The decomposition of the exterior square of the irreducible representation $V(n,n)$ of the simple Lie algebra $\mathfrak{sl}(3)$ includes both $V(n,n)$ and $V(1,1)$. This allows us to define a nonassociative algebra structure on $V(n,n)$ with binary and ternary multiplication. We examine this situation for $n = 2, 3, \text{and } 4$.

We shall also examine nonassociative algebra structures whose binary multiplication arises from the decomposition of the exterior square of indecomposable representations of the Euclidean algebra. (Received September 19, 2007)