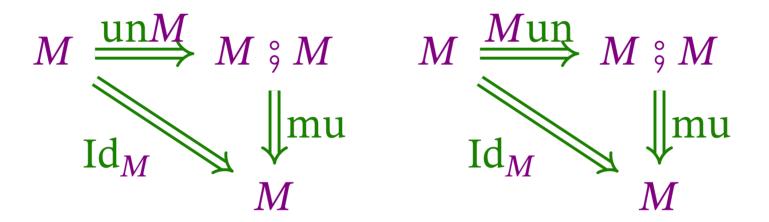
Definition (Monad). Let **C** be a category. A monad on **C** consists of:

- 1. A functor $M: \mathbb{C} \to \mathbb{C}$.
- 2. A natural transformation un : $Id_{\mathbb{C}} \Rightarrow M$ called *unit*.
- 3. A natural transformation mu : $M \, \stackrel{\circ}{,} \, M \Rightarrow M$ called *composition* or *multiplication*.

The constituents must satisfy left and right unitality



and associativity

$$M \stackrel{\circ}{\circ} M \stackrel{\circ}{\circ} M \xrightarrow{M mu} M \stackrel{\circ}{\circ} M$$

$$\downarrow muM \qquad \qquad \downarrow mu$$

$$M \stackrel{\circ}{\circ} M \xrightarrow{mu} M$$