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**Keith A Pardue\*** (pardue@member.ams.org) and **Aaron P Gray**. *Products in a Category with One Object.*

We study monoids equipped with a second binary operation that captures the structure of the endomorphisms of an object  $X$  such that  $X = X \times X$ . We construct a universal monoid of this type and examine some of its rich combinatorial structure. We show that if  $X$  has a nontrivial endomorphism and  $X = X \times X$ , then every finite monoid has a faithful action on  $X$ . (Received January 04, 2018)