

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:

- Left object: $\langle\langle a, b \rangle, c\rangle$
- Right object: $\langle a, \langle b, c \rangle \rangle$
- Horizontal arrow: $\xrightarrow{\quad}$

Bottom Row:

- Left object: $\langle\langle f(a), g(b) \rangle, h(c) \rangle$
- Right object: $\langle f(a), \langle g(b), h(c) \rangle \rangle$
- Horizontal arrow: $\xleftarrow{\quad}$

Left Column:

- Top object: $(A \times B) \times C$
- Bottom object: $(A' \times B') \times C'$
- Vertical arrow: $(f \times g) \times h \downarrow$

Right Column:

- Top object: $A \times (B \times C)$
- Bottom object: $A' \times (B' \times C')$
- Vertical arrow: $\downarrow f \times (g \times h)$

Horizontal Arrows:

- Top: $(A \times B) \times C \xrightarrow{\alpha_{A,B,C}} A \times (B \times C)$
- Bottom: $(A' \times B') \times C' \xrightarrow{\alpha_{A',B',C'}} A' \times (B' \times C')$

Curved Arrows:

- Left curved arrow: from $\langle\langle f(a), g(b) \rangle, h(c) \rangle$ to $\langle\langle a, b \rangle, c\rangle$
- Right curved arrow: from $\langle f(a), \langle g(b), h(c) \rangle \rangle$ to $\langle a, \langle b, c \rangle \rangle$