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Simplicial Structures in 2-Categories

I will discuss an ongoing project to produce and understand the correct 2-categorical version of the Δ simplicial category. Our approach is through monoids: MacLane has shown that the usual simplicial Δ category is the universal monoid, in the sense that there is a unique morphism from Δ to any other monoid. The goal of this project is to produce a 2- Δ category which will have an analogous property to this. This is work in progress, with no conclusion at this time, but I will be discussing some of the considerations in making this work. This is joint work with John MacDonald (UBC).