

∞ -OPERADS AS SYMMETRIC MONOIDAL ∞ -CATEGORIES

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Abstract: We use Lurie’s symmetric monoidal envelope functor to give two new descriptions of ∞ -operads: as certain symmetric monoidal ∞ -categories whose underlying symmetric monoidal ∞ -groupoids are free, and as certain symmetric monoidal ∞ -categories equipped with a symmetric monoidal functor to finite sets (with disjoint union as tensor product). The latter leads to a third description of ∞ -operads, as a localization of a presheaf ∞ -category, and we use this to give a simple proof of the equivalence between Lurie’s and Barwick’s models for ∞ -operads.

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