

 $\hat{x}_3^*(\mathbf{p})$
 $n_1 m_3 \frac{\partial \hat{x}_3^*}{\partial p_1} \geq 0$
 $n_2 m_3 \frac{\partial \hat{x}_3^*}{\partial p_2} \geq 0$
 $n_3 m_3 \frac{\partial \hat{x}_3^*}{\partial p_3} \geq 0$

