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*Generalized  $q, t$ -Catalan Numbers and Jacobi Factors.*

We study combinatorics of cell decompositions of Jacobi factors of quasihomogeneous plane curve singularities. The cells are enumerated by certain Young diagrams, and the dimensions of cells can be computed in a combinatorial way. The resulting combinatorial theory turns out to be related to a generalization of  $(q, t)$ -Catalan numbers, geometry of the Hilbert scheme of points in the complex plane, representation theory of double affine Hecke algebras, and knot invariants of the link of the singularity. This is a joint work with Eugene Gorsky. (Received September 25, 2012)