

$$\begin{array}{ccc}
 \mathbf{1} & & \\
 \downarrow j_X & \searrow j_{F(X)} & \\
 \mathrm{Hom}_{\mathbf{C}}(X; X) & \xrightarrow{F_{X,X}} & \mathrm{Hom}_{\mathbf{D}}(F(X); F(X))
 \end{array}$$