# Quantum Latin squares and interacting quantum systems

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Dual unitary brickwork circuits give a popular model for interacting quantum systems, which allow easy calculation of correlation functions. We use a shaded generalization of the popular tensor calculus to describe and generalize these systems, in a way that makes use of 2-category theory in a beautiful way, which we explain from first principles. We will see how the interactions in this new system are generated by a range of quantum combinatorial objects, including quantum Latin squares.