Blatt III, A3

b) $\frac{\partial x_2^*}{\partial \alpha} = ?$

- $|F| = \begin{vmatrix} \alpha \cdot f''(x_1) - 2 & -c \\ -c & \beta \cdot f''(x_2) - 2 \end{vmatrix} = [\alpha \cdot f''(x_1) - 2] \cdot [\beta \cdot f''(x_2) - 2] - c^2 > 0$

siehe Angabe

- $M = \begin{pmatrix} -f'(x_1) & 0 & x_2 \\ 0 & -f'(x_2) & x_1 \end{pmatrix}$

- $|F_{21}| = \begin{vmatrix} \alpha \cdot f''(x_1) - 2 & -f'(x_1) \\ -c & 0 \end{vmatrix} = 0 - c \cdot f'(x_1) \begin{cases} < 0 & \forall c > 0 \\ > 0 & \forall c < 0 \end{cases}$

$\Rightarrow$ Also: Falls $c > 0$: $\frac{\partial x_2^*}{\partial \alpha} = \frac{|F_{21}|}{|F|} = \frac{\ominus}{\oplus} < 0$

Falls $c < 0$: $\frac{\partial x_2^*}{\partial \alpha} = \frac{|F_{21}|}{|F|} = \frac{\oplus}{\oplus} > 0$