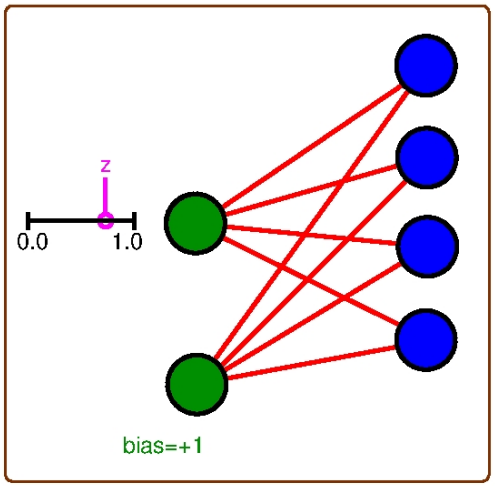
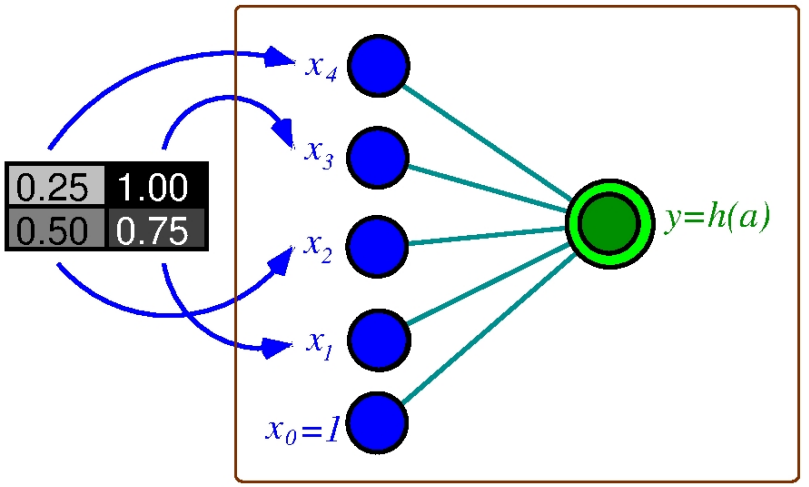
How to Train your ~~Dragon~~/Neuron





- Disc o/p: Gen, Disc react diff: (detective, forger)
- log-loss: a convenient loss function. Why?
- If label=1, pred=0.1 (bad) high err $-\log(0.1) = 2.3$
- If label=1, pred=0.9 (good) low err $-\log(0.9) = 0.1$
- If label=0, pred=0.1 (good) low err $-\log(0.9) = 0.1$
- If label=0, pred=0.9 (bad) high err $-\log(0.1) = 2.3$

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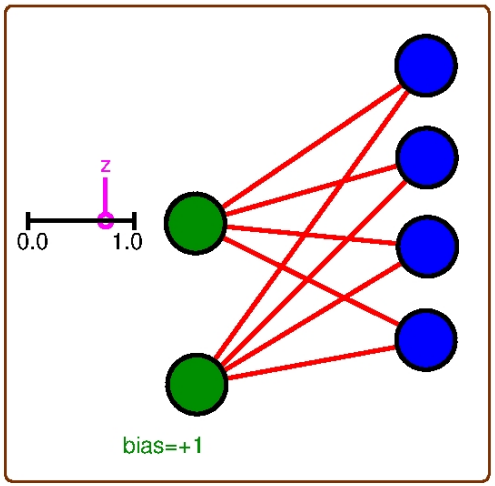

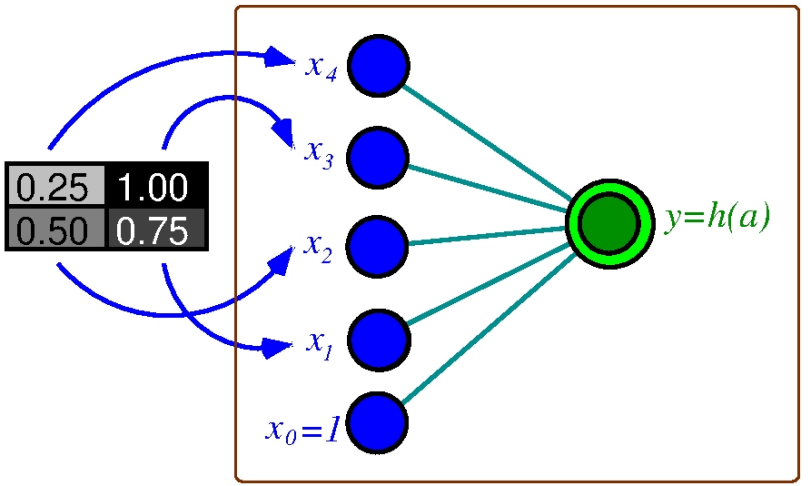

- If label=1, Error= $-\log(prediction)$
- If label=0, Error= $-\log(1-prediction)$
- Gen:[noise], $\sigma(\cdot)$ = 0.68. Disc wants:0 [noise]
- Disc Error: $-\log(1-0.68)$
- Gen always wants Disc=1. Gen Error: $-\log(0.68)$
- Gen loss: $-\log(D(G(z))$: only change Gen wts
- Disc loss: $-\log(1-D(G(z))$: only change Disc wts

