Definition (Opposite category). Given a category $\mathbf{C}$, the *opposite category* $\mathbf{C}^{op}$ has the same objects as $\mathbf{C}$, but a morphism $f : X \to Y$ in $\mathbf{C}^{op}$ is the same as a morphism $f : Y \to X$ in $\mathbf{C}$. Furthermore, a composite of morphisms $f \,\fatsemi\, g$ in $\mathbf{C}^{op}$ is the composite $g \circ f$ in $\mathbf{C}$.