

A commutative diagram illustrating the naturality of the associativity isomorphism α for the Cartesian product. The diagram consists of two rows of objects and two columns of objects, connected by horizontal, vertical, and curved arrows.

Top Row: $\langle \langle a, b \rangle, c \rangle$ is connected to $\langle a, \langle b, c \rangle \rangle$ by a horizontal blue arrow pointing right.

Bottom Row: $\langle \langle f(a), g(b) \rangle, h(c) \rangle$ is connected to $\langle f(a), \langle g(b), h(c) \rangle \rangle$ by a horizontal blue arrow pointing right.

Left Column: $(A \times B) \times C$ is connected to $(A' \times B') \times C'$ by a vertical black arrow pointing down, labeled $(f \times g) \times h$ to its left.

Right Column: $A \times (B \times C)$ is connected to $A' \times (B' \times C')$ by a vertical black arrow pointing down, labeled $f \times (g \times h)$ to its right.

Central Isomorphism: $(A \times B) \times C$ is connected to $A \times (B \times C)$ by a horizontal black arrow pointing right, labeled $\alpha_{A,B,C}$ above it.

Central Isomorphism: $(A' \times B') \times C'$ is connected to $A' \times (B' \times C')$ by a horizontal black arrow pointing right, labeled $\alpha_{A',B',C'}$ below it.

Curved Blue Arrows: A large curved blue arrow on the left connects the top-left object to the bottom-left object. A large curved blue arrow on the right connects the top-right object to the bottom-right object.