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0-Hecke algebra action on the Stanley-Reisner ring of the Boolean algebra

The 0-Hecke algebra is an interesting deformation of the group algebra of the symmetric group. By studying its action on the Stanley-Reisner ring of the Boolean algebra, we obtain a representation theoretic interpretation for the noncommutative Hall-Littlewood symmetric functions introduced by Bergeron and Zabrocki, and recover a result of Garsia and Gessel on generating functions of the joint distribution of five permutation statistics. Some of our results can be generalized to the setting of the Hecke algebra acting on the Stanley-Reisner ring of the Coxeter complex.