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Exact lattice chiral symmetry in 2d gauge theory

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I'll explain how to construct symmetry-preserving lattice regularizations of 2d QED, as well as the '3450' chiral gauge theory. The basic idea is to leverage bosonization and recently-proposed modifications of Villain-type lattice actions. The internal global symmetries act just as locally on the lattice as they do in the continuum, the anomalies are reproduced at finite lattice spacing. We also find methods to evade the sign problems that would naively occur in our construction.

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