$$V \times W \xrightarrow{\quad k(v_i, w_j) = \delta_{(v_i, w_j)} \quad} \mathcal{V}(V \times W)$$

$$\alpha(v_i, w_j) \searrow \qquad \downarrow \phi_\alpha(\delta_{(v_i, w_j)}) = \alpha(v_i, w_j)$$

$$X$$