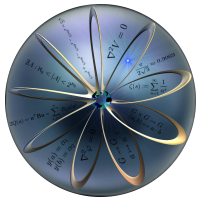

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left / right perpendicular

Canonical name	LeftRightPerpendicular
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Defines	left perpendicular
Defines	right perpendicular

Given a sesquilinear form $b : V \times V \to k$ over the field k, if $v, u \in V$ such that $b(v, u) = 0$ then we say v is *right perpendicular* to u and denote it $v \perp u$. Likewise u is *left perpendicular* to v and can be denoted by $u \top v$.

By definition $v \perp u$ if and only if $u \top v$. However, $v \perp u$ need not imply $u \perp v$.

For example, let $V = k \oplus k$ and $b((v_1, v_2), (u_1, u_2)) = v_1 u_2$. Then $b((0, 1), (1, 0)) = 0$ so $(0, 1) \perp (1, 0)$, or equivalently, $(1, 0) \top (0, 1)$. However $b((1, 0), (0, 1)) = 1 \neq 0$ so $(1, 0)$ is not right perpendicular to $(0, 1)$ and $(0, 1)$ is not left perpendicular to $(1, 0)$.