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zero object

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Entry type	Definition
Classification	msc 18A05
Defines	initial object
Defines	terminal object

An *initial object* in a category $\mathcal{C}$ is an object A in $\mathcal{C}$ such that, for every object X in $\mathcal{C}$, there is exactly one morphism $A \longrightarrow X$.

A *terminal object* in a category $\mathcal{C}$ is an object B in $\mathcal{C}$ such that, for every object X in $\mathcal{C}$, there is exactly one morphism $X \longrightarrow B$.

A *zero object* in a category $\mathcal{C}$ is an object 0 that is both an initial object and a terminal object.

All initial objects (respectively, terminal objects, and zero objects), if they exist, are isomorphic in $\mathcal{C}$.