Definition (Category)

A *category* **C** is a semicategory with an additional constituent and an additional rule:

Constituents

1. Identity morphisms: for each object X, there is a morphism

$$\mathrm{Id}_X : X \to X$$

   called *the identity morphism of* X.

Conditions

1. Unitality: It holds that composing a morphism with a compatible identity leaves the morphism unchanged:

$$\frac{f : X \to Y}{\mathrm{Id}_X \fatsemi f = f = f \fatsemi \mathrm{Id}_Y}.$$