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Joel Brewster Lewis* (jblewis@math.umn.edu) and **Alejandro H. Morales**. *Combinatorics of diagrams of permutations*.

The combinatorics of the totally nonnegative part of the Grassmannian involves a variety of objects associated to a Grassmannian permutation. Many of these objects can be defined for permutations that are not necessarily Grassmannian by an appropriate choice of associated diagram. We study several such objects and their q -analogues, including acyclic orientations of inversion graphs, rook placements avoiding a diagram, intervals in the strong Bruhat order, and invertible matrices over a finite field with restricted support. (Received July 14, 2014)