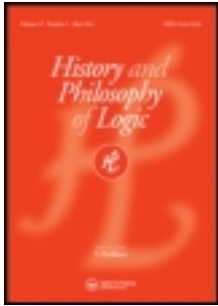


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EditorialSquare of Opposition: A Diagram and a Theory in Historical Perspective

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Editorial

Square of Opposition: A Diagram and a Theory in Historical Perspective

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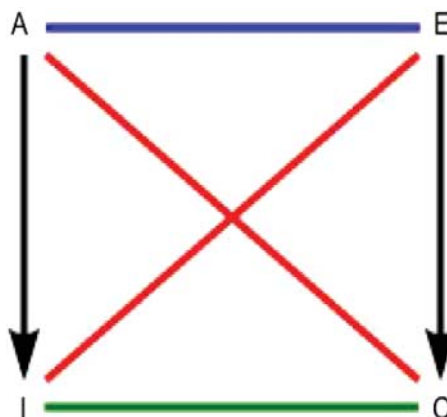
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We are pleased to present this special issue of the journal *History and Philosophy of Logic* dedicated to the square of opposition.

The square of opposition is a diagram and a theory of opposition related to it. The diagram has been very important in promoting the theory but the theory does not reduce to the diagram. The theory started many centuries before the basic diagram was drawn and developed beyond this diagram.

We can say that the theory began with the distinction by Aristotle between two types of opposition: contradiction and contrariety. A theory of opposition grew from that distinction and was shaped in a diagram first by Apuleius (who formed a square introducing the third notion of opposition, later on called subcontrariety) and then by Boethius.

We can schematize Boethius's square as follows:



This square, like every square, has four corners, the designations traditionally given to the corners being the four letters A, E, I, O. They can be understood as names for propositions. The four edges and the two diagonals of the square represent four relations between these propositions: red is the relation of *contradiction*, blue the relation of *contrariety*, green the relation of *subcontrariety*, black the relation of *subalternation*. These relations are defined as follows: two propositions are said to be *contradictory* iff they cannot be true and cannot

be false together, *contrary* iff they can be false together but not true together, *subcontrary* iff they can be true together but not false together. A proposition is said to be *subalterned* to another one, if it is implied by, but is not equivalent to it.

The strength of this theory is that it is at the same time fairly simple but quite rich; it can be applied to many different kinds of proposition, and also to objects and concepts. It can also be generalized in various manners, in particular, by constructing many different geometrical objects. The square of opposition is a theory mixing in a productive way logic, philosophy, linguistics and mathematics that has numerous applications ranging from algebra to theology, through music, economy and semiotics.

The discussion of the theory of the square of opposition has been very lively in recent years. International Congresses have been organized around the world:

- SQUARE 2007: 1st World Congress on the Square of Opposition, Swiss National Science Foundation, Montreux, Switzerland, 2007.
- SQUARE 2010: 2nd World Congress on the Square of Opposition, University Pascal Paoli, Corté, Corsica, 2010.
- SQUARE 2012: 3rd World Congress on the Square of Opposition, American University of Beirut, Beirut, Lebanon, 2012.¹

And related books and special issues of journals have been published:

- Beziau, J.-Y. and Payette, G. (eds). 2008. 'Special issue on the square of opposition', *Logica Universalis*, **2**, no. 1.
- Beziau, J.-Y. and Payette, G. (eds). 2012. *The Square of Opposition – A General Framework for Cognition*, Bern: Peter Lang.
- Beziau, J.-Y. (ed). 2012. 'Double special issue on the hexagon of opposition', *Logica Universalis*, **6**, nos. 1–2.
- Beziau, J.-Y. and Jacquette, D. (eds). 2012. *Around and Beyond the Square of Opposition*, Basel: Birkhäuser.

This issue of *History and Philosophy of Logic* contains a selection of six papers presented at SQUARE 2012 which are connected with history of logic. These papers span the history of logic from Aristotle to Lewis Carroll, through Avicenna, Ockham, Buridan, Leibniz and Kant, showing the many sides of the square of opposition.

We thank the referees who have helped us to make this selection, all the participants of SQUARE 2012 and our colleagues from the American University of Beirut who helped us to organize this event: Ray Brassier, Chair of the Department of Philosophy, Wafic Sabra, Director of the Center for Advanced Mathematical Sciences – CAMS (and thanks also to the secretary of CAMS, Hiba I. Hammoud).

¹ The 4th World Congress on the Square will take place at the Pontifical Lateran University, Vatican in 2014 and the 5th at Easter Island, Chile, 2016.