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Title: Modular functors from non-semisimple 3d TFTs

Abstract:

A modular functor is traditionally defined as a systematic assignment of mapping class group representations to surfaces which is compatible with gluing along boundaries.

Modular functors arise naturally in the study of two-dimensional CFTs where they describe certain aspects of conformal blocks. A prominent origin of modular functors are the 3-dimensional topological field theories (TFTs) of Reshetikhin-Turaev which use a finite semisimple modular tensor category as input datum. In the 1990's Lyubashenko gave a construction via generators and relations which no longer requires semisimplicity of the input category. Moreover Lyubashenko's modular functor recovers the Reshetikhin-Turaev modular functor if the input category happens to be semisimple.

In this talk I will sketch how Lyubashenko's modular functor can be obtained from the non-semisimple three-dimensional TFTs of De Renzi, Gainutdinov, Geer, Patteau-Mirand, and Runkel.