), chapter 9 contains proof that the two logical traditions are comparable: it offers a translation of Linguish into First-Order Logic, and a translation of First-Order Logic into Linguish, plus a validation of the expressive power of Linguish, which consists in showing that (an extension of) Linguish can be used to formulate first-order arithmetic.

In sum, this book could serve as the starting point for an interesting line of research into the strengths and weaknesses of traditional logic in comparison with standard symbolic logic. In fact, Parsons encourages additional work in many places in the book: it would be excellent if some medieval logic researchers were to dare to follow him. People interested might want to have a look at the author's website https://sites.google.com/site/tparsons5555/home/, which contains some useful resources in connection with the book.

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