

Workshop on Modal Syllogistic
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Faculty of Letters, University of Lisbon

Abstracts

Edi Pavlovic (Budapest)

On a Fundamental Mismatch between Aristotle's Modal Syllogistic and Modern Modal Logic

Abstract:

This paper approaches Aristotle's modal syllogistic and the debate about its validity from the perspective of a modern modal quantified calculus, especially in contrast to (Malink 2013). The modern system in question is the Quantified Argument Calculus (Quarc) introduced in (Ben-Yami 2014), which I argue in the first part of the paper is a more appropriate tool for dealing with the assertoric syllogistic than either the standard Predicate Calculus or the treatment adopted by Malink. In the second part I demonstrate how a familiar challenge to Aristotle with regards to a unified reading of modalities arises with the modal expansion of Quarc, and examine some solutions. Finally, I argue these results are indicative of a broader, fundamental mismatch between the modern approach to logic and one needed to validate Aristotle, making the debate unlikely to be resolved.

Ulrich Nortmann (Saarland)

Aristotle on the Opposition and the Conversion of Modally Qualified Propositions: Some Implications for a Kripke-style Analysis of the Darker Part of the Syllogistics

Abstract:

It has often been argued that Aristotle, first, had no clear awareness of the difference between *de dicto* senses and *de re* senses of modality; and that his confusion on these matters so impaired the modal part of his logical system that it is, second, difficult up to impossibility to relate this modal part to modern forms of modal logic. The first is not really true, however, as certain passages in the *Posterior Analytics* (chapters I4 and I6), dealing with the necessary, the universal, the essential and the always holding, show. From those passages, a fairly clear truth condition and a corresponding formula of modal predicate logic for universal affirmative apodeictic propositions emerge, affording the interpreter a foothold for the larger project, contrary in spirit to the second of the abovementioned claims, of relating the whole system of modal syllogisms to modern modal logic. At least if you are prepared to extrapolate in the obvious way to universal negative propositions of the necessity type, the starting part of *Prior Analytics* I3, and the enclosed argument for eN-conversion proceeding by *reductio*, will already show you, for instance, what a logical formula corresponding to iM, as the contradictory of eN, should look like. Along such lines of investigation, an analysis of more arguments of Aristotle's, including *reductio* and *ekthesis* cases, eventually will lead, as the paper aims to show, to a more and more completed picture of the logical forms, and of the corresponding Kripke-style truth conditions, of the propositions entering modal syllogisms, or standing in relations of modal opposition. The emerging picture will also

tell you how to get along in purely semantical terms, if you like, with highly controversial moods as, *e. g.*, Barbara XQM.

Leon Geerdink (Groningen)

A Dialogue Semantics for the Apodeictic Syllogistic

Abstract:

In this presentation, I present a dialogue semantics for Aristotle's apodeictic syllogistic. Dialogue semantics take seriously the idea that the meaning of a proposition is determined by how it can be attacked and defended in a regimented dialogue. A dialogue semantics fits well with the use of the syllogistics in dialectics, which Aristotle says is one of its uses (Pr.A. I.1). The aim of this paper is to provide an alternative to the usual set-theoretic semantics, which both validates the deductive system and has a philosophical foundation based in the Aristotelian corpus.

Marko Malink (Chicago)

What, if any, is the Use of Aristotle's Modal Syllogistic?

Abstract:

Aristotle thinks that the premisses and conclusions of (most) scientific demonstrations are true of necessity. Because of this, it is sometimes thought that his official logic of demonstration is the modal syllogistic presented in *Prior Analytics* 1.8-22. Against this, Jonathan Barnes has argued that the modal syllogistic does not play any role in Aristotle's theory of scientific demonstration in the *Posterior Analytics*. I will argue that Barnes is wrong, and that the modal syllogistic is useful for scientific demonstration. Its intended use, I argue, is to establish the necessity of the conclusions of scientific demonstrations. My starting point is Aristotle's claim that in order to have scientific knowledge of a proposition the demonstrator must know not only that but also why the proposition is necessary (*Posterior Analytics* 1.6, 75a12-15).

