

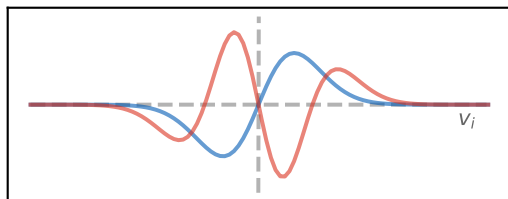
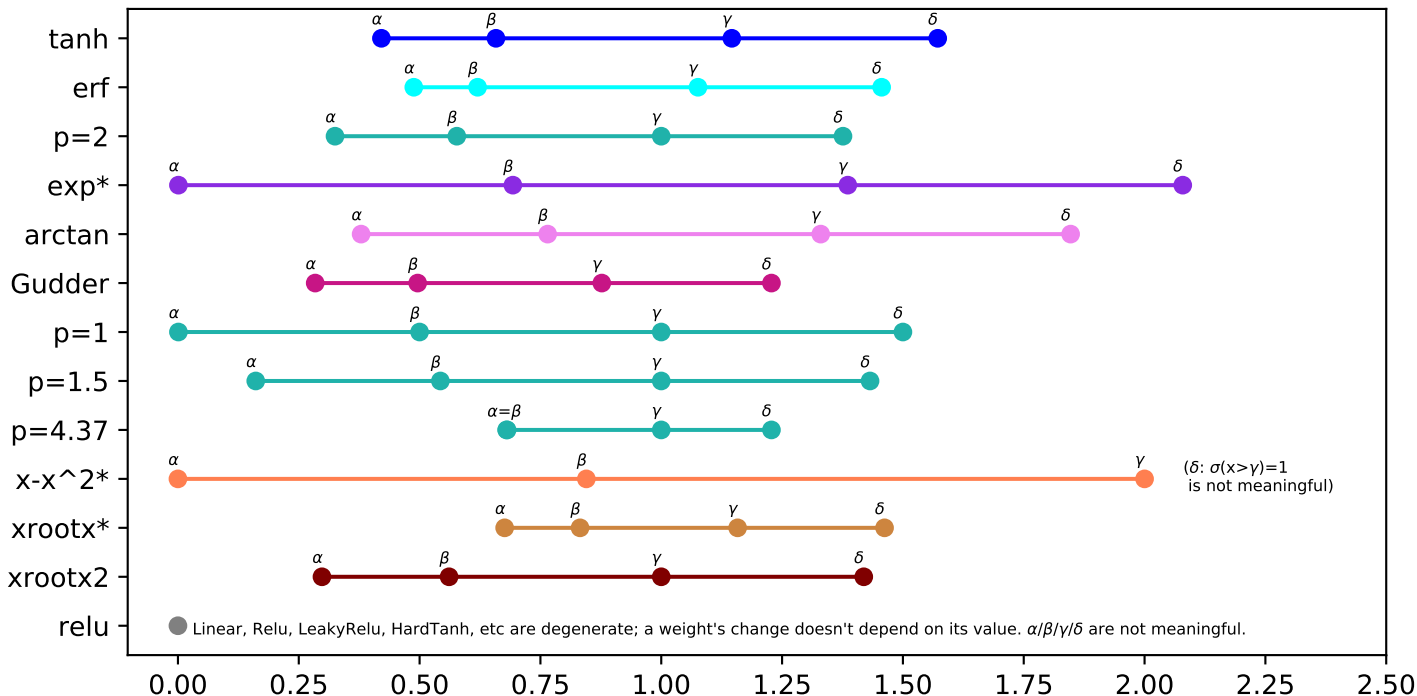
Comparison of zone-determining special points of sigmoidal activation functions  $\sigma$ .

Horizontal axis:  $v_i = \sum_j w_{ij} x_j$ . Vertical axis: numerical  $v_i$  values corresponding to special points of various  $\sigma$ 's.

Letting  $D2(v_i) = -(y_i^* - \sigma(v_i)) \frac{d}{dt} \sigma(v_i)$  which aligns with  $\frac{d^2}{dv_i^2} \sigma(v_i)$  for some  $\sigma$ ,  $D4 = \frac{d^2}{dv_i^2} (D2)$ , subset  $v_i > 0$ , and case  $y_i^* = 0$ :

$\alpha$ :  $\max(|D4|)$ .  $\beta$ :  $\max(|D2|)$ .  $\gamma$ :  $D4=0$  for  $v_i > \beta$ .  $\delta$ : local  $\max(|D4|)$  for  $v_i > \gamma$ .

Please see commentary\_figures.txt for detailed information.



Left: typical shapes of  $D2(v_i)$  &  $D4(v_i)$

Right: locations of special points.

(Curves are not vertically to scale)

