

Jean-Yves Béziau
Stamatios Gerogiorgakis (Editors)
New Dimensions of the Square of Opposition

Analytica
Investigations
in Logic, Ontology and the Philosophy of Language

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Joseph M. Bocheński †

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New Dimensions of the Square of Opposition

Edited by Jean-Yves Béziau
and Stamatios Gerogiorgakis

Philosophia

The Deutsche Nationalbibliothek
lists this publication
in the Deutsche Nationalbibliografie.
Detailed bibliographic data are available in the Internet at
<http://dnb.d-nb.de>

ISBN 978-3-88405-112-2
© 2017 Philosophia Verlag GmbH, München
Printed in Germany 2017

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Jean-Yves Béziau
Stamatios Gerogiorgakis

The Many Dimensions
of the Square of Opposition
Introduction

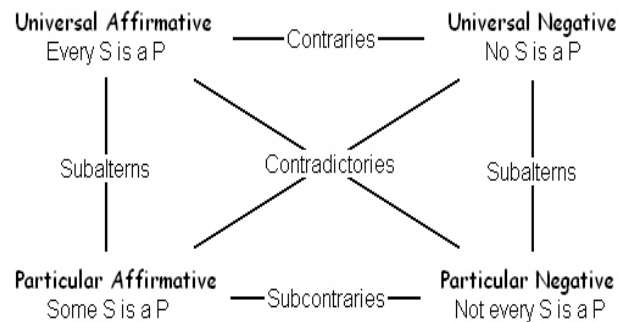
The square of opposition is a two-dimensional diagram that can be extended in various ways: as a polygon (hexagon, octagon, decagon, etc.) or as a polyhedron (cube, cuboctahedron, bi-simplex, etc). Some of these geometrical extensions are discussed in this book, in particular Blanché's hexagon which undoubtedly was a major improvement of the square and a decisive step for the development of new directions in the theory of logical opposition.

The idea of Blanché's hexagon, fully presented in his book *Intellectual Structures* (1966), is not a straightforward geometrical generalization of the square such as a cube of opposition. It is a clever reconstruction of the square solving many problems related to the theory of opposition as systematized and depicted by Boethius in a square diagram based on Aristotle's ideas about opposition, concept and quantification. Moreover, Blanché has shown how the hexagon can be used to articulate the understanding of many notions, promoting this figure as a basic tool for conceptual analysis. This hexagon built as a contradictory entanglement of a triangle of contrariety and a triangle of subcontrariety is a powerful structure that can generate more abstract geometrical objects and can be applied to the most various notions, ranging from music to economy, from religion to mathematics, quantum physics to psychoanalysis (see Béziau 2012a). Such a figure of opposition reflects and unifies the many dimensions of human mind in connection with reality.

The *square of opposition* can be understood in two different ways:

- (1) as a diagram,
- (2) as a theory of opposition.

The relation between these two meanings varies quite a lot and there is also an interaction between the theory and the diagram. There is a theory very close to Aristotelian notions of logic and Boethius's diagram. This theory is based on the four types of categorical propositions and described by the following version of the square:



The four corners of this square are traditionally abbreviated by the four letters A, E, I, O.¹ This leads to a more abstract picture:

¹ About the meaning of these abbreviations and some interesting details about the history of the square, see Seuren (2010).