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On quivers and the subregular J-rings of Coxeter systems

Let (W, S) be an arbitrary Coxeter system and let G be its Coxeter diagram. We recall Lusztig's construction of the asymptotic Hecke algebra J of (W, S), an associative algebra closely related to the Iwahori–Hecke algebra of (W, S), and present some results on a subalgebra J_C of J that we call the subregular J-ring. We show that while products in J are defined in terms of Kazhdan–Lusztig polynomials, they can be computed by a simple combinatorial algorithm in J_C. We also relate J_C to the path algebra of a quiver constructed from G, and use the relation to deduce some results on the representations of J_C. (Joint work with Ivan Dimitrov, Charles Paquette, and David Wehlau.)