Functorial 2d Chiral CFTs from Conformal Nets

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Two-dimensional unitary chiral conformal field theories (CFTs) admit three distinct mathematical formulations: vertex operator algebras (VOAs), conformal nets, and Segal (functorial) chiral CFTs. With the broader aim of building fully extended Segal chiral CFTs, we start with the input of a conformal net. We present the category of solitonic representations of the net, which we propose as what the theory (chiral CFT) assigns to a point. Solitonic representations of the net are one of the primary classes of examples of bicommutant categories (a categorified analogue of von Neumann algebras). The Drinfel'd centre of solitonic representations is the representation category of the conformal net. We also discuss the functorial assignment to 1-dimensional cobordisms and categorified Connes Fusion.