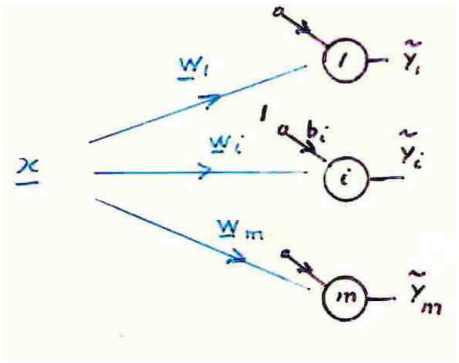
Demo Classificadores

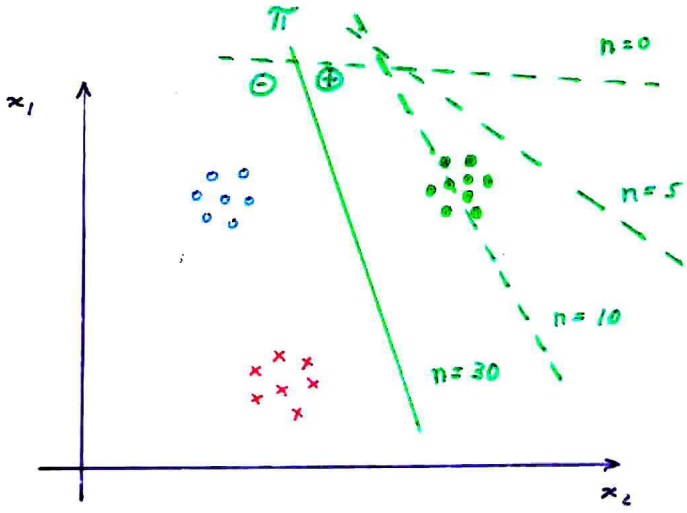
Interpretação geométrica

Rede 1 camada

Cada neurônio treina e opera de forma independente dos demais

Treinamento





Caso simples

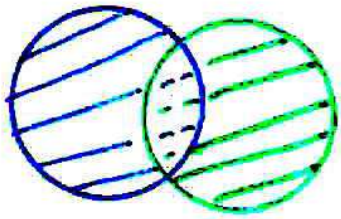
- Efeito da população

