
GRANT BARKLEY, Harvard University

Torsion classes for affine-type preprojective algebras

Bricks for a preprojective algebra have dimension vectors that are real or imaginary roots. We show that, for affine-type preprojective algebras, the real bricks in a torsion class are determined by the set of their dimension vectors. Furthermore, the sets that arise in this way are exactly the biclosed sets of roots, introduced by Matthew Dyer. This answers a conjecture of Dana, Speyer, and Thomas. We also show how this gives rise to an explicit parametrization of the torsion classes in type \tilde{A} using translation-invariant total orders, and induces a parametrization of the torsion classes for the completed path algebra of the oriented cycle. The resulting lattice is called the *cyclic Tamari lattice*, which we introduced in joint work with Colin Defant.