

# Probability and Latency

Karl DeVries

# Partial Matching

Match Score

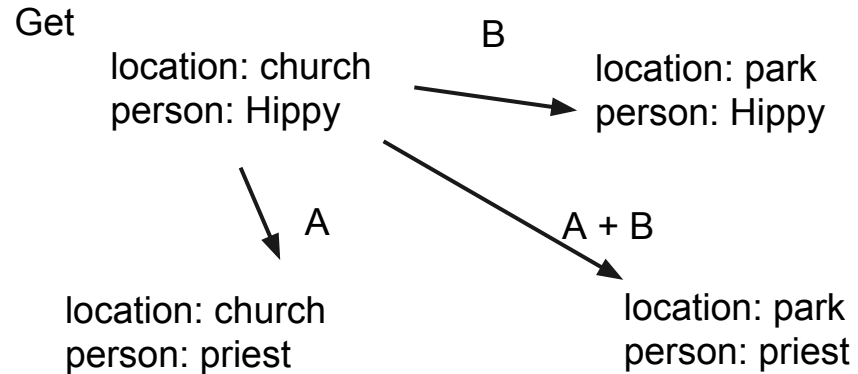
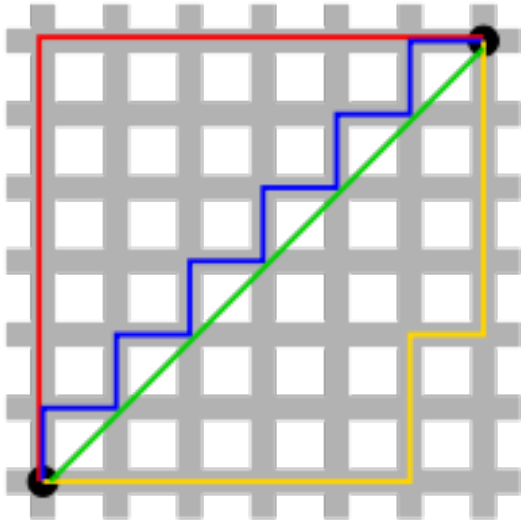
$$M_{ip} = A_i - D_{ip}$$

Activation

Distance Relative to p

# Partial Matching

$D_{ip}$  is city block distance metric



# Partial Matching

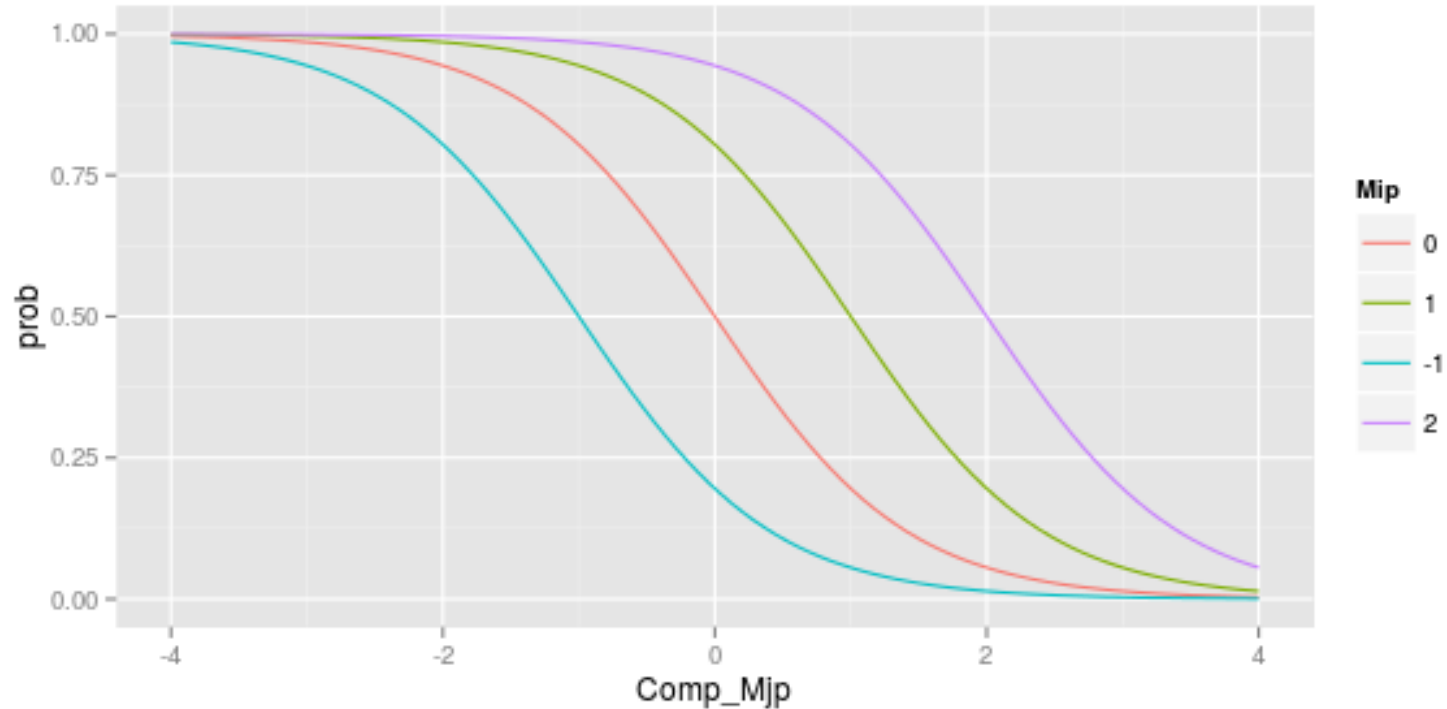
Probability of picking  $i$  given production  $p =$

