
Principle-Based and Principled Formal Studies of Argumentation

The case of gradual semantics

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In 2007, two papers of Baroni & Giacomin and Caminada & Amgoud introduced the idea of a principle-based approach to the study of formal argumentation semantics. In such an approach, a number of principles (also referred to as 'axioms', 'postulates' or 'properties') for argumentation semantics are formulated and then used to characterise or evaluate a given argumentation semantics. A principle-based approach can be purely mathematical in that it does not take a stance on whether the studied principles are desirable. However, principles can also be seen as rationality constraints on argument evaluation. An (often implicit) underlying idea is then that the more principles a semantics satisfies, the better it is.

This underlying idea is justified to the extent that the proposed principles are themselves justified. Ideally, the principles would be based on generally accepted philosophical insights about the modelled argumentation phenomena. However, often the principles are not justified in this way but instead appear to be based on the authors' intuitions.

In this talk I will argue that if the principle-based approach is applied in an intuition-driven way to evaluate semantics, it is not very principled. I will do so by discussing recent studies of gradual acceptability semantics. I will argue that such studies should distinguish between logical, dialectical and rhetorical argument strength, and I will propose a new definition of dialectical argument strength founded on philosophical insights.