

Square of oppositions and hexagons in argumentation

Leila Amgoud and Henri Prade

IRIT, Université Paul Sabatier, 31062 Toulouse Cedex 9, France
 {amgoud,prade}@irit.fr

The idea of opposition plays an important role in argumentation¹. Apothéloz² has pointed out the existence of four basic argumentative forms, where two negations are at work: i) “y is a reason for concluding x” (denoted $\mathcal{C}(x) : \mathcal{R}(y)$), ii) “y is not a reason for concluding x” ($\mathcal{C}(x) : \neg\mathcal{R}(y)$), iii) “y is a reason against concluding x” ($\neg\mathcal{C}(x) : \mathcal{R}(y)$), and iv) “y is not a reason against concluding x” ($\neg\mathcal{C}(x) : \neg\mathcal{R}(y)$). These four statements can be organized in a square of opposition (modifying a recent proposal by Salavastru³ where the vertical entailments were put in the wrong way). Indeed, if y is a reason for not concluding x, then certainly y is not a reason for concluding x. Moreover, it is also possible to build

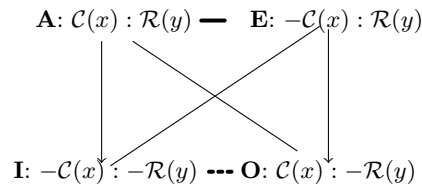


Fig. 1 - An informal, argumentative square of opposition

a hexagon (in the sense of Blanché) by considering the different possible argumentative relations linking a reason y to a conclusion x; see Fig. 2.a (\Vdash denotes entailment). Besides, the link between a conclusion and a reason may be strong (\vdash) or potentially defeasible (\sim); see Fig. 2.b.

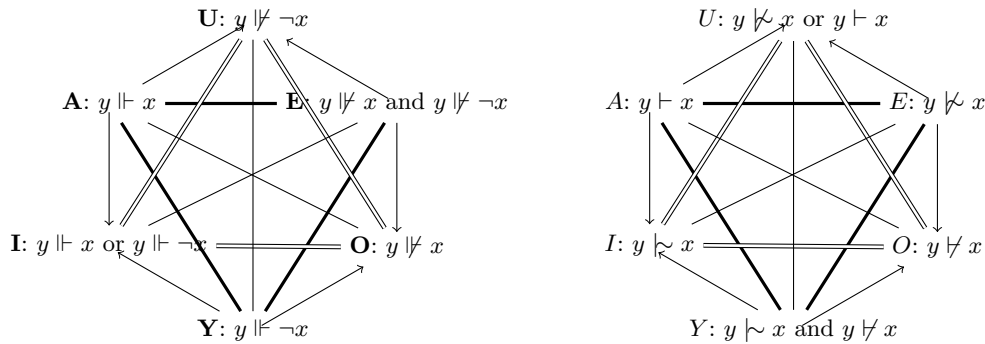


Fig. 2.a Possible argumentative relations linking a reason y to a conclusion x

Fig. 2.b Hexagon showing the interplay between a strong and a weak consequence relation

¹ A. Moretti. Argumentation theory and the geometry of opposition (abstract), 7th Conf. Inter. Soc. for the Study of Argumentation, 2010.
² D. Apothéloz. Esquisse d’un catalogue des formes de la contre-argumentation. Travaux du Centre de Recherches Sémiologiques, 57, 69–86,1989.
³ C. Salavastru. Logique, Argumentation, Interprétation. L’Harmattan, Paris, 2007.