Definition (Subcategory). A *subcategory* $\mathbf{D}$ of a category $\mathbf{C}$ is a category for which:

1. All the objects in $\mathrm{Ob}_{\mathbf{D}}$ are in $\mathrm{Ob}_{\mathbf{C}}$;
2. For any objects $X, Y \in \mathrm{Ob}_{\mathbf{D}}$, $\mathrm{Hom}_{\mathbf{D}}(X;Y) \subseteq \mathrm{Hom}_{\mathbf{C}}(X;Y)$;
3. If $X \in \mathrm{Ob}_{\mathbf{D}}$, then $\mathrm{Id}_X \in \mathrm{Hom}_{\mathbf{C}}(X;X)$ is in $\mathrm{Hom}_{\mathbf{D}}(X;X)$ and acts as its identity morphism;
4. If $f : X \to Y$ and $g : Y \to Z$ in $\mathbf{D}$, then the composite $f \mathbin{⨾} g$ in $\mathbf{C}$ is in $\mathbf{D}$ and represents the composite in $\mathbf{D}$.