THE DELTA CONJECTURE

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Abstract:
The Delta Conjecture is an important open problem in algebraic combinatorics. In 2001 Haiman proved the n!-conjecture, which gives a formula for the Frobenius characteristic of the diagonal harmonics in terms of the Nabla operator, which is a linear operator on the space of symmetric functions that acts diagonally on the basis of Macdonald polynomials. The same symmetric funcion has a combinatorial interpretation in terms of labelled Dyck paths, as stated by the Shuffle Conjecture (now a theorem). The Delta Conjecture generalizes the Shuffle Conjecture by replacing the Nabla operator with the more general Delta operator. We give a combinatorial interpretation for some particular instances of the Delta Conjecture in terms of decorated labelled Dyck paths, showing a recursions for the "hh" case.