

Abstract:

We study a model of experimentation or sequential learning where the set of alternatives is endogenously shaped by past search decisions. The environment reflects a tradeoff between exploration of existing alternatives and search for additional ones, faced with uncertainty about the set of outside alternatives that may be discovered. Despite the effect of search on the future set of alternatives and the potential correlation between the types of alternatives found over time, we obtain a simple characterization of the optimal policy. We extend our analysis to environments in which an irreversible choice may be made among the endogenous set of alternatives, at any time and given any amount of potentially inconclusive information. As a special case, the analysis yields a generalization of Weitzman's (1979) canonical Pandora's boxes problem, as well as its solution, to an environment where the set of boxes is endogenous.