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Radmila Sazdanovic* (rsazdan@ncsu.edu), Department of Mathematics NC State University, Raleigh, NC 27695, and **Mikhail Khovanov**. *Bilinear pairings on two-dimensional cobordisms and generalizations of the Deligne category.*

The Deligne category of symmetric groups is the additive Karoubi closure of the partition category. It is semisimple for generic values of the parameter t while producing categories of representations of the symmetric group when modded out by the ideal of negligible morphisms when t is a non-negative integer. The partition category may be interpreted, following Comes, via a particular linearization of the category of two-dimensional oriented cobordisms. The Deligne category and its semisimple quotients admit similar interpretations. This viewpoint coupled to the universal construction of two-dimensional topological theories leads to multi-parameter monoidal generalizations of the partition and the Deligne categories, one for each rational function in one variable. (Received September 20, 2021)