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## Biderivations and Commuting Linear Maps on Lie Algebras

Let $L$ be a Lie algebra over a commutative unital ring $F$ containing $\frac{1}{2}$. If $L$ is perfect and centerless, then every skew-symmetric biderivation $\delta\colon L \times L \to L$ is of the form $\delta(x,y) = \gamma([x,y])$ for all $x, y \in L$, where $\gamma \in \mathrm{Cent}(L)$, the centroid of $L$. Under a milder assumption that $[c, [L, L]] = \{0\}$ implies $c = 0$, every commuting linear map from $L$ to $L$ lies in $\mathrm{Cent}(L)$. These two results are special cases of our main theorems which concern biderivations and commuting linear maps having their ranges in an $L$-module. We provide a variety of examples, some of them showing the necessity of our assumptions and some of them showing that our results cover several results from the literature.

**Keywords**: Lie algebra, biderivation, commuting linear map, centroid.

**MSC**: 17B05, 17B40, 16R60.