The Best Choice Problem under Ambiguity

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Abstract. We model and solve Best Choice Problems in the multiple prior framework: An ambiguity averse decision maker aims to choose the best among a fixed number of applicants that appear sequentially in a random order. The decision faces ambiguity about the probability that a candidate – a relatively top applicant — is actually best among all applicants. We show that our model covers the classical secretary problem, but also other interesting classes of problems. We provide a closed form solution of the problem for time-consistent priors using minimax backward induction. As in the classical case the derived stopping strategy is simple. Ambiguity can lead to substantial differences to the classical threshold rule.

Keywords Classical Secretary Problem; Optimal Stopping; Multiple Prior; Minimax Utility here