

Proof (Lemma 1) We know that

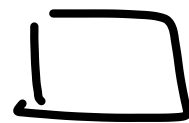
$$U_p^0(x, y)^\vee = \pi_{p'}(y, \bar{x}^{**}) = \pi_{p'}(y, x)$$

Hence

$$(U_p^0)^{\vee\vee}(x, y) = I_p(x, y^{**})$$

In particular

$$U_p^0(\tau) = I_p(\tau: X \rightarrow Y^{**}) = U_p^0(\tau: X \rightarrow Y^{**})$$



Remark: The proof we presented in class does not exactly calculate

$$\pi_{p'}(y, \bar{x})^\vee = I_p(x, y^{**})$$

In general we may calculate

$$(F(x, y), \pi_{p'})^\vee = I_{p'}(y, X^{**})$$

Proof: We consider the collection (G, F)

$$G \subseteq X^v \quad F \subseteq Y$$

For every such pair

$$\Pi_p(G^v, F) \subseteq \Pi_p(X, Y)$$

and hence $\varphi \in \Pi_p(X, Y) \cap \Pi_p(G^v, F) \rightarrow \mathbb{K}$ of norm 1
gives a functional on $\Pi_p(G^v, F)$ and hence

$$\begin{array}{ccccc} X & \supseteq & F & \xrightarrow{S\varphi} & G^v & \leftarrow & \Sigma \\ \cap & & \downarrow & & \uparrow R & & \\ C(B_{X^v}) & \longrightarrow & \bigoplus_m P_i & \xrightarrow{R} & \bigoplus_m P_i & & \end{array}$$

As before we extend the picture, and define the weak*-limit

$$\hat{S}: C(B_{X^v}) \longrightarrow Y^{**}$$

$$\langle \hat{S}(f), g \rangle = \lim_{\langle FG \rangle} \langle S_{FG}(f), g \rangle$$

Then $\Pi_p(\hat{S}) \leq 1$, and it is easy to see that

$$\langle \hat{S}(f), g \rangle = \varphi(g \otimes f) \quad \forall f \in X, g \in Y^v$$

