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Constructing relation algebras from semiassociative relation algebras. Preliminary report.

We show how to construct finitely presented semiassociative relation algebras which have quasi-projectional (hence, by Tarski's theorem, representable) relation algebras as definitional reducts. This construction allows new proofs of results by Tarski, Nemeti, and Maddux, e.g., set theory may be coded into the logic of three variables, the equational theory of semiassociative relation algebras is undecidable, and free semiassociative relation algebras are not atomic. The methods and results are directed toward the still unsolved problem of coding set theory into the equational theory of diagonal-free cylindric algebras. (Received December 01, 2009)