1a 50% 50%

1b 80% 20%

Efeito da população

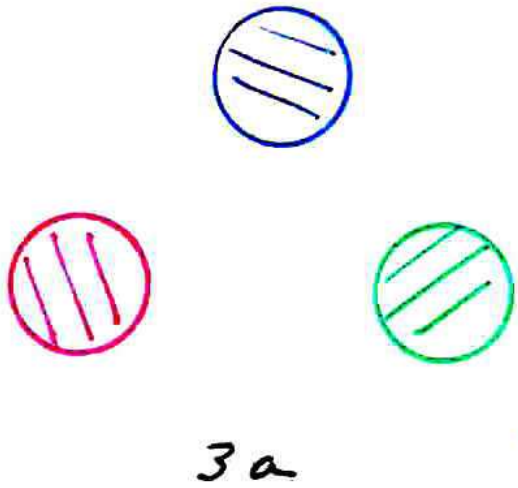
– agora com consequencias

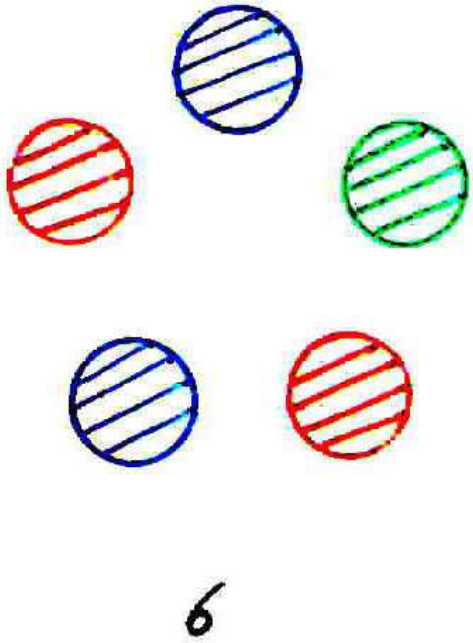


2a 50% 50%

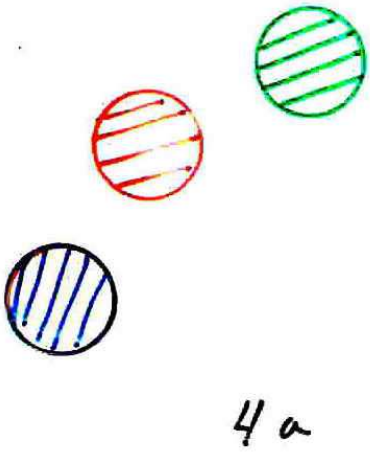
2b 80% 20%

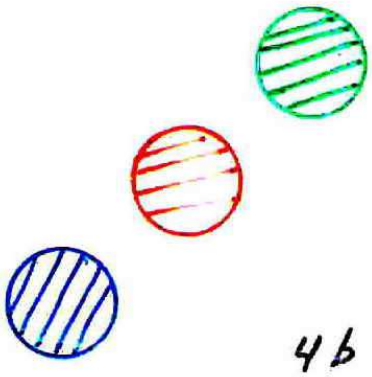
Mais classes



