

Is it Possible to Gain New Knowledge through Deduction?

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It is assumed that the necessity and apriority of deductive validity are explained by the fact that the content of the conclusion is already included in the premises, which seems to entail that no new knowledge can be gained through deduction. However, counterexamples to that idea are easy to come by. For instance, Andrew Wiles' proof of Fermat's last theorem or Grigori Perelman's proof of Poincaré's conjecture look like examples of deductions (in the end, a mathematical proof is a deduction) in which new knowledge was gained. Furthermore, the assumption also has logical omniscience as a further undesirable consequence. In light of this, I offer an empirical defense of the opposite view. I show how it is possible to gain new knowledge through deduction, even though the content of the conclusion is already in the premises. I achieve this by distinguishing between deductive implication and deductive inference. While the former is a relation between propositions (such that the content of the conclusion is already in the premises), the latter is a cognitive process which can lead to the acquisition of new knowledge. Since this last claim is an empirical claim about a cognitive process, it demands empirical support. In order to provide such empirical support, I examine the results of two studies from different fields in cognitive science – one from experimental psychology and the other from neuroscience – which throw results compatible and favorable to the claim that it is possible to gain new knowledge through deductive inference. I argue that the best way to account for those results is to acknowledge the possibility of gaining new knowledge through deduction.