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Generic Jordan Types of Twisted Tensor Products.

Let A be a graded Artinian algebra. The Jordan type of a linear form $\ell \in A_1$ is the partition P_ℓ whose parts are the block sizes in the Jordan canonical form for its multiplication map $\times \ell: A \rightarrow A$. The generic Jordan type of A is the largest occurring Jordan type P_ℓ among all $\ell \in A_1$ with respect to the dominance order on partitions, and A has the strong Lefschetz property if its generic Jordan type is as large as possible. Given graded Artinian algebras A, B, C , we say C has a twisted tensor product decomposition if it is isomorphic to the tensor product $A \otimes B$ as A modules, but not as rings. We show that the generic Jordan type of the twisted tensor product C is bounded below by the generic Jordan type of the actual tensor product $A \otimes B$. A corollary is that the strong Lefschetz property for $A \otimes B$ implies the strong Lefschetz property for C . We will also give examples from invariant theory showing this implication is strict. (Received January 20, 2018)