

Impossible Extensions and the Logic of the Concepts

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Abstract

A controversy among the Muslim philosophers about the domain of the extensions was that is the subject of the verity-propositions contained the impossible extensions or only all of the actual and possible ones. From Ibn-Sina to Al-Khunaji, there are explicit texts to the former view; but later logicians, starting with Athir Al-Din Al-Abhari, were inclined to the latter. In this paper, we attempt to support Ibn-Sina and Al-Khunaji's view versus Al-Abhari's. For this, we take the extensions as sets of concepts. If an extension is a set of inconsistent concepts we'll regard it impossible and name its logic 'the logic of the concepts'. For systematizing the logic, we introduce a semantics similar to that of predicate logic and construct a formal system in the first-order language. We show that the logical system can be collapsed to a fraction of the second-order logic, concluding that Ibn-Sina and Al-Khunaji's view can be supported by the second-order logic.

Keywords: verity-propositions, Ibn-Sina, Al-Khunaji, Al-Abhari, impossible extensions, second-order logic

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