Modelling Analogical Reasoning: One-Size-Fits-All?

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One of the most common forms of reasoning in science is reasoning by analogy. Roughly speaking, such reasoning involves the transposition of solutions that work well in one domain to another on the basis of analogous features between the two domains. Sometimes such reasoning works (e.g. artificial and natural selection) and sometimes it doesn't (e.g. Vulcan and Neptune). Two general reactions to the problem of modelling the logic of analogical reasoning have emerged as a result: There are those who attempt to construct increasingly complex but still universal models of analogical reasoning in order to better discriminate between cases where it works and cases where it doesn't (Bartha 2010; Hesse 1966). And there are those who give up on the universal model approach and argue in favour of localised models (Norton 2021). In this talk, we assess the merits of each approach in the context of the Wittgensteinian family resemblance conception of scientific categories. Moreover, we assess the impact of computational attempts to articulate and operationalise analogical reasoning, particularly in the field of Artificial Intelligence (Prade and Richard 2014), on the debate between universalists and localists.

References:

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