

# RINGS IN CATEGORIES WITH TWO MONOIDAL STRUCTURES

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From a pair of representations of two symmetric groups, a representation of a larger symmetric group can be constructed. This operation interacts with the Kronecker product (of a pair of representations of the same symmetric group) much in the same manner as the addition and the multiplication of a ring do. Representation theory and algebraic topology afford other examples where similar structure is present. So does algebraic combinatorics. We propose a categorical framework in which a notion of “ring” can be defined, encompassing these examples. We discuss definitions, examples, and the beginnings of a theory of rings in categories with two monoidal structures. This is joint work with Swapneel Mahajan and Jacob White.