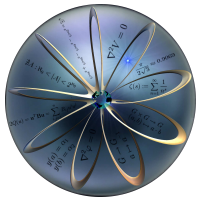

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comodule

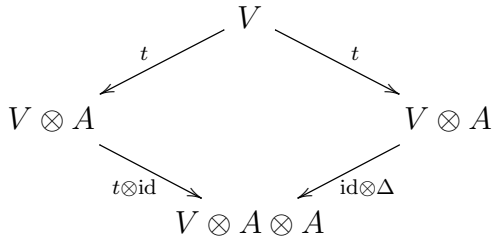
Canonical name	Comodule
Date of creation	2013-03-22 13:26:17
Last modified on	2013-03-22 13:26:17
Owner	mhale (572)
Last modified by	mhale (572)
Numerical id	8
Author	mhale (572)
Entry type	Definition
Classification	msc 16W30
Synonym	corepresentation
Defines	coaction

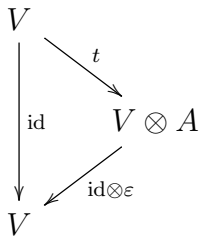
Let (A, Δ, ε) be a coalgebra. A **right A-comodule** is a vector space V with a linear map $t\colon V \to V \otimes A$, called the **right coaction**, satisfying

$$(t \otimes \mathrm{id}) \circ t = (\mathrm{id} \otimes \Delta) \circ t, \qquad (\mathrm{id} \otimes \varepsilon) \circ t = \mathrm{id}. \tag{1}$$

An A-comodule is also referred to as a corepresentation of A.

In of commutative diagrams:





Let V and W be two right A-comodules. Then $V \oplus W$ is also a right A-comodule. If A is a bialgebra then $V \otimes W$ is a right A-comodule as well (make use of the multiplication map $A \otimes A \to A$).

A comodule map is a linear map $f\colon V \to W$ such that $t_W \circ f = (f \circ \mathrm{id}) \circ t_V$.