

A commutative diagram illustrating a relationship between two objects $M(X_1)$ and $M(X_2)$ and their underlying objects X_1 and X_2 .

The diagram consists of four nodes arranged in a square:

- Top-left node: $M(X_1)$
- Top-right node: $M(X_2)$
- Bottom-left node: X_1
- Bottom-right node: X_2

The nodes are connected by arrows:

- A horizontal arrow from $M(X_1)$ to $M(X_2)$ labeled Mf .
- A vertical arrow from $M(X_1)$ down to X_1 labeled a_1 .
- A vertical arrow from $M(X_2)$ down to X_2 labeled a_2 .
- A horizontal arrow from X_1 to X_2 labeled f .

The diagram shows that the map f between X_1 and X_2 is compatible with the maps a_1 and a_2 from the M -objects to the X -objects, in the sense that Mf is the image of f under the functor M .