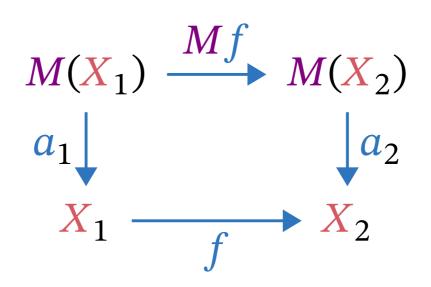**Definition** (M-algebra morphism). Let $\langle M, \text{un}, \text{mu} \rangle$ be a monad on a category $\mathbf{C}$, and let $\langle X_1, a_1 \rangle$ and $\langle X_2, a_2 \rangle$ be algebras of M. A morphism $\langle X_1, a_1 \rangle \to \langle X_2, a_2 \rangle$ of M-algebras is specified by:

Constituents

1. A morphism $f : X_1 \to X_2$ in $\mathbf{C}$.

Conditions

1. The diagram

$$
\begin{array}{ccc}
M(X_1) & \xrightarrow{\ Mf\ } & M(X_2) \\
{\scriptstyle a_1} \downarrow & & \downarrow {\scriptstyle a_2} \\
X_1 & \xrightarrow{\ f\ } & X_2
\end{array}
$$

commutes.