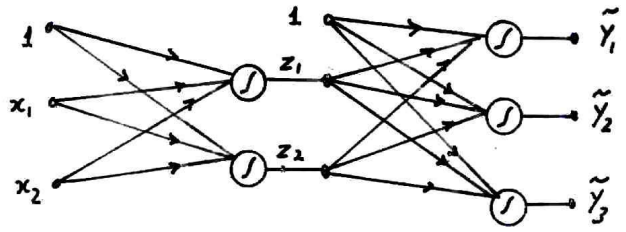


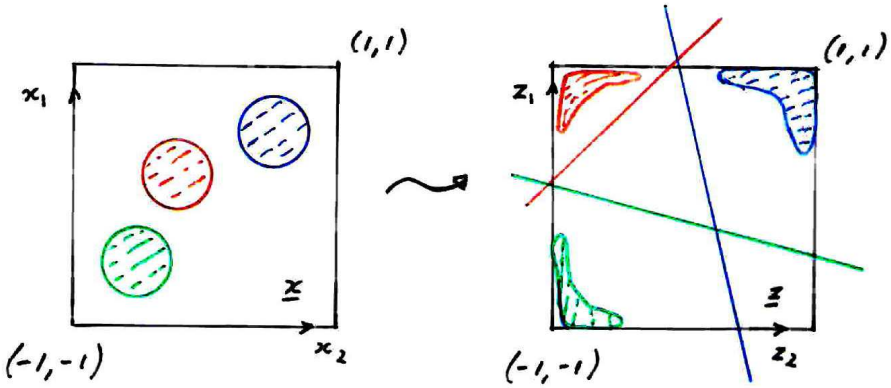
Casos não linearmente separáveis



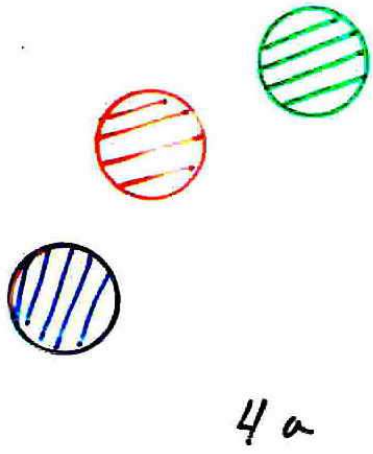


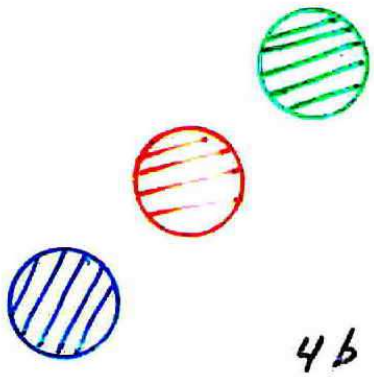
Rede com duas camadas





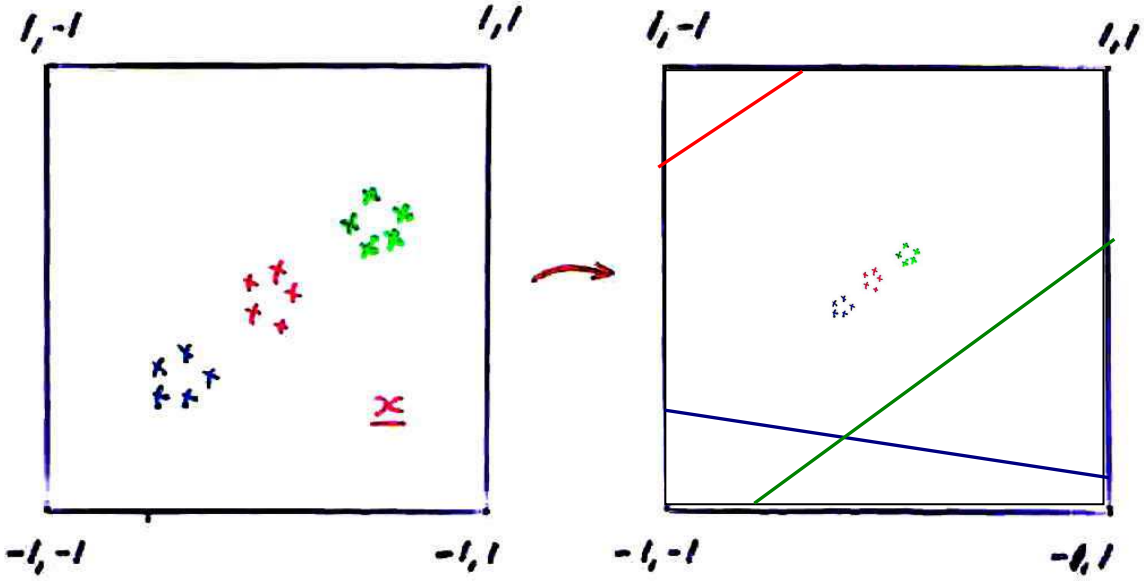
Casos não linearmente separáveis


