

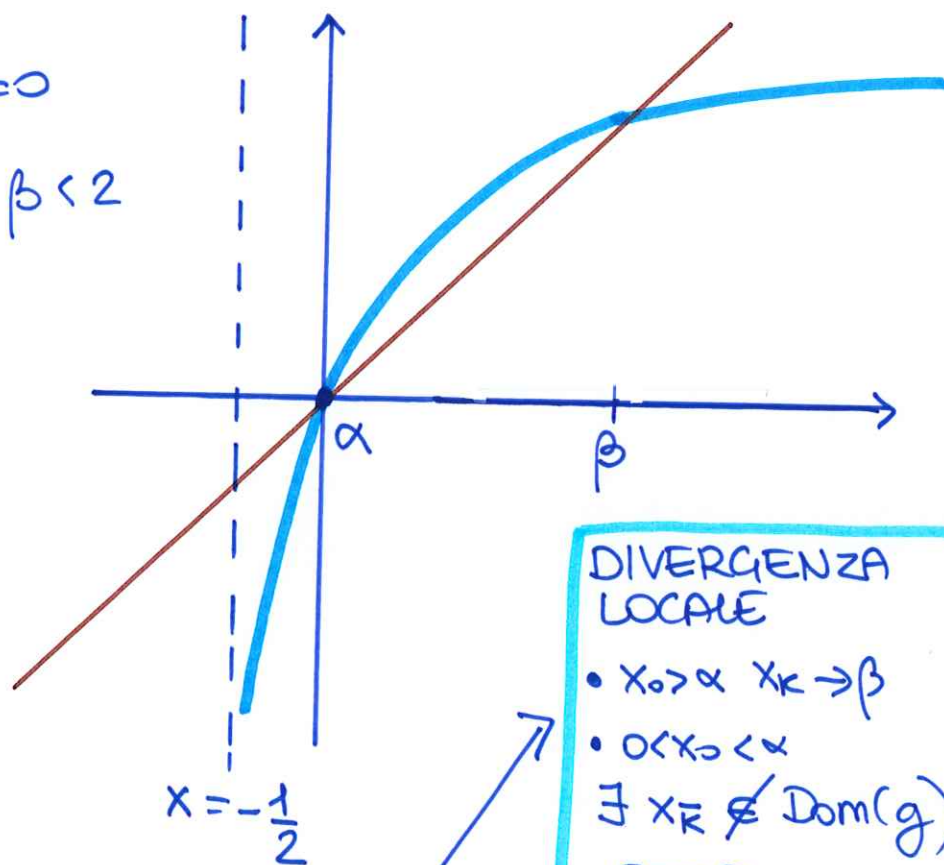
pfisso\_main\_log :  $g(x) = \ln(2x+1)$

x	g(x)
0	0
1	$< \ln 3$
2	$> \ln 5$

$$\alpha = 0$$

$$1 < \beta < 2$$

$$g'(x) = \frac{2}{2x+1}$$



DIVERGENZA LOCALE

- $x_0 > \alpha \quad x_k \rightarrow \beta$
- $0 < x_0 < \alpha$
- $\exists \bar{x} \notin \text{Dom}(g)$
- STOP

$$g'(0) = 2 \quad (\text{non converge ad } \alpha)$$

$$g'(1) = \frac{2}{3} \quad g'(2) = \frac{2}{5} \quad g' \text{ decrescente}$$

$$\frac{2}{5} < g'(\beta) < \frac{2}{3} < 1 \quad (\text{converge a } \beta)$$

$$g'(\beta) \neq 0 \Rightarrow 1^\circ \text{ ordine}$$

$$\lim_{n \rightarrow \infty} \frac{e_n}{e_{n-1}} = |g'(\beta)| \quad e_n = |x_n - \beta|$$

$$x_0 < \alpha \quad \exists \bar{x} \mid x_{\bar{k}} < -\frac{1}{2} \quad \text{STOP} \quad \text{Attenzione MATLAB: } g(x_{\bar{k}}) \in \mathbb{C}$$

$$\alpha < x_0 < \beta \quad x_k \text{ successione monotona crescente limitata superiormente da } \beta : x_k \nearrow \beta$$

$$x_0 > \beta \quad x_k \text{ successione monotona decrescente limitata inferiormente da } \beta : x_k \searrow \beta$$

$$\Rightarrow x_0 > \alpha \quad x_k \rightarrow \beta$$