

$$\begin{array}{ccc}
 \text{Hom}_C(a, b) \otimes \text{Hom}_C(b, c) & \xrightarrow{\circ_{a,b,c}} & \text{Hom}_C(a, c) \\
 \scriptstyle F_{a,b} \otimes F_{b,c} \downarrow & & \downarrow \scriptstyle F_{a,c} \\
 \text{Hom}_D(F(b), F(c)) \otimes \text{Hom}_D(F(a), F(b)) & \xrightarrow{\circ_{F(a), F(b), F(c)}} & \text{Hom}_D(F(a), F(c))
 \end{array}$$