Robinson–Schensted Shapes Arising From Cycle Decompositions

Martha Du Preez, William Q. Erickson, Jonathan Feigert, Markus Hunziker, Jonathan Meddaugh, Mitchell Minyard, Mark R. Sepanski*, Kyle Rosengartner, Baylor University

In the symmetric group S_n, each element σ has an associated cycle type α, a partition of n that identifies the conjugacy class of σ. The Robinson–Schensted (RS) correspondence links each σ to another partition λ of n, representing the shape of the pair of Young tableaux produced by applying the RS row-insertion algorithm to σ. Surprisingly, the relationship between these two partitions, the cycle type α and the RS shape λ, has only recently become a subject of study. In this work, we explicitly describe the set of RS shapes λ that can arise from elements of each cycle type α in cases where α consists of two cycles.

1