

The Role of Aristotelian Diagrams in Scientific Communication

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Abstract:

Aristotelian diagrams visualize the elements of some logical, lexical or conceptual field, and the logical relations between them. The oldest and most well-known example is the ‘square of opposition’, but throughout history, several larger, more complex Aristotelian diagrams have also been devised. The received view holds that these diagrams primarily serve as visual mnemonic devices, used to introduce novice students to the abstract discipline of logic. However, this view has become untenable, because today, most Aristotelian diagrams are no longer found in logic textbooks, but rather in research-level papers/monographs from various disciplines (logic, linguistics, psychology, computer science, etc.).

I will therefore develop an alternative account of the scientific role of Aristotelian diagrams. These diagrams constitute an independent class, distinct from the causal/mechanistic diagrams used in natural science and the abstract diagrams used in mathematics. After discussing the implicit normativity of their rich history and the cognitive advantages of their multimodal nature, I argue that Aristotelian diagrams have a powerful heuristic potential. They enable researchers to draw high-level analogies between seemingly unrelated frameworks, and to introduce new concepts (by transferring them across frameworks). I conclude that Aristotelian diagrams primarily function as a unifying language for research on logical reasoning (similar to the role of category theory in mathematics).

Bio:

Lorenz Demey works at the Institute of Philosophy, KU Leuven (Belgium), and holds a Postdoctoral Research Fellowship from the Research Foundation – Flanders (FWO). He teaches courses on logic, argumentation theory and epistemology in the bachelor’s and master’s programs in philosophy and in law. His research interests are mainly situated in philosophical logic, with a special focus on logical geometry, i.e. the interdisciplinary study of Aristotelian diagrams. He has published extensively on the logical and visual-diagrammatic properties of these diagrams, on their historical and contemporary applications across various disciplines, and on their epistemological and heuristic roles in scientific practice.