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SOME PROPERTIES OF A VARIANT OF Lie_n

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This talk will discuss a variant of the celebrated representation Lie_n of the symmetric group \mathfrak{S}_n on the multilinear component of the free Lie algebra on n generators. This variant, $Lie_n^{(2)}$, was introduced a few years ago by the author. Almost every known property of Lie_n has an analogue for $Lie_n^{(2)}$. By a theorem of Robert Thrall (1942), the representations Lie_n describe a decomposition of the regular representation of \mathfrak{S}_n , essentially the Poincaré-Birkhoff-Witt theorem. The variant $Lie_n^{(2)}$ gives rise to a similar decomposition with exterior powers replacing symmetric powers. This talk will survey this and other properties of $Lie_n^{(2)}$.