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## Lie's theorem

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Author bwebste (988) Entry type Theorem Classification msc 17B30 Let  $\mathfrak g$  be a finite dimensional complex solvable Lie algebra, and V a repesentation of  $\mathfrak g$ . Then there exists an element of V which is a simultaneous eigenvector for all elements of  $\mathfrak g$ .

Applying this result inductively, we find that there is a basis of V with respect to which all elements of  $\mathfrak g$  are upper triangular.