0.1 Representable Functors

Let $\mathcal{C}$ be a locally small category, $C \in obj(\mathcal{C})$ then $Hom_{\mathcal{C}}(C, -) : \mathcal{C} \to Set$ is the set of representable functors. This functor is faithful if the object C has the property that for any objects X and Y and arrows $f, g : X \to Y$ if $f \neq g$ there is an arrow $x : C \to X$ such that $fx \neq gx$. That is, the arrows in the category are distinguished by their effect on generalized elements based at C. Such an object C is called a generator for C.

Contravariant of a representable functor $Hom_{\mathcal{C}}(-, C) : C^{op} \to Set$

Ring of continuous functions $C(X)$ -wow- $f : X \to R | f is continuous$