

Definition

Let \mathbf{A} and \mathbf{B} be categories enriched in a symmetric monoidal category \mathbf{V} . Their *product* is a \mathbf{V} -enriched category $\mathbf{A} \times \mathbf{B}$ with:

1. $\text{Ob}_{\mathbf{A} \times \mathbf{B}} := \text{Ob}_{\mathbf{A}} \times \text{Ob}_{\mathbf{B}}$;
2. $\text{Hom}_{\mathbf{A} \times \mathbf{B}}(\langle X, Y \rangle; \langle X', Y' \rangle) := \text{Hom}_{\mathbf{A}}(X; X') \otimes \text{Hom}_{\mathbf{B}}(Y; Y')$, for two objects $\langle X, Y \rangle$ and $\langle X', Y' \rangle$ in $\text{Ob}_{\mathbf{A} \times \mathbf{B}}$.