1106-05-348 **Nicholas A. Loehr*** (nloehr@vt.edu), Virginia Tech Dept. of Mathematics, 460 McBryde Hall, Blacksburg, VA 24061-0123, and **Drew Armstrong** and **Gregory S. Warrington**. *Binomial coefficients, rational Catalan numbers, and their q-analogues.* Preliminary report.

Binomial coefficients count lattice paths contained in rectangles, whereas Catalan numbers (and their generalizations, the *rational* Catalan numbers) count lattice paths contained in certain triangles. The $q$-binomial coefficients enumerate lattice paths based on either their inversion count or their major index; these two combinatorial statistics lead to two distinct $q$-analogues of Catalan numbers. A long-standing open problem is to find a combinatorial statistic to explain the natural algebraic $q$-analogue of the rational Catalan numbers. We conjecture such a combinatorial statistic along with a novel combinatorial interpretation for the $q$-binomial coefficients. We give a bijective proof that the new formula for $q$-binomial coefficients implies the conjecture for $q$-Catalan numbers. (Received August 24, 2014)