

Th II:  $K \subseteq K \cap K$

①  $K \subseteq K \cap K \leftrightarrow K \subseteq K \wedge K \subseteq K$

②  $K \subseteq K$

③  $K \subseteq K \wedge K \subseteq K$

④  $K \subseteq K \cap K$

Th III :  $K \subseteq KUL \wedge L \subseteq KUL$

①  $KUL \subseteq KUL \leftrightarrow$   $K \subseteq KUL \wedge L \subseteq KUL$   
inst. Ax III,  $M:KUL$

②  $KUL \subseteq KUL$  inst. Ax I  $K:KUL$

③ Th III R.O.S. ① into ②

# Th V KUL $\subseteq$ LUK

- ① KUL  $\subseteq$  LUK  $\leftrightarrow$   $\underbrace{K \subseteq LUK}_q \wedge \underbrace{L \subseteq LUK}_r$   
inst Ax III, M:LUK
- ②  $\underbrace{L \subseteq LUK}_p \wedge \underbrace{K \subseteq LUK}_q$  inst Th III, K:L, L:K
- ③  $(L \subseteq LUK \wedge K \subseteq LUK) \rightarrow (K \subseteq LUK \wedge L \subseteq LUK)$   
inst.  $p \wedge q \rightarrow q \wedge p$   
p: L  $\subseteq$  LUK  
q: K  $\subseteq$  LUK  
P.O.D. on ② and ③
- ④  $K \subseteq LUK \wedge L \subseteq LUK$   
R.O.S. ①, ②, ③
- ⑤ Th V