1125-18-83    **Noson S. Yanofsky\*** (`noson@sci.brooklyn.cuny.edu`). *A categorical approach to the Cayley-Dickson construction.* Preliminary report.

The Cayley-Dickson construction takes one from the reals to the complex numbers, from the complex to the quaternions, from the quaternions to the octonions, from the octonions to ... etc. Each time a certain property of the algebraic structure is lost. A sketch is a categorical way of describing algebraic structures. We define a functor from the category of sketches to the category of sketches that takes a description of an algebraic structure and outputs the description of the Cayley-Dickson construction on that structure. With this we will have a clearer way of seeing what properties are lost with the Cayley-Dickson construction. (Received July 14, 2016)