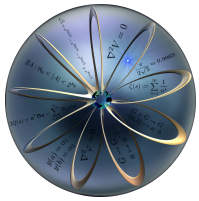

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grouplike elements

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Let (C, Δ, ε) be a coalgebra over a field k.

Definition. The element $g \in C$ is called *grouplike* iff $g \neq 0$ and $\Delta(g) = g \otimes g$. The set of all grouplike elements in a coalgebra C is denoted by $G(C)$.

Properties. 0) The set $G(C)$ can be empty, but (for example) if C can be turned into a bialgebra, then $G(C) \neq \emptyset$. In particular Hopf algebras always have grouplike elements.

1) If $g \in G(C)$, then it follows from the counit property that $\varepsilon(g) = 1$.

2) It can be shown that the set $G(C)$ is linearly independent.