4a

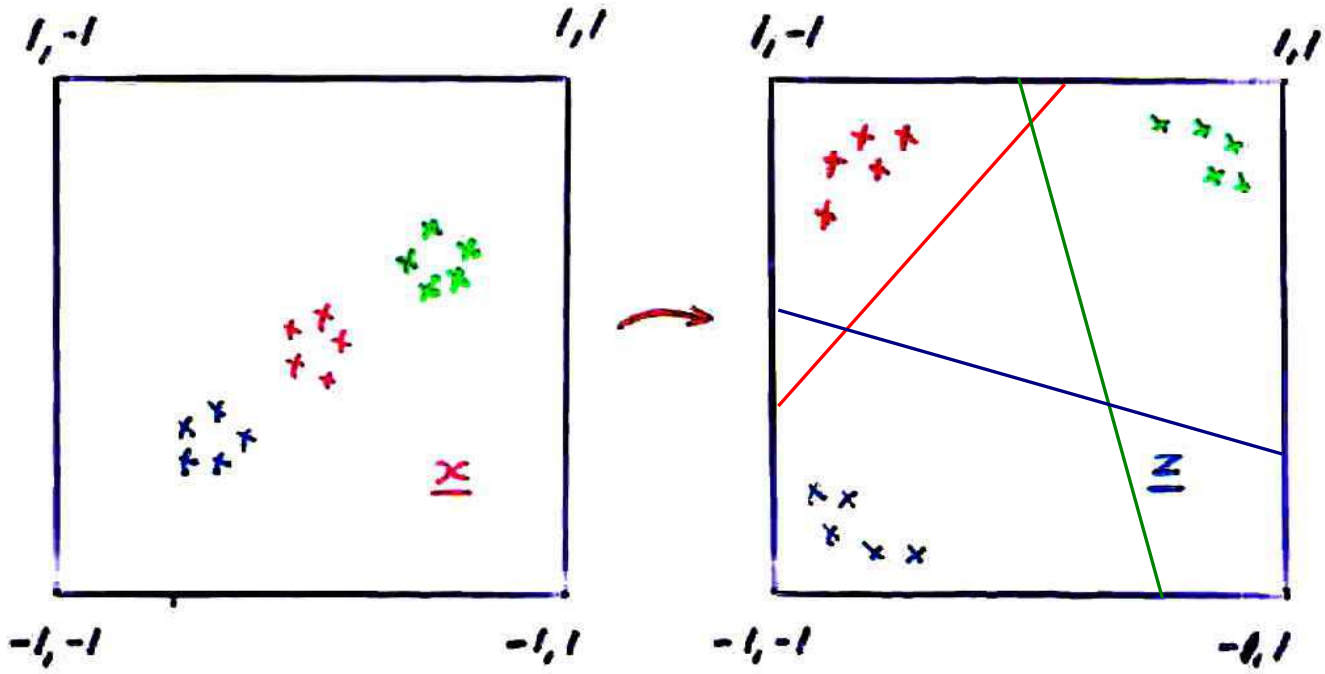

4b

Evolução do treinamento

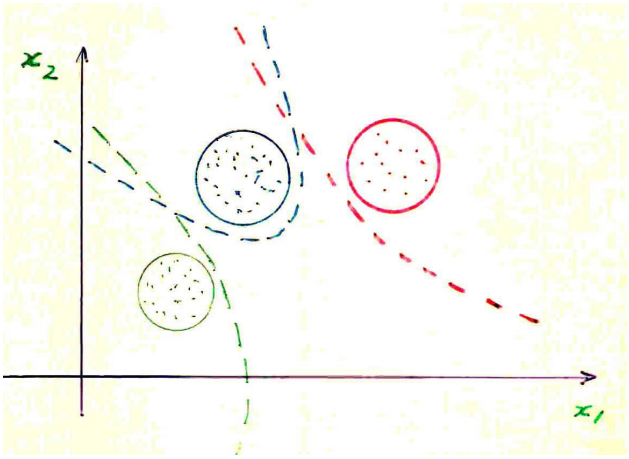
posição inicial



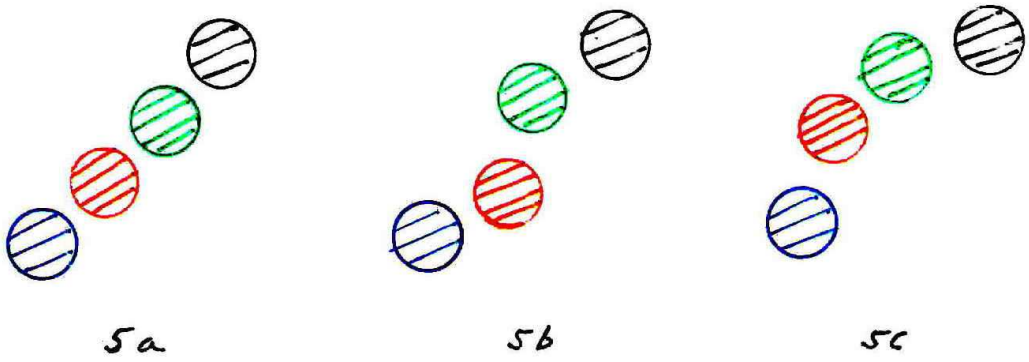
evolução

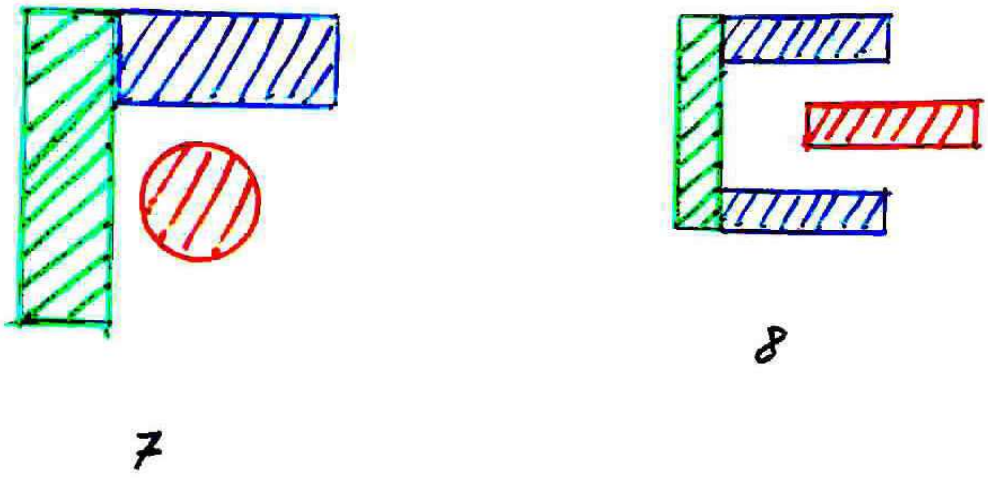


Partição do espaço da entrada

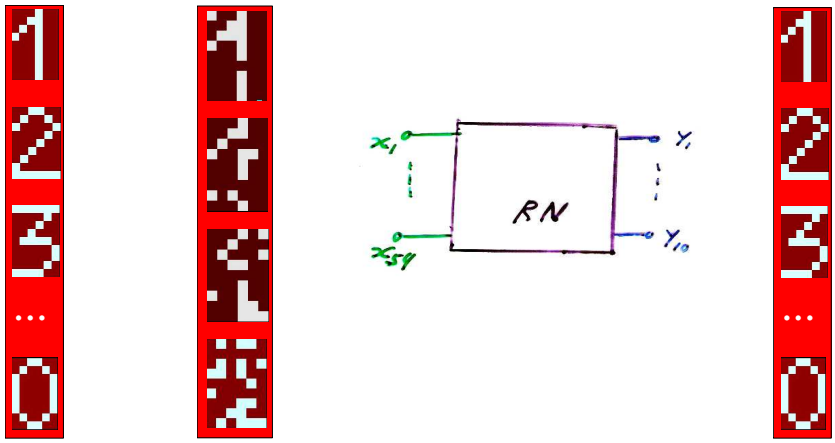


