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Coxeter-Knuth graphs and a signed little map for type B reduced words. (English)

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Summary: We define an analog of David Little's algorithm for reduced words in type B, and investigate its main properties. In particular, we show that our algorithm preserves the recording tableau of Kraśkiewicz insertion, and that it provides a bijective realization of the Type B transition equations in Schubert calculus. Many other aspects of type A theory carry over to this new setting. Our primary tool is a shifted version of the dual equivalence graphs defined by Assaf and further developed by Roberts. We provide an axiomatic characterization of shifted dual equivalence graphs, and use them to prove a structure theorem for the graph of Type B Coxeter-Knuth relations.

MSC:

05A05 Permutations, words, matrices
05A19 Combinatorial identities, bijective combinatorics
05E05 Symmetric functions and generalizations

Keywords:

Stanley symmetric functions; Coxeter groups; reduced decompositions; shifted tableaux; dual equivalence graphs; Little map; Kraśkiewicz insertion; quasisymmetric functions; Schur P-functions

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