

Definition (Kleisli category). Let $\langle M, \text{un}, \text{mu} \rangle$ be a monad on a category \mathbf{C} . The *Kleisli category* \mathbf{C}_M of the monad M is specified by:

1. *Objects*: $\text{Ob}(\mathbf{C}_M) := \text{Ob}(\mathbf{C})$;
2. *Morphisms*: $\text{Hom}_{\mathbf{C}_M}(X, Y) := \text{Hom}_{\mathbf{C}}(X, M(Y))$;
3. *Identities*: $\text{Id}_X := \text{un}_X$;
4. *Composition*: Kleisli composition.