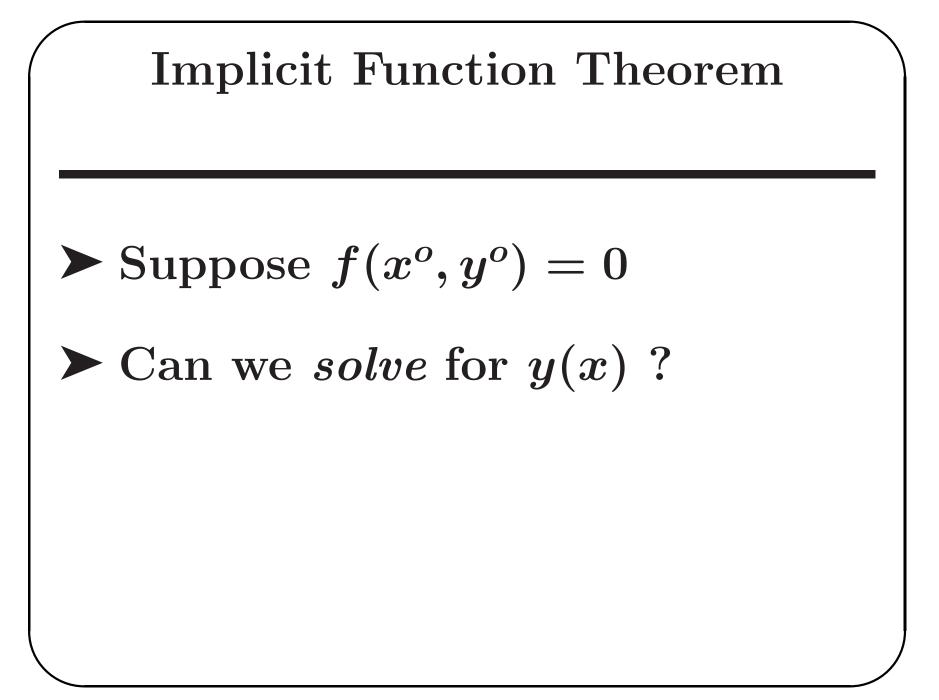
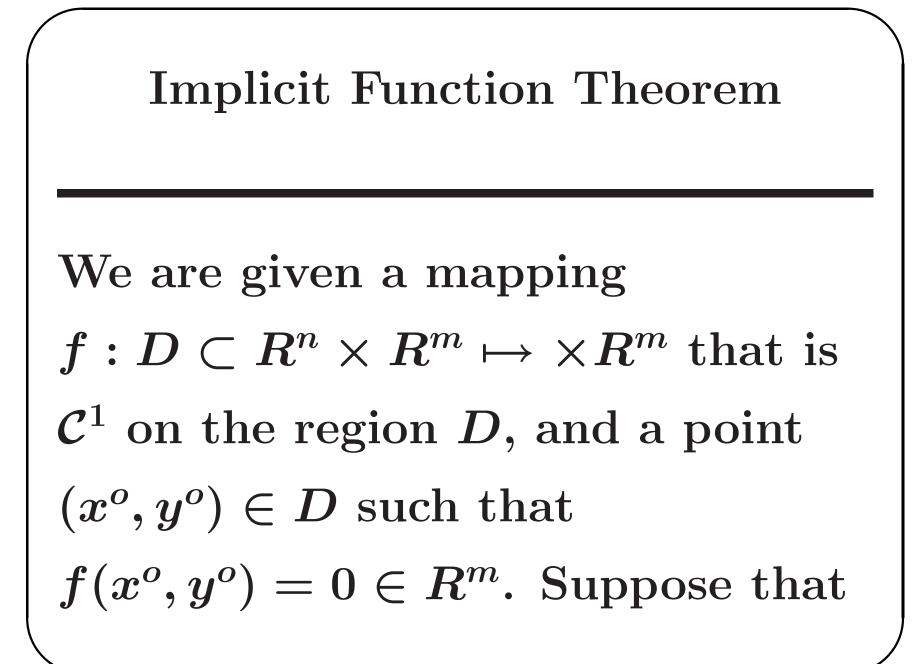
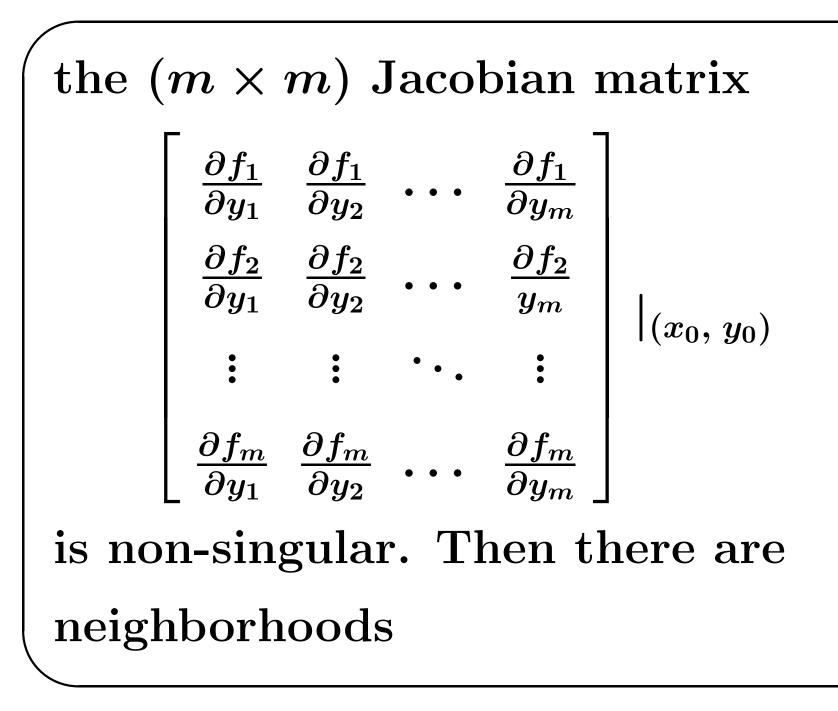


