(ii) $G(t,s) = g(t) - g(s)$. $(1,1)$ es pto. crítico ~~de~~ g

pues $\frac{\partial G}{\partial s}(t,s) = -g'(s)$, $\frac{\partial G}{\partial t}(t,s) = g'(t)$

Así, en $(t,s) = (1,1)$, $\frac{\partial G}{\partial s}(1,1) = -g'(1) = 0 = g'(1) = \frac{\partial G}{\partial t}(1,1)$

Además, $\frac{\partial^2 G}{\partial s^2}(t,s) = -g''(s)$, $\frac{\partial^2 G}{\partial t^2}(t,s) = g''(t)$,

$\frac{\partial^2 G}{\partial s \partial t}(t,s) = 0 = \frac{\partial^2 G}{\partial t \partial s}(t,s)$. Con lo cual

para $(t,s) = (1,1)$, $\frac{\partial^2 G}{\partial s^2}(1,1) = -1$, $\frac{\partial^2 G}{\partial t^2}(1,1) = 1$.

$\frac{\partial^2 G}{\partial s \partial t}(1,1) = 0 = \frac{\partial^2 G}{\partial t \partial s}(1,1)$.

En consecuencia, $J_G(1,1) = \begin{pmatrix} 1 & 0 \\ 0 & -1 \end{pmatrix}$ y entonces

$(1,1)$ es punto silla para G

$$T_G(t,s) = \overset{0}{\cancel{G(1,1)}} + \overset{0}{\cancel{\vec{\nabla} G(1,1)}} \begin{pmatrix} t-1 \\ s-1 \end{pmatrix} + \frac{1}{2}(t-1 \quad s-1)\begin{pmatrix} 1 & 0 \\ 0 & -1 \end{pmatrix}\begin{pmatrix} t-1 \\ s-1 \end{pmatrix}$$

$$= \frac{1}{2}\left[(t-1)^2 - (s-1)^2 \right]$$ //