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Title: Dyck paths, standard Young tableaux, and pattern avoiding permutations

Abstract: In this talk we present a generating function and a closed counting formula in two variables that enumerate a family of classes of permutations that avoid or contain an increasing pattern of length three and have a prescribed number of occurrences of another pattern of length three. This gives a refinement of some previously studied statistics, most notably one by Noonan. The formula is also shown to enumerate a family of classes of Dyck paths and Standard Young Tableaux, and a bijection is given between the corresponding classes of these two families of objects. Finally, the results obtained are used to solve an optimization problem for a certain card game.