

NOTE ON DEDUCTIVE INFERENCE

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In relation to inferences, there is a tendency to conflate metaphysical with epistemic modalities:

Material implication

1. It's not the case that A is true and B is false in a given world. (metaphysical claim)
2. It's certain that B isn't false and A is true in a given world. (epistemic claim)

Formal implication

- (1*) It's not the case that A is true and B is false in any possible world. (metaphysical claim)
- (2*) It's certain that B isn't false when A is true in any possible world. (epistemic claim)

But notice that (2) doesn't follow from (1), and (2*) doesn't follow from (1*). Now, suppose one asserts (1) because it is highly likely. In this case, there would be no meaningful distinction between (1) and the following non-deductive inference:

(1**) It is unlikely that A is true and B is false in a given world.

This suggests that the main reason to distinguish deductive from non-deductive inferences lies in epistemic modalities, but what determines whether an inference is deductive or not are its metaphysical commitments. In other words, the supposed non-deductive status of an inference is simply an epistemic element that should be irrelevant from a logical point of view—unless the goal is to express reasoning about knowledge and belief.

The same could be said about patterns of coherence requirements for inferences such as *modus ponens* and hypothetical syllogism. They track the consequences of metaphysical claims and not epistemic commitments.