$$c_{1} = \langle X^{*}, Y \rangle \xrightarrow{\text{Hom}_{\mathbf{C}}} \text{Hom}_{\mathbf{C}}(X; Y)$$

$$f \qquad f_{1}^{*} \qquad f_{2} \qquad \text{Hom}_{\mathbf{C}}(g)$$

$$c_{2} = \langle Z^{*}, U \rangle \xrightarrow{\text{Hom}_{\mathbf{C}}} \text{Hom}_{\mathbf{C}}(Z; U)$$