

TRUNCATED AFFINE ROZANSKY WITTEN MODELS AS EXTENDED TQFT

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We construct extended TQFTs associated to Rozansky--Witten models with target manifolds $T^*\mathbb{C}n$. The starting point of the construction is the 3-category whose objects are such Rozansky--Witten models, and whose morphisms are defects of all codimensions. By truncation, we obtain a (non-semisimple) 2-category \mathcal{B} of bulk theories, surface defects, and isomorphism classes of line defects. Through a systematic application of the cobordism hypothesis we construct a unique extended oriented 2-dimensional TQFT valued in \mathcal{B} for every affine Rozansky--Witten model. By evaluating this TQFT on closed surfaces we obtain the infinite-dimensional state spaces (graded by flavour and R-charges) of the initial 3-dimensional theory. We also provide a construction of extended TQFTs that includes all line and surface defects.