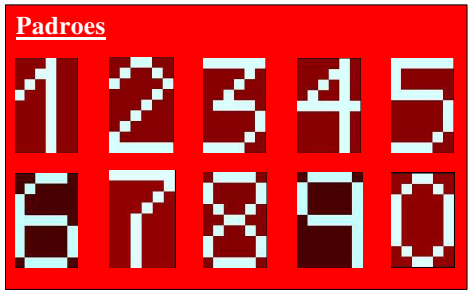
Casos mais complexos



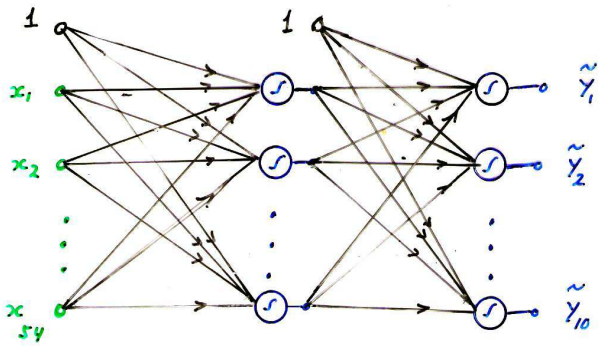


Demo: OCR Neural





Rede Neural



dim x = 54 dim y =10 componentes binarias

2 camadas de neuronios

neurônios camada intermediaria: 1 – 30

Passo treinamento .1 , max 500 epocas

