Definition (Enriched category). We say that a category **C** is enriched in **D** if: 1. For all objects X, Y of C, the set $Hom_{C}(X; Y)$ can be considered an object

- of **D**;
- 2. **D** is a monoidal category (??), with monoidal product $\otimes_{\mathbf{D}}$; 3. For all objects X, Y, Z of C, there exists a certain morphism $m_{X,Y,Z}$ in

D, which goes from the object $\operatorname{Hom}_{\mathbf{C}}(X;Y) \otimes_{\mathbf{D}} \operatorname{Hom}_{\mathbf{C}}(Y;Z)$ to the object $\operatorname{Hom}_{\mathbf{C}}(X; Z)$:

 $m_{X,Y,Z}$: $\operatorname{Hom}_{\mathbf{C}}(X;Y) \otimes_{\mathbf{D}} \operatorname{Hom}_{\mathbf{C}}(Y;Z) \to \operatorname{Hom}_{\mathbf{C}}(X;Z)$.