Approximate Bayesian Updating with Complex Clues*

Shohei Yanagita†

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Abstract

We study a decision maker's belief updating when information arrives as a complex description, which is formalized as a collection of subsets of the state space rather than as a single event. We characterize a novel class of belief updating rules, called approximate Bayesian updating. Under this rule, the decision maker may fail to process information correctly and instead perceives only part of a received complex description, using that perceived information to perform Bayesian updating. In addition to providing an axiomatic characterization of this rule, we also conduct an axiomatic analysis of several special cases.

Keywords: non-Bayesian updating; bounded rationality; complexity; uncertainty
JEL classification: D80; D91

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†The Department of Economics, Takasaki City University of Economics, 1300 Kaminamie, Takasaki, Gumma 370-0801, Japan, shoheiyanagita@gmail.com