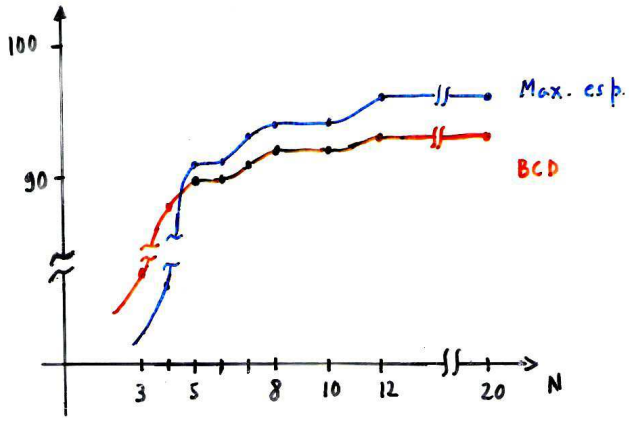
Ruído: 0 – 20 %

Capacidade de Mapeamento

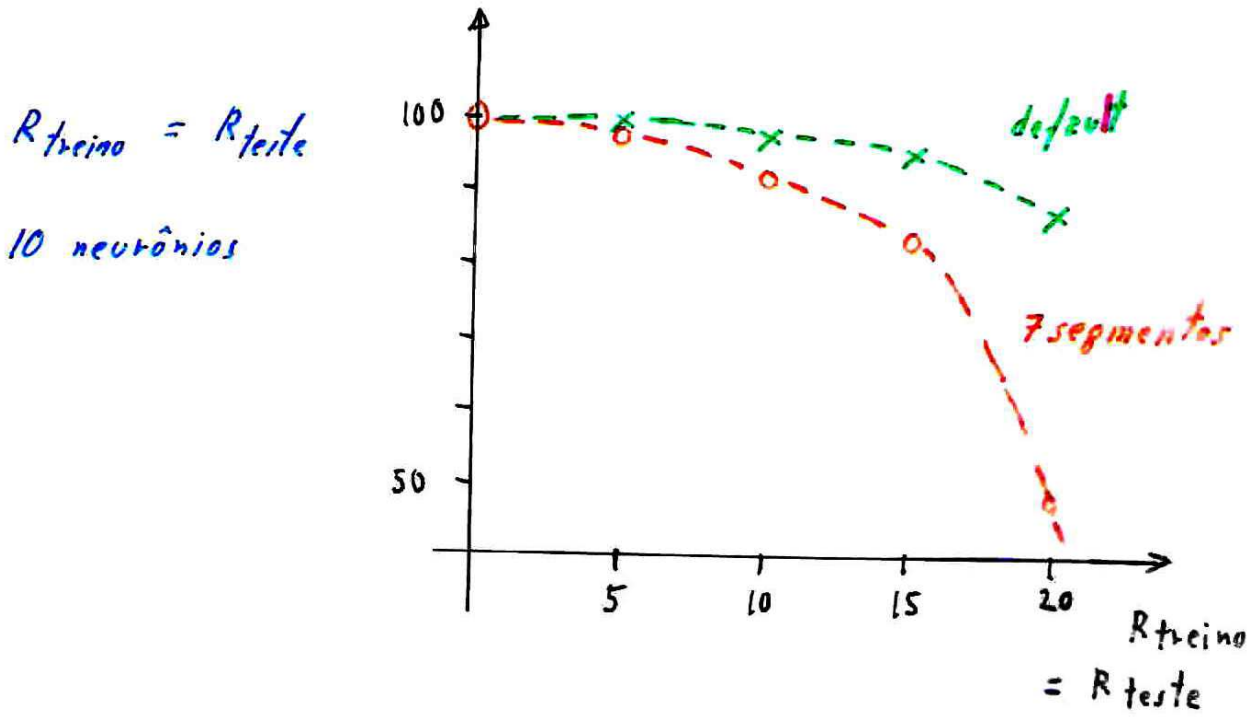
$R_{treino} = R_{teste} = 15$ %

1 camada >>> 77 % acertos

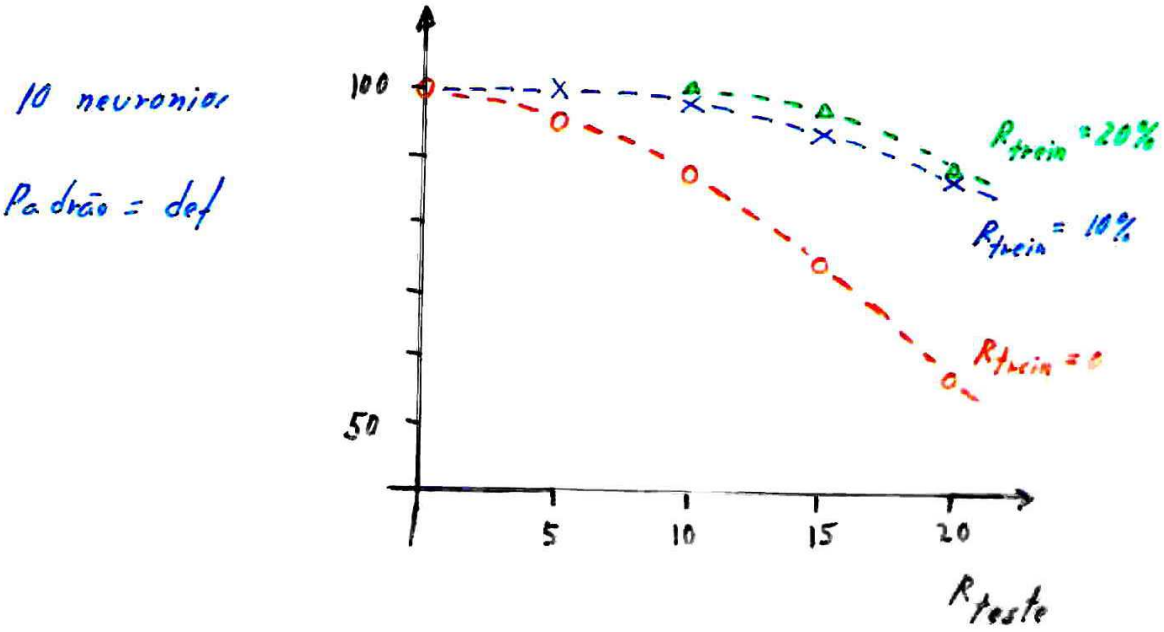
2 camadas f (N) N = # neurônios cam. intermed.



