

Initiator  
 $(sk_I, pk_I); pk_R$

Responder  
 $(sk_R, pk_R); pk_I$

---

$x \xleftarrow{\$} \{0, 1\}^\lambda, X \leftarrow g^x$

$\xrightarrow{X}$

$y \xleftarrow{\$} \{0, 1\}^\lambda, Y \leftarrow g^y$   
 $\sigma_R \leftarrow \text{Sign}_{sk_R}(\text{h}(Y|X))$   
 $k \leftarrow \text{KDF}(g^{xy})$   
 $c_R \leftarrow \text{Enc}_k(\sigma_R)$

$\xleftarrow{Y, c_R}$

$\sigma_I \leftarrow \text{Sign}_{sk_I}(\text{h}(X|Y))$   
 $k \leftarrow \text{KDF}(g^{xy})$   
 $c_I \leftarrow \text{Enc}_k(\sigma_I)$

$\xrightarrow{c_I}$