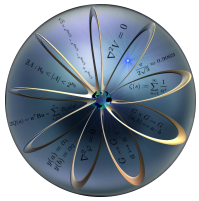

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essential monomorphism

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Let $\mathcal{C}$ be a category and $A, B \in \mathrm{Ob}(\mathcal{C})$. Then a monomorphism $f \in \mathcal{C}(A, B)$ is said to be an *essential extension* (or *essential monomorphism*) iff :

If $g \in \mathcal{C}(B, C)$ be such that $g \circ f : A \to B \to C$ is a monomorphism then g is a monomorphism.

Some examples:

- Consider the category of commutative rings. One way to redefine essential extension in this category is in the following way:

  If A is a subring of another ring B then B is an essential extension of A iff for any $b \in B\backslash\{0\}$ there exists a $c \in B$ such that $bc \in A\backslash\{0\}$.

- In the category of modules see `http://planetmath.org/EssentialSubmodule`essential submodules.

- In the category of groups see essential subgroups.