Is It Possible that Belief Isn't Necessary?

BRIAN MACPHERSON

Abstract There has been a tradition in the history of doxastic logic of treating belief as analogous to necessity. The resulting logics presuppose that believers are "ideal", which is unacceptable in light of various counterexamples discussed in the literature. It is argued that Rantala's proposals to salvage the alleged analogy between necessity and belief fail. In addition, a logic that treats belief as analogous to possibility and a corresponding semantics motivated by Stalnaker's claim that agents can be in more than one belief state are developed. Although this logic and semantics are inconsistency-tolerant, new problems arise. Finally a modest though nontrivial belief logic is proposed which does not treat belief as possibility or necessity and which does not presuppose that agents' beliefs are consistent or deductively closed.

1 The alleged analogy between necessity and belief   Beginning with Hintikka's discussion of epistemic and doxastic logics in Hintikka [7], the tradition in the literature has been to treat the belief operator '*B*' (*x* believes that) as a kind of necessity operator (see also Hintikka [8], Rantala [14],[15], and Rescher [16]). That is, sentential and quantified doxastic logics have traditionally been regarded as normal[1] alethic modal systems where the necessity operator is informally construed as '*x* believes that'. Pushing this analogy between necessity and belief has invited disaster, at least if we regard doxastic logics as embodying principles of belief attribution.

In particular, all instances of the following schemata are derivable in any 'normal' doxastic system, although T2 is derivable only for systems containing the doxastic version of D, $B\alpha \supset \neg B \neg \alpha$:

T1: $(B\alpha \, \& \, B\beta) \supset B(\alpha \, \& \, \beta)$ adjunction schema

T2: $\neg (B\alpha \, \& \, B\neg\alpha)$ consistency schema.

Informally, T1 says that agents always conjoin beliefs and T2 asserts that agents' beliefs are always consistent. The principles of belief attribution embodied in these schemata have been rejected for the most part in the literature (see, for ex-