

Now prove by induction on n that

$$\underbrace{((\psi, \Psi), \dots, (\psi, \Psi))}_{n \text{ times}} \in D(x_E = x_E, \equiv) \stackrel{\textcircled{*}}{\Rightarrow}$$

$$\underbrace{((\psi', \Psi'), \dots, (\psi', \Psi'))}_{n \text{ times}} \in D(x = x, \equiv)$$

$\Rightarrow \textcircled{*}$ holds $\forall n \Rightarrow \mathcal{K}$ not simple. □