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SOME LOCALLY TABULAR LOGICS WITH
CONTRACTION AND MINGLE

Abstract. Anderson and Belnap's implicational system \( \text{RMO} \to \) can be extended conservatively by the usual axioms for fusion and for the Ackermann truth constant \( t \). The resulting system \( \text{RMO}^* \) is algebraized by the quasivariety \( \text{IP} \) of all idempotent commutative residuated po-monoids. Thus, the axiomatic extensions of \( \text{RMO}^* \) are in one-to-one correspondence with the relative subvarieties of \( \text{IP} \). An algebra in \( \text{IP} \) is called semiconic if it decomposes subdirectly (in \( \text{IP} \)) into algebras where the identity element \( t \) is order-comparable with all other elements. The semiconic algebras in \( \text{IP} \) are locally finite. It is proved here that a relative subvariety of \( \text{IP} \) consists of semiconic algebras if and only if it satisfies \( x \approx (x \to t) \to x \). It follows that if an axiomatic extension of \( \text{RMO}^* \) has \(((p \to t) \to p) \to p\) among its theorems then it is locally tabular. In particular, such an extension is strongly decidable, provided that it is finitely axiomatized.

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