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Type C Webs.

In his seminal 1996 paper, Kuperberg gives presentations for the categories of finite-dimensional representations of quantum groups associated to rank 2 simple complex Lie algebras (as braided pivotal categories). Such presentations underly constructions of invariants in low-dimensional topology; in particular, they serve as a "foundation" for various link homology theories. Kuperberg also poses the following problem: to find analogous descriptions of these categories for quantum groups of higher rank. In 2012, Cautis-Kamnitzer-Morrison solved this problem in type A using skew Howe duality, a technique that does not extend (at least in a straightforward way) to give a solution in other types.

In this talk, we will give a solution to Kuperberg's problem in type C. Our proof combines results on pivotal categories and quantum group representations with diagrammatic/topological analogues of theorems concerning reduced expressions in the symmetric group. (Received March 05, 2021)