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Tamar Friedmann* (tamarf1@yahoo.com), **Phil Hanlon**, **Richard P. Stanley** and **Michelle L. Wachs**. *The action of the symmetric group on a generalization of the free Lie algebra: a CataLAnKe Theorem.*

The free Lie algebra is a natural mathematical construction that is central in algebraic combinatorics and has applications in other fields. I will discuss a generalization of the free Lie algebra based on an n -ary commutator. The action of the symmetric group on its multilinear component generalizes the well-known representation $\text{Lie}(k)$. I will discuss results and conjectures about this generalization of $\text{Lie}(k)$, including a representation whose dimension is the Catalan number. (Received February 04, 2018)