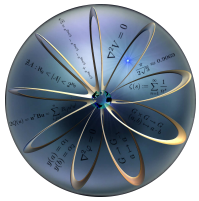

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invariant form (Lie algebras)

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Let V be a representation of a Lie algebra $\mathfrak{g}$ over a field k. Then a bilinear form $B : V \times V \to k$ is *invariant* if

$$B(Xv, w) + B(v, Xw) = 0.$$

for all $X \in \mathfrak{g}, v, w \in V$. This criterion seems a little odd, but in the context of Lie algebras, it makes sense. For example, the map $\tilde{B} : V \to V^*$ given by $v \mapsto B(\cdot, v)$ is equivariant if and only if B is an invariant form.