

A REVEALED-PREFERENCE THEORY
OF STRATEGIC COUNTERFACTUALS

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November 2011

ABSTRACT

The analysis of extensive-form games involves assumptions concerning players' beliefs at histories off the predicted path of play. However, the revealed-preference interpretation of such assumptions is unclear: how does one elicit probabilities conditional upon events that have zero ex-ante probability? This paper addresses this issue by proposing and axiomatizing a novel choice criterion for an individual who faces a general dynamic decision problem. The individual's preferences are characterized by a Bernoulli utility function and a conditional probability system (Myerson, 1986a). At any decision point, preferences are determined by conditional expected payoffs at the current node, as well as at all subsequent nodes. Thus, prior preferences contain enough information to identify all conditional beliefs. Furthermore, preferences are dynamically consistent, so prior preferences also determine behavior at subsequent decision nodes, including those that have zero ex-ante probability. In particular, the proposed criterion is consistent with, and indeed inspired by the game-theoretic notion of sequential rationality.