$$\downarrow_{j_X} \qquad \downarrow_{j_X} \qquad \downarrow_{j_{F(X)}} \\
\operatorname{Hom}_{\mathbf{C}}(X;X) \xrightarrow{F_{X,X}} \operatorname{Hom}_{\mathbf{D}}(F(X);F(X))$$