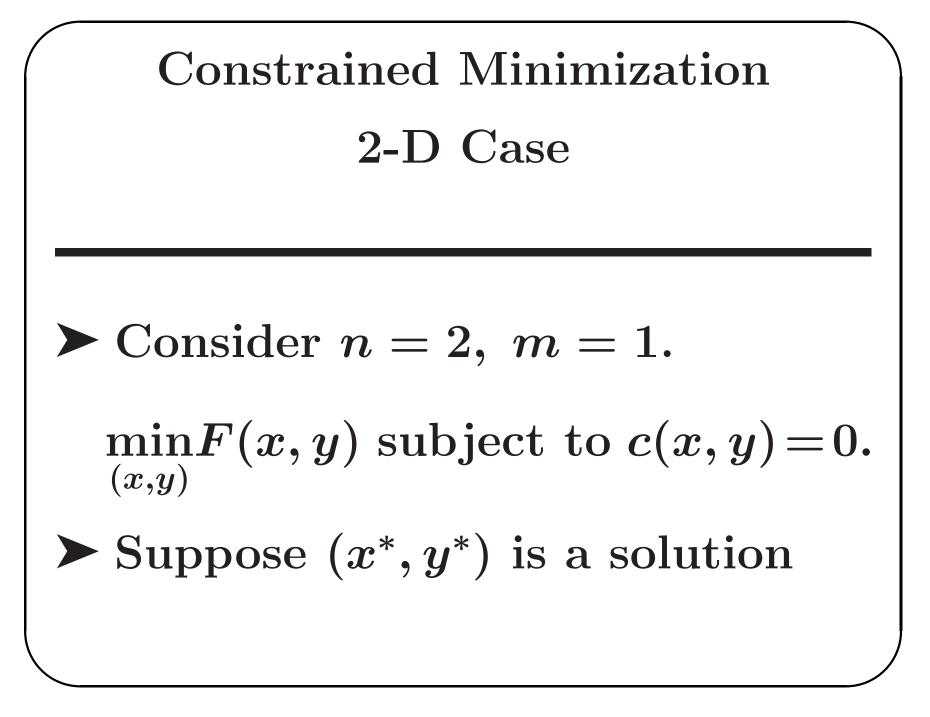
 $c_1(x_1,x_2) \;=\; (x_1-1)^2 + x_2^2 - 1$ $c_2(x_1,x_2) \ = \ x_2 - lpha$

