

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