GAYEE PARK, UQAM

Minimal skew semistandard Young tableaux and the Hillman–Grassl correspondence

Standard tableaux of skew shape are fundamental objects in enumerative and algebraic combinatorics and no product formula for the number is known. In 2014, Naruse gave a formula as a positive sum over excited diagrams of products of hook-lengths. In 2018, Morales, Pak, and Panova gave a q-analogue of Naruse's formula for semi-standard tableaux of skew shapes. They also showed, partly algebraically, that the Hillman-Grassl map restricted to skew shapes gave their q-analogue. We study the problem of making this argument completely bijective. For a skew shape, we define a new set of semi-standard Young tableaux, called the *minimal SSYT*, that are equinumerous with excited diagrams via a new description of the Hillman–Grassl bijection and have a version of excited moves. Lastly, we relate the minimal skew SSYT with the terms of the Okounkov-Olshanski formula for counting SYT of skew shape. This is joint work with Alejandro Morales and Greta Panova.