Lucas Angioni (Campinas)

Perfection and Imperfection of Modal Syllogisms with Mixed Premises

Abstract:

My aim is to discuss some of Aristotle's claims of perfection and imperfection about modal syllogisms with mixed premises. Perfection/imperfection of assertoric syllogistic is already a vexed issue. I have been working on an unorthodox account of it and my main motivation is to discuss whether my provisional results on the assertoric side can be confirmed or not on the modal side of Aristotle's syllogistic. My approach depends on many assumptions and perhaps the most important one is that Aristotle's syllogisms should be read from bottom up: given a *problema* – a predicative sentence to be shown as conclusion of an argument – the syllogism is the argument which deduces that *problema* from an appropriate premise-pair. Another important assumption is that Aristotle focuses on each figure on its turn when he asks “how this categorical form can be deduced from premise-pairs”. On my account, a syllogism is perfect if, in its figure, it displays the premise-pair which is indeed the necessary one for the intended conclusion to be deduced in that figure.

Adriane Rini (Massey)

How Would the Modal Syllogistic Look if Becker Were Right?

Abstract:

Several scholars complain about the way modern interpreters try to give a uniform analysis of Aristotle's modals in *AnPr* A3 and A8-22. Albrecht Becker (1933) laid the groundwork for this. He thought that Aristotle switches between *de re* modals and *de dicto* modals, and that Aristotle does not appreciate that these are in fact logically different. Richard Patterson (1995) and Gisela Striker (2009) are sympathetic to Becker's position, and Striker in particular is critical of attempts by logicians to extract a consistent modal syllogistic from Aristotle's text. Proponents of the Becker analysis tend to treat this as the last word, and it is easy to see why: If the ambiguity is Aristotle's own, then we can all go home knowing that really Aristotle was just confused about modal logic -- there is not much more to say. However, in order to see what Becker's criticism amounts to, it is surely advisable to see just *where* in Aristotle's text the ambiguity would make a difference, and just *what* difference it would make. Only then can we evaluate whether his view can be supported over the alternative accounts that I and others have proposed in recent years.

Luca Gili (Leuven)

Alexander of Aphrodisias on Mixed Modal Syllogistic

Abstract:

In this paper I dwell on Alexander of Aphrodisias' reconstruction of a famous puzzle of Aristotle's modal logic. Aristotle's claim that a LX-L Barbara is a valid syllogism, whilst a XL-L Barbara is an invalid formula within the syllogistic system has been contested not only in recent times, but by ancient Peripatetics too. I show that Alexander accepted Aristotle's claim, and criticized Theophrastus, who firstly contested the above thesis. My claim is that Alexander introduced a 'dictum de omni et de nullo' for modal propositions, and that, on the basis of it, he proved the validity of the LX-L Barbara syllogism. However, this proof is problematic, because it seems to be inconsistent with Alexander's proof for the validity of the rules of conversions for modal propositions. I suggest that Alexander had good arguments for avoiding the above difficulty, by making appeal to his semantics for modal propositions. This semantics is at the same time a temporal semantics and is rooted in Alexander's theory of predication. The second part of the paper offers a brief account of this semantics and presents its theoretical advantages.

Sara Uckelman (Heidelberg)

Irregular Modal Syllogisms in Paul of Venice

Abstract:

When modern commentators write about the syllogism, they generally focus on the easy case: the assertoric syllogistic of Aristotle. Some more adventurous people will look at Aristotle's modal syllogistic, or, for the truly brave of heart, ancient and medieval commentaries on Aristotle's modal syllogistic. But this overlooks a wide range of non-assertoric syllogisms which are routinely considered by medieval authors, and can be understood as "modal" in various respects: The irregular (including indirect) syllogistic. In this talk, we look at what Paul of Venice has to say about these unusual syllogisms, which do not fit neatly into the Barbara-Celarent-Dario-Ferii framework, in the chapter

on syllogisms in the *_Logica Magna_*. We introduce his definitions, and then look in detail at his examples and their proofs, before reflecting on the nature of modality that these examples display.

Felipe Weinmann (Campinas)

Are Aristotle's Modalities Ambiguous?

Abstract:

Aristotle's modal syllogistic has for long rendered much discussion. Most of the claims put forward by Aristotle have challenged interpreters to render this part of the *Prior Analytics* meaningful, though some of them seem inconsistent or even incomprehensible. One such problem is to give a proper account of Aristotle's notion of modality, which may be understood either as being an operation or as a property. Recent attempts to define these notions of necessity tie these two aspects of necessity to a specific notion of the subject-term. However, this very strategy may face some difficulties in the case of negative statements. I attempt to analyse the effects of Aristotelian negation on Aristotle's notion of modality and how this affects the latter's interpretation.