

MR1321662 (96b:68123) 68Q65 03B40 03G25**Pigozzi, Don** [[Pigozzi, Don L.](#)] (1-IASU); **Salibra, Antonino** (I-VE NE-AM)**Lambda abstraction algebras: representation theorems.** (English summary)

Selected papers of AMAST '93 (Enschede, 1993).

Theoret. Comput. Sci. **140** (1995), *no.* 1, 5–52.

Summary: “Lambda abstraction algebras (LAAs) are designed to algebraize the untyped lambda calculus in the same way cylindric and polyadic algebras algebraize the first-order predicate logic. Like combinatory algebras they can be defined by true identities and thus form a variety in the sense of universal algebra, but they differ from combinatory algebras in several important respects. The most natural LAAs are obtained by coordinatizing environment models of the lambda calculus. This gives rise to two classes of LAAs of functions of finite arity: functional LAAs (FLA) and point-relativized functional LAAs (RFA). It is shown that RFA is a variety and is the smallest variety including FLA.

“Dimension-complemented LAAs constitute the widest class of LAAs that can be represented as an algebra of functions and are known to have a natural intrinsic characterization. We prove that every dimension-complemented LAA is isomorphic to a member of RFA. This is the crucial step in showing that RFA is a variety.”

{For the collection containing this paper see [MR1321661](#)}

Martin W. Bunder