1010-05-134   **Sarah K Mason*** (`sarahm2@math.upenn.edu`), 209 S. 33rd Street, Philadelphia, PA 19104.
Non-symmetric Schur functions and key polynomials. Preliminary report.

The Schur functions, $s_\lambda(x)$, form a basis for the vector space of symmetric functions. Recently Haglund, Haiman and Loehr derived a combinatorial formula for nonsymmetric Macdonald polynomials, which gives a new decomposition of the Macodnald polynomial into nonsymmetric components. Letting $q = t = 0$ in this identity implies $s_\lambda(x) = \sum_\mu NS_\mu(x)$, where the sum is over all rearrangements μ of the partition λ. We exhibit a bijection between semi-standard Young tableaux and semi-standard skyline fillings to give a combinatorial proof of the formula. The bijection involves an analogue of the Robinson-Schensted-Knuth Algorithm. We also describe a relationship between key polynomials and non-symmetric Schur functions. (Received August 23, 2005)

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