

Emily Riehl

Harvard University

The formal theory of homotopy coherent monads

Quasi-categories are simplicial sets that model categories weakly enriched in ∞ -groupoids. It is of interest to homotopy theorists to extend ordinary category theory from categories (a full subcategory) to quasi-categories. In joint work with Dominic Verity, we redevelop the foundational work in this direction from the perspective of 2-category theory. This talk will focus on a result that illustrates the essential features of this program: the extension of the monadicity theorem from categories to quasi-categories. Our proof exploits our notion of homotopy coherent adjunction to define weights for weighted limits defining the quasi-category of algebras for a homotopy coherent monad and the associated monadic adjunction. These weights can be interpreted either 2-categorically or simplicially; the former gives a new proof of the classical monadicity theorem, whereas the latter interpretation proves the result in the quasi-categorical context.