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3n-vertex quivers from knot diagrams

We investigate a class of quivers arising from unoriented knot diagrams which are a modified version of the knot quivers of Bazier-Matte and Schiffler. Unlike the BMS knot quivers, however, these quivers remember over- and under-crossing information from the diagram. This is accomplished by including extra vertices for crossing points in the diagram. In this context, mutation at these extra vertices corresponds to flipping between over- and under-crossings. These quivers naturally arise as the quivers of triangulations of punctured spheres, allowing us to obtain a clear understanding of their cluster algebras.