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Biderivations and Commuting Linear Maps on Current Lie Algebras

Let L be a Lie algebra and let A be an associative commutative algebra with unity, both over the same field F . We consider the following two questions. Is every skew-symmetric biderivation on the current Lie algebra $L \otimes A$ of the form $(x, y) \mapsto \lambda([x, y])$ for some $\gamma \in \text{Cent}(L \otimes A)$, if the same holds true for L ? Does every commuting linear map of $L \otimes A$ belong to $\text{Cent}(L \otimes A)$, if the same holds true for L ?

Keywords: Lie algebra, current Lie algebra, tensor product of algebras, biderivation, commuting linear map, centroid.

MSC: 17B05, 17B40, 15A69, 16R60.