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Oliver Pechenik (pecheni2@illinois.edu) and **Dominic Searles*** (searles2@illinois.edu),
Department of Mathematics, 1409 W. Green Street, Urbana, IL 61801. *Root-system combinatorics
and the Belkale-Kumar product on cohomology of flag varieties.*

Using the combinatorial model of root-theoretic Young diagrams (RYDs), we investigate the Belkale-Kumar deformation of the cohomology of generalized flag varieties. We present a new rule in terms of RYDs, due to the second author, for the Belkale-Kumar product for flag varieties of type A (after the puzzle rule of Knutson-Purbhoo). In general type, we give an RYD criterion for vanishing of the Belkale-Kumar structure constants. Inspired by recent work of Evens-Graham, we also give a new proof that this product is well-defined in general type, using root-system combinatorics of K. Purbhoo. (Received July 27, 2014)