Definition (Functor composition)
Consider categories $\mathbf{A}, \mathbf{B}, \mathbf{C}$ and functors $F : \mathbf{A} \to \mathbf{B}$, $G : \mathbf{B} \to \mathbf{C}$. Functor composition is given by $F \fatsemi G : \mathbf{A} \to \mathbf{C}$, where:

- Given $X \in \mathrm{Ob}_{\mathbf{A}}$, one has $(F \fatsemi G)(X) := G(F(X))$;
- Given $f \in \mathrm{Hom}_{\mathbf{A}}(X; Y)$, one has $(F \fatsemi G)(f) := G(F(f))$.