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## Lie centralizers at unit product on generalized matrix algebras

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**Abstract.** Let  $\mathcal G$  be a generalized matrix algebra, and  $\phi:\mathcal G\to\mathcal G$  a linear map. It is shown that, under some mild conditions, the following are equivalent: (i)  $\phi([S,T])=[\phi(S),T]$ , for all  $S,T\in\mathcal G$  with ST=I; (ii)  $\phi([S,T])=[S,\phi(T)]$ , for all  $S,T\in\mathcal G$  with ST=I; (iii)  $\phi(A)=ZA+\gamma(A)$ , for all  $A\in\mathcal G$ , where  $Z\in\mathcal Z(\mathcal G)$  and  $\gamma:\mathcal G\to\mathcal Z(\mathcal G)$  is a linear map vanishing on each commutator [S,T] whenever ST=I. These results are then applied to matrix algebras and some operator algebras.

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