

Igor Douven

Title: In defense of abductive reasoning

Abstract: There is accumulated evidence that explanatory considerations influence people's reasoning and specifically also how they change their degrees of belief in the light of new information. Recent studies show that this influence is systematic and most likely results from people's following a probabilistic update rule. While formally very similar to Bayes' rule, the rule people appear to follow is different from, and inconsistent with, that better-known update rule. This raises the question of the normative status of the update procedure people seem to adhere to. According to mainstream thinking, which is heavily committed to the Bayesian paradigm, any form of reasoning at deviance with Bayesian principles is to be rejected, and so explanatory reasoning, insofar as it is inconsistent with Bayesian reasoning, can only be fallacious. This paper argues that mainstream thinking is wrong on this count. In particular, it uses agent-based optimization techniques to show how the kind of explanatory update rules people seem to rely on make it easier to strike the best balance between being fast learners and accurate learners. The argument for this claim indicates that what counts as the best balance can heavily depend on context, and that a main advantage of explanatory update rules is that, unlike Bayes' rule, they have an adjustable parameter which can be fine-tuned per context.