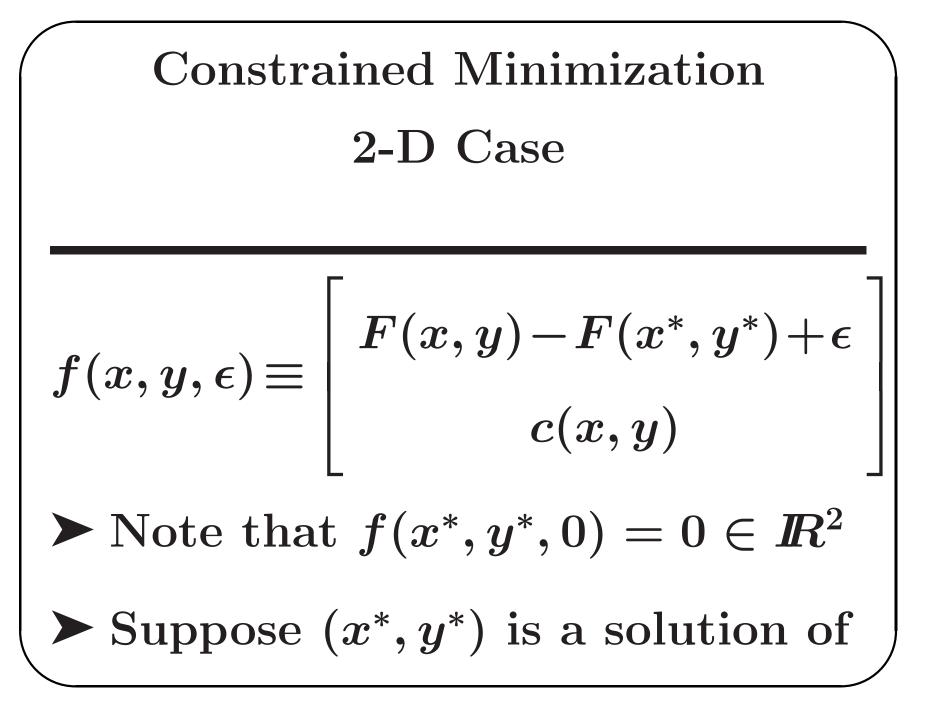


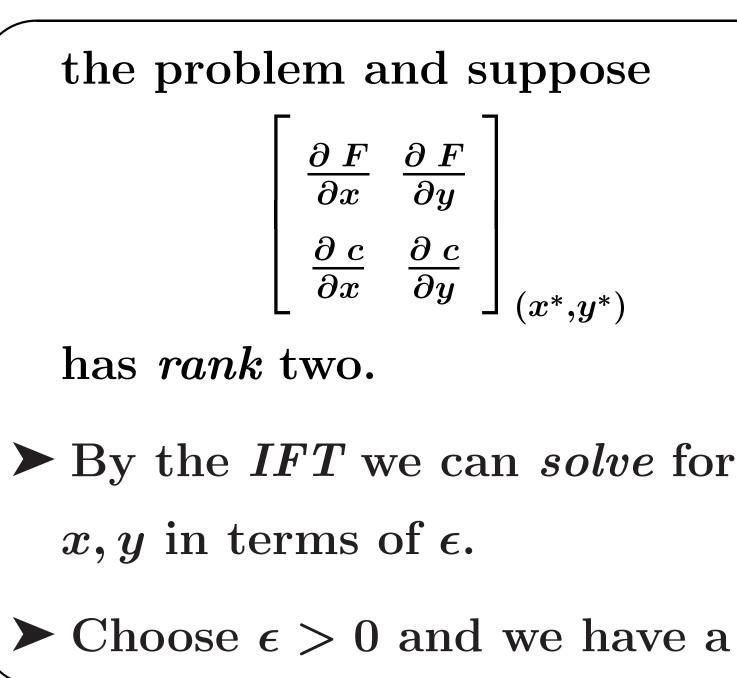


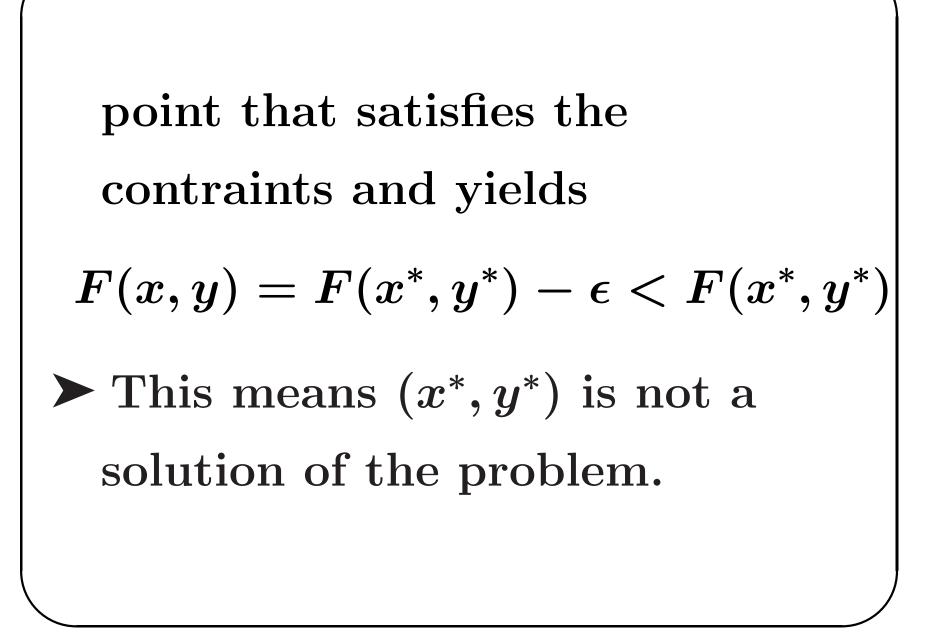


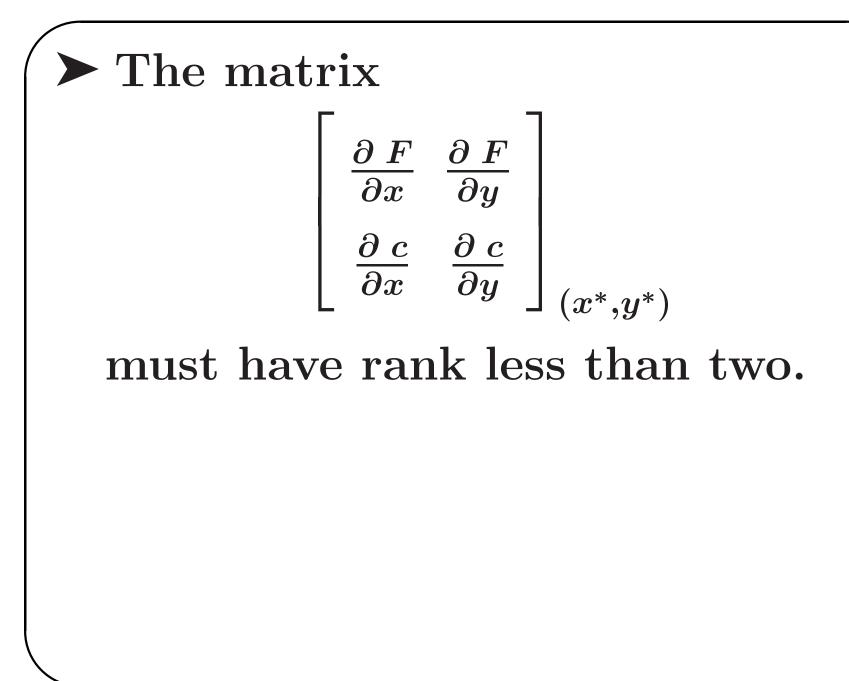
$$S_x$$
 of x^o and S_y of y^o , such that
for any $\hat{x} \in S_x$ the equation
 $f(\hat{x}, y) = 0$ has a *unique* solution
 $y = h(\hat{x}) \in S_y$. Moreover, the
mapping $h: S_x \mapsto R^m$ is
differentiable with
 $rac{\partial h}{\partial x} = -\left(rac{\partial f}{\partial y}
ight)^{-1} \circ \left(rac{\partial f}{\partial x}
ight).$





