The type B permutohedron and the poset of intervals as a Tchebyshev transform

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Abstract

We show that the order complex of intervals of a poset, ordered by inclusion, is a Tchebyshev triangulation of the order complex of the original poset. Besides studying the properties of this transformation, we show that the dual of the type B permutohedron is combinatorially equivalent to the order complex of the poset of intervals of a Boolean algebra (with the minimum and maximum elements removed).

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