

# Forgetting Propositional Formulas

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## Abstract

Epistemic notions such as knowledge and belief are subject to different epistemic actions. Just as beliefs can be affected by expansion, contraction, revision, merging and diverse forms of non-monotonic inference, knowledge can be affected by deductive inference, public and other forms of announcements.

One action that has not received much attention is that of *forgetting* and its effect on an agent's *knowledge*. One of the reasons for this is its similarities with belief contraction, an action that, when represented semantically, typically relies on some form of plausibility ordering among theories. This is adequate for belief contraction, as a plausibility order is natural when defining beliefs: the collection of epistemically possible situations can be understood as having an order which not only defines this epistemic notion (as what is true in the most plausible situations) but also establishes a ranking among what is not believed but still has not been discarded. However, such an ordering is not natural when dealing with knowledge: there does not seem to be an ordering among the epistemically possible situations that are known to *not* be the case and hence have been discarded.

This work presents a formal relational-model representation of the action of forgetting a propositional formula, not by means of an ordering among epistemic possibilities, but rather by quantifying over all possible (but 'minimal') ways of forgetting a formula's truth-value. It introduces a model operation as well as its associated modality, and explores some of the action's properties and variants.