

Definition (Stacking semi-category)

A stacking semi-category is a semi-category with the following additional constituents and properties.

Constituents

- ▷ A stacking operation \otimes that makes the objects into a semigroup.
- ▷ A stacking operation \boxtimes that makes the morphisms into a semigroup.

Conditions

- ▷ The two operations \otimes and \boxtimes are compatible in the sense that

$$\frac{f_i : X_i \rightarrow Y_i, \quad 1 \leq i \leq n,}{(\boxtimes_{i=1}^n f_i) : (\otimes_{i=1}^n X_i) \rightarrow (\otimes_{i=1}^n Y_i).}$$