

$$\begin{aligned}
 \Rightarrow (\pi_1, \dots, \pi_m) &= (\varphi f_1, \dots, \varphi f_m) \\
 &= (f_1' \varphi, \dots, f_m' \varphi) \\
 &= \varnothing(\varphi)
 \end{aligned}$$