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Preferential Accessibility and Preferred Worlds

<https://link.springer.com/article/10.1007/s10849-017-9264-0>

Free fulltext non-print link: <https://rdcu.be/bpFi0>

Britz K  
Varzinczak I

#### ABSTRACT:

Modal accounts of normality in non-monotonic reasoning traditionally have an underlying semantics based on a notion of preference amongst worlds. In this paper, we motivate and investigate an alternative semantics, based on ordered accessibility relations in Kripke frames. The underlying intuition is that some world tuples may be seen as more normal, while others may be seen as more exceptional. We show that this delivers an elegant and intuitive semantic construction, which gives a new perspective on defeasible necessity. Technically, the revisited logic does not change the expressive power of our previously defined preferential modalities. This conclusion follows from an analysis of both semantic constructions via a generalisation of bisimulations to the preferential case. Reasoners based on the previous semantics therefore also suffice for reasoning over the new semantics. We complete the picture by investigating different notions of defeasible conditionals in modal logic that can also be captured within our framework.