Relations between consecutive Catalan monoids

Stefan V. Pantazi*, Conestoga College ITAL; Tiberiu Spircu, Institute of Mathematics of the Romanian Academy

The goals of this paper are to study the classical Catalan monoids, to characterize their idempotents and nilpotents and to give emphasis to some non-trivial relations between consecutive Catalan monoids. Incidentally, a curious relation involving Catalan numbers is obtained. Finally, a new algorithm for generating tree-like constructs of Catalan monoids that allows the total ordering and description of reduced forms for all their elements, is described in detail.

Keywords: Catalan monoid, idempotent generated monoid, extensive order-preserving function