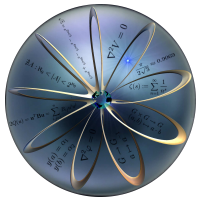

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conjugate module

Canonical name	ConjugateModule
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If M is a right module over a ring R, and α is an endomorphism of R, we define the *conjugate module* M^α to be the right R-module whose underlying set is $\{m^\alpha \mid m \in M\}$, with abelian group structure identical to that of M (i.e. $(m-n)^\alpha = m^\alpha - n^\alpha$), and scalar multiplication given by $m^\alpha \cdot r = (m \cdot \alpha(r))^\alpha$ for all m in M and r in R.

In other words, if $\phi : R \to \mathrm{End}_{\mathbb{Z}}(M)$ is the ring homomorphism that describes the right module action of R upon M, then $\phi\alpha$ describes the right module action of R upon M^α.

If N is a left R-module, we define ${}^\alpha N$ similarly, with $r \cdot {}^\alpha n = {}^\alpha(\alpha(r) \cdot n)$.