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Local Higher Category Theory

We describe local presheaf theoretic extensions of three of the main extant models of higher category theory: the Joyal, Bergner and Rezk model structures, in which the weak equivalences are defined 'stalkwise'. There is a zig-zag of Quillen equivalences between them, which extends the Quillen equivalences linking the various models of higher category theory.

The local Bergner model structure is right proper. This leads to an attractive theory of cocycles and torsors, which generalizes classical non-abelian H^1 .

The local Joyal model structure leads to new perspectives on the theory of higher stacks (following Simpson), which will be briefly discussed.