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Chelsey A Cooley* (cacooley@ncsu.edu), Dept of Mathematics Box 8205, North Carolina State University, Raleigh, NC 27695, and **Nathan Williams**. *Combinatorial Formulas for an Involution Poset.*

Weyl groups generalize permutation groups and are useful in many branches of mathematics. For a Weyl Group W , the set of involutions is $I = \{w \in W | w = w^{-1}\}$. We studied a poset of involutions of the Weyl groups A_n and B_n , generated in the manner described by Haas and Helminck. We first give a formula for the rank of any element and use it to define a generating polynomial for the number of elements of each rank in both posets. We then propose a formula for the number of paths to the top-most element using Young Tableaux, based on the work of Stanley, Edelman, and Greene. We also give a combinatorial formula for the number of paths to other specific elements. In the last part of our talk, we discuss several interesting related results about the posets.

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