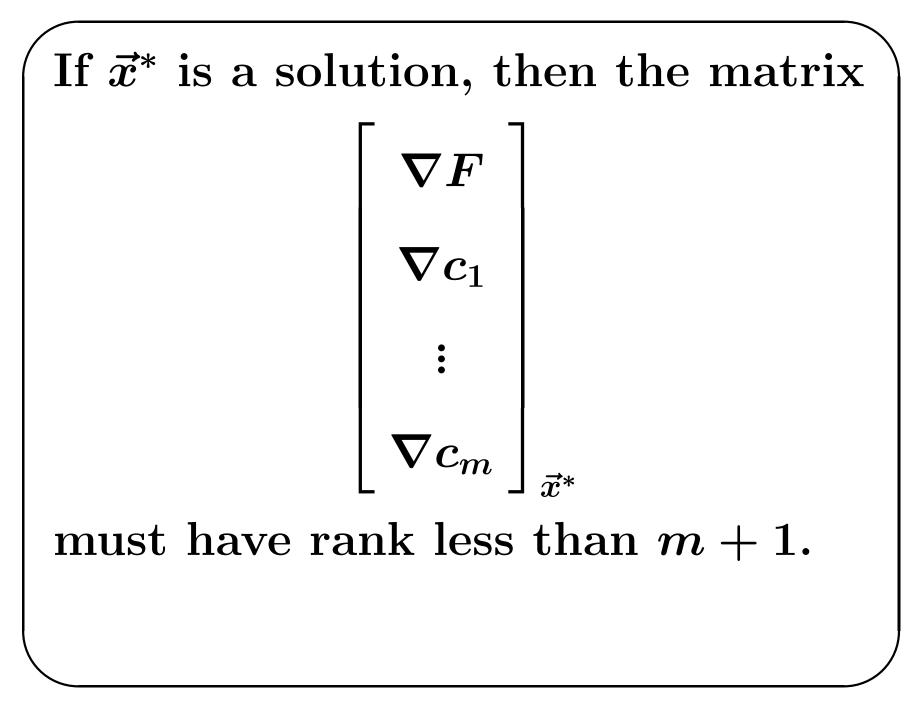


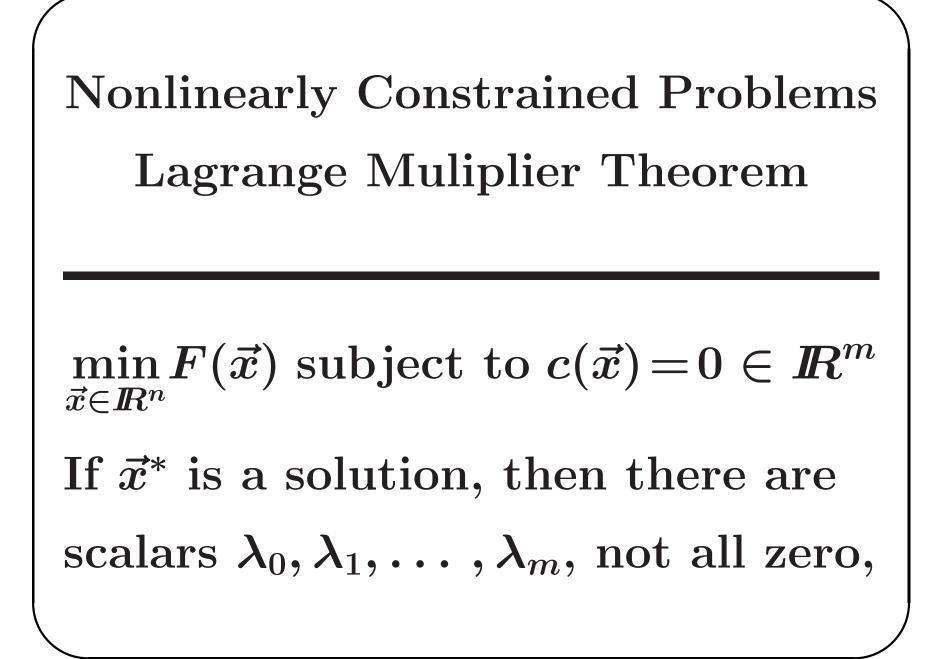




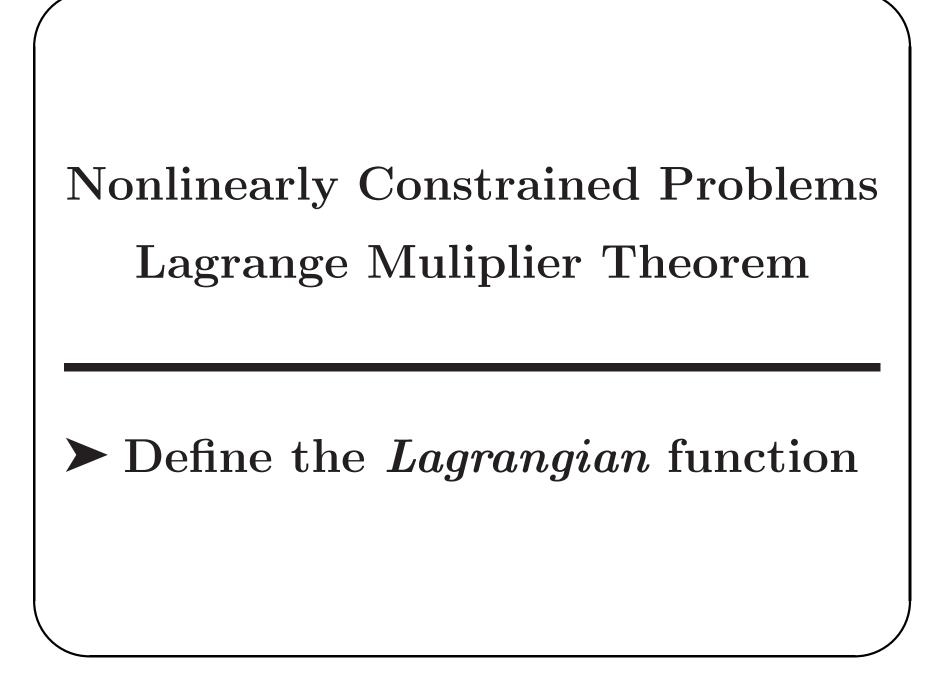
Nonlinearly Constrained Problems

$\min_{ec{x}\in I\!\!R^n}\!\!F(ec{x}) ext{ subject to } c(ec{x})\!=\!0\in I\!\!R^m$





such that $\lambda_0
abla F + \lambda_1
abla c_1 + \ldots + \lambda_m
abla c_m = 0$



by $\mathcal{L}(ec{x},\lambda_0,\lambda_1,\ldots,\lambda_m)=\lambda_0F(ec{x})$ \boldsymbol{m} $+\sum\lambda_{\imath}c_{\imath}(ec{x})$ i=1► If \vec{x}^* is a solution then there is a $\lambda_0, \vec{\lambda}$ so that $\nabla \mathcal{L} = 0$ \blacktriangleright When can we assume $\lambda_0 \neq 0$?

