

$$\begin{array}{ccc}
 \mathrm{Hom}_{\mathbf{C}}(X; Y) \otimes \mathrm{Hom}_{\mathbf{C}}(Y; Z) & \xrightarrow{m_{X,Y,Z}} & \mathrm{Hom}_{\mathbf{C}}(X; Z) \\
 \downarrow F_{X,Y} \otimes F_{Y,Z} & & \downarrow F_{X,Z} \\
 \mathrm{Hom}_{\mathbf{D}}(F(Y); F(Z)) \otimes \mathrm{Hom}_{\mathbf{D}}(F(X); F(Y)) & \xrightarrow{m_{F(X),F(Y),F(Z)}} & \mathrm{Hom}_{\mathbf{D}}(F(X); F(Z))
 \end{array}$$