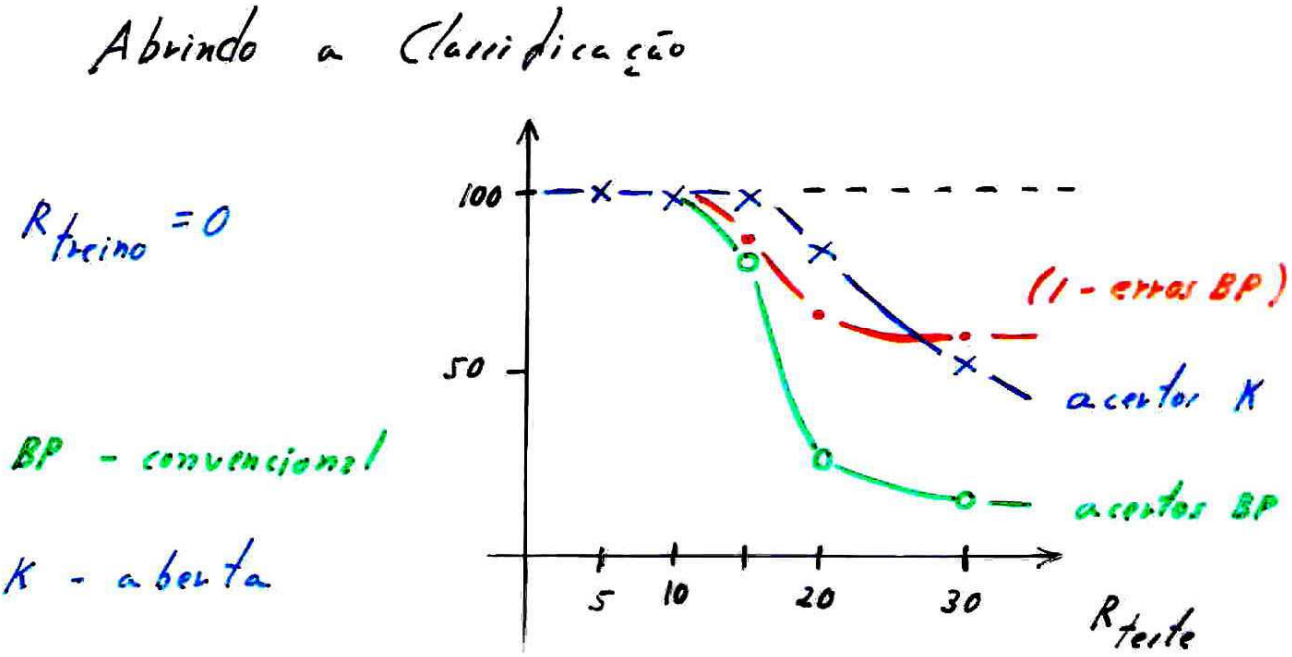
Efeito da Separabilidade dos padrões



Efeito das condições de treino e operação



Abrindo a classificação



Robustez

Morte de neurônios

Neurônio morto: y = 0