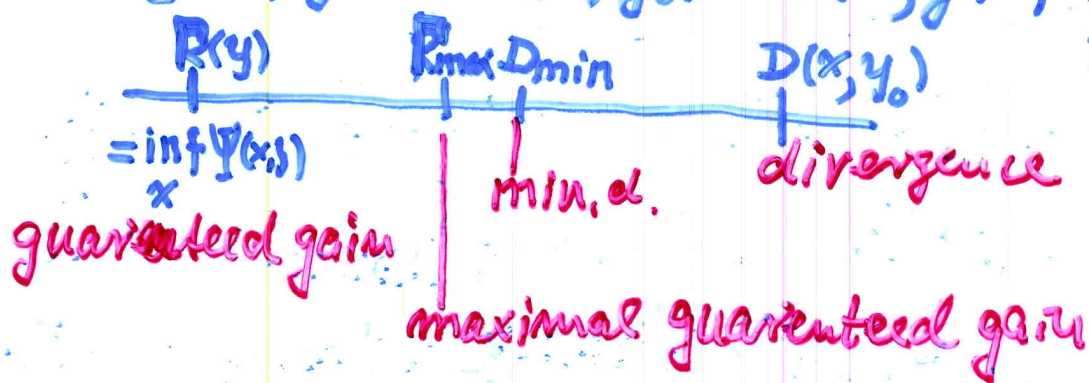


Updating

Consider $\Psi(x, y) = D(x, y_0) - D(x, y)$, y_0 prior $y_0 \notin X$

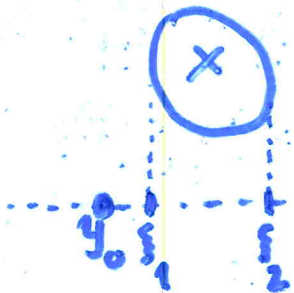
$\Gamma(y) \subseteq$



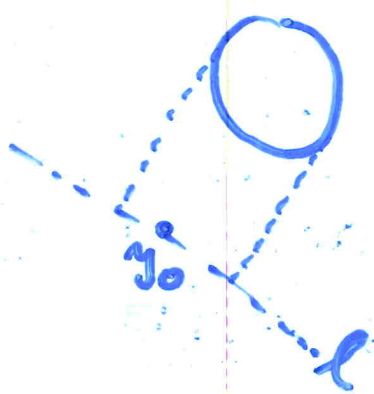
Example: $\Psi(x, y) = \|x - y_0\|^2 - \|x - y\|^2$
 $= 2 \langle y_0 - x, y_0 - y \rangle - \|y_0 - y\|^2$

obs: affine in x for fixed y
 hence $R_{max} = D_{min}$

Γ_{max}



in this case
 $\max_{y \in l} R(y) = R(\xi_1)$
 $= \|y_0 - \xi_1\|^2$



in this case
 $\max_{y \in l} R(y) = R(y_0) = 0$

So, as $R_{max} = D_{min} > 0$ first case must happen i.e.

there exists separating hyperplane