Want to show X^{-1} is cts on $X(D_3)$. $D_3 = \{(u,v) \mid u^2+v^2<3\}$.

For all $X(u_i, v_i) \to X(u_0, v_0)$

Want to show $(u_i, v_i) \to (u_0, v_0)$

If $\underbrace{(u_i, v_i)}_{\triangleq\, p_i}$ doesn't converge to $\underbrace{(u_0, v_0)}_{\triangleq\, p_0}$, then

$\exists\, \varepsilon_0 > 0$ s.t. $\forall\, k \geq 1$

$$|p_{i_k} - p_0| \geq \varepsilon_0 \qquad (*)$$

Since p_{i_k}'s are in a cpt set,

$p_{i_{k_j}} \to \tilde{p}$ as $j \to +\infty$.

So $X(p_{i_{k_j}}) \to X(\tilde{p})$

But $X(p_i) \to X(p_0)$

And $p_0 \in D_3 \Rightarrow \tilde{p} = p_0$

So $p_{i_{k_j}} \to p_0$ $\rightarrow\leftarrow$ with $(*)$.

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