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multi-linear

Canonical name Multilinear

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Let V_1, V_2, \dots, V_n, W be vector spaces over a field K. A mapping

$$M: V_1 \times V_2 \times \cdots \times V_n \to W$$

is called multi-linear or n-linear, if M is linear in each of its arguments.

Notes.

- A bilinear mapping is another name for a 2-linear mapping.
- This definition generalizes in an obvious way to rings and modules.
- An excellent example of a multi-linear map is the determinant operation.