Definition (Algebra of a monad)

Let $\langle M, \text{mu}, \text{un} \rangle$ be a monad on a category \mathbb{C} . An algebra of M (also called an M-algebra) is specified by:

Constituents

- 1. an object *X* of **C**;
- 2. a morphism $a: M(X) \to X$ of \mathbb{C} .

Conditions

1. Composition: the diagram

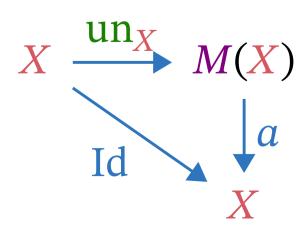
$$(M \stackrel{\circ}{\circ} M)(X) \xrightarrow{Ma} M(X)$$

$$mu_X \downarrow \qquad \qquad \downarrow a$$

$$M(X) \xrightarrow{a} X$$

commutes.

2. *Unit*: the diagram



commutes.