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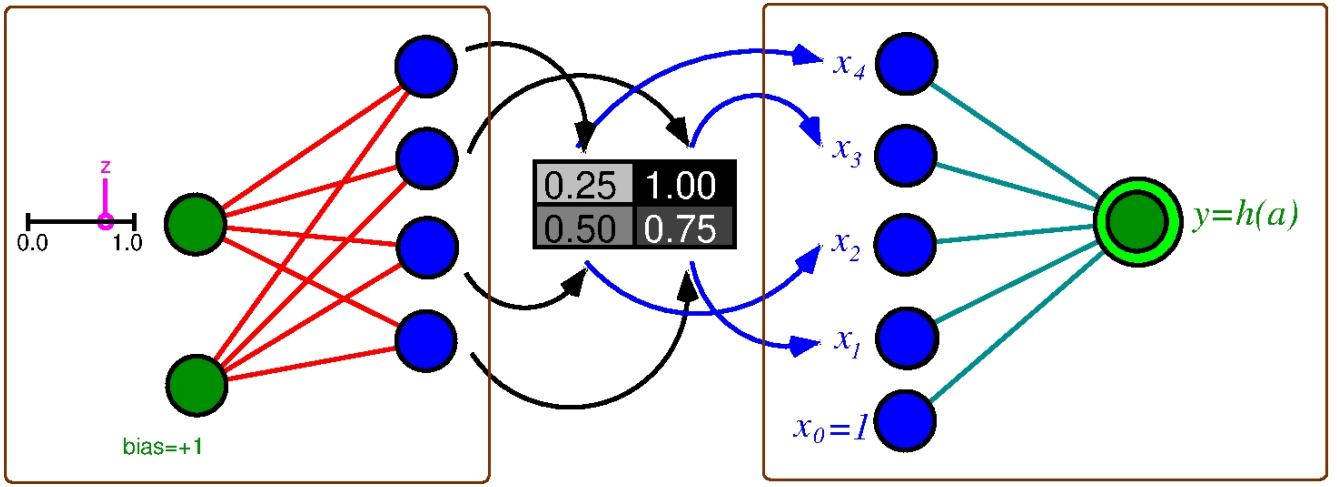

- REPEAT[{Drag/Neur}-on][Time? 'drag on'][Result?]
  1. $z \mapsto G(z) \mapsto D(G(z)) \mapsto$ update G, D wts
  2. Real image $\mathbf{x} \mapsto D(\mathbf{x})$ update D wts

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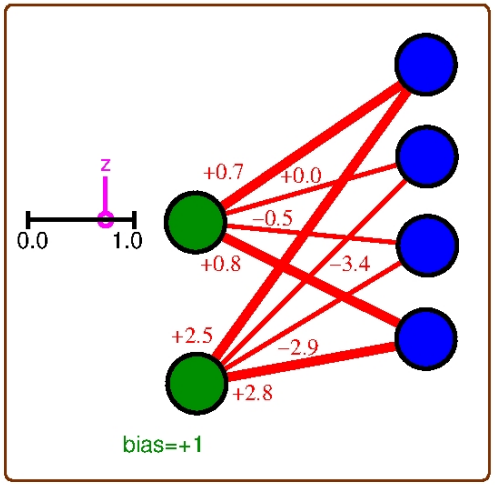

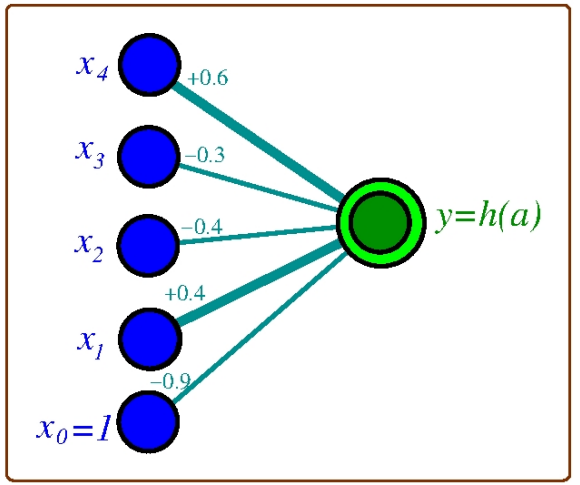

- 'Too many cooks spoil the broth'
- 'Too many books spoil the couth'

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