$$e^{M_{ip}/t} / \sum_j e^{M_{jp}/t}$$

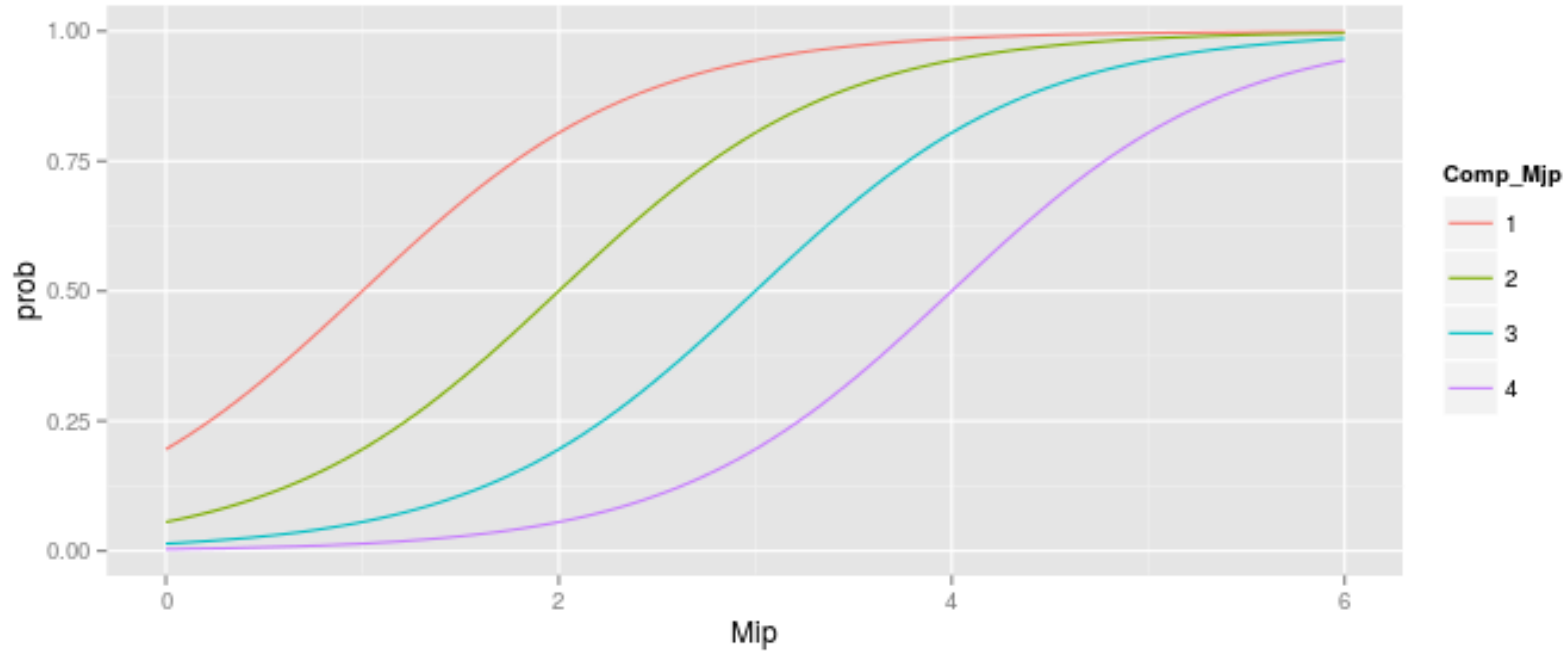

Match score for  $i$

Match score for other chunks

# Partial Matching



# Partial Matching



# Latency

$$\text{time} = F e^{-f(M_{ip} + Sp)}$$

Scale F

