
MICHAEL WARREN, Carnegie Mellon University, 5000 Forbes Ave., Pittsburgh, Pennsylvania 15213, USA
Coalgebras in a category of classes

It is a basic result from topos theory that if \mathcal{E} is an elementary topos and G is a cartesian comonad on \mathcal{E} , then the category \mathcal{E}_G of coalgebras for G is also an elementary topos. We extend this result to the setting of algebraic set theory by showing that if \mathcal{C} is one of several kinds of categories of classes and G is a cartesian comonad which preserves small maps, then \mathcal{C}_G is also a category of classes of the same kind as \mathcal{C} . We then turn to the consideration of several useful corollaries. First, categories of classes are, under suitable conditions, stable under the formation of internal presheaves. Secondly, it follows that several of the set theories considered in the literature on algebraic set theory possess the disjunction and existence properties.