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Brandon Coya* (bcoya001@ucr.edu). *Frobenius monoids, weak bimonoids, and corelations.*

In this talk we consider object 2 in the category FinCorel , whose objects are finite sets and whose morphisms are “corelations.” The object 2 can be equipped with two different Frobenius monoid structures. We show that the two Frobenius monoids interact to form a “weak bimonoid” as defined by Pastro and Street. Baez and Fong have shown that FinCorel is useful for modeling circuits made of wire as morphisms in a category. In this analogy the object 1 is viewed as a single wire. We show how the two Frobenius monoids associated to the object 2 relate to placing pairs of wires into series and parallel connections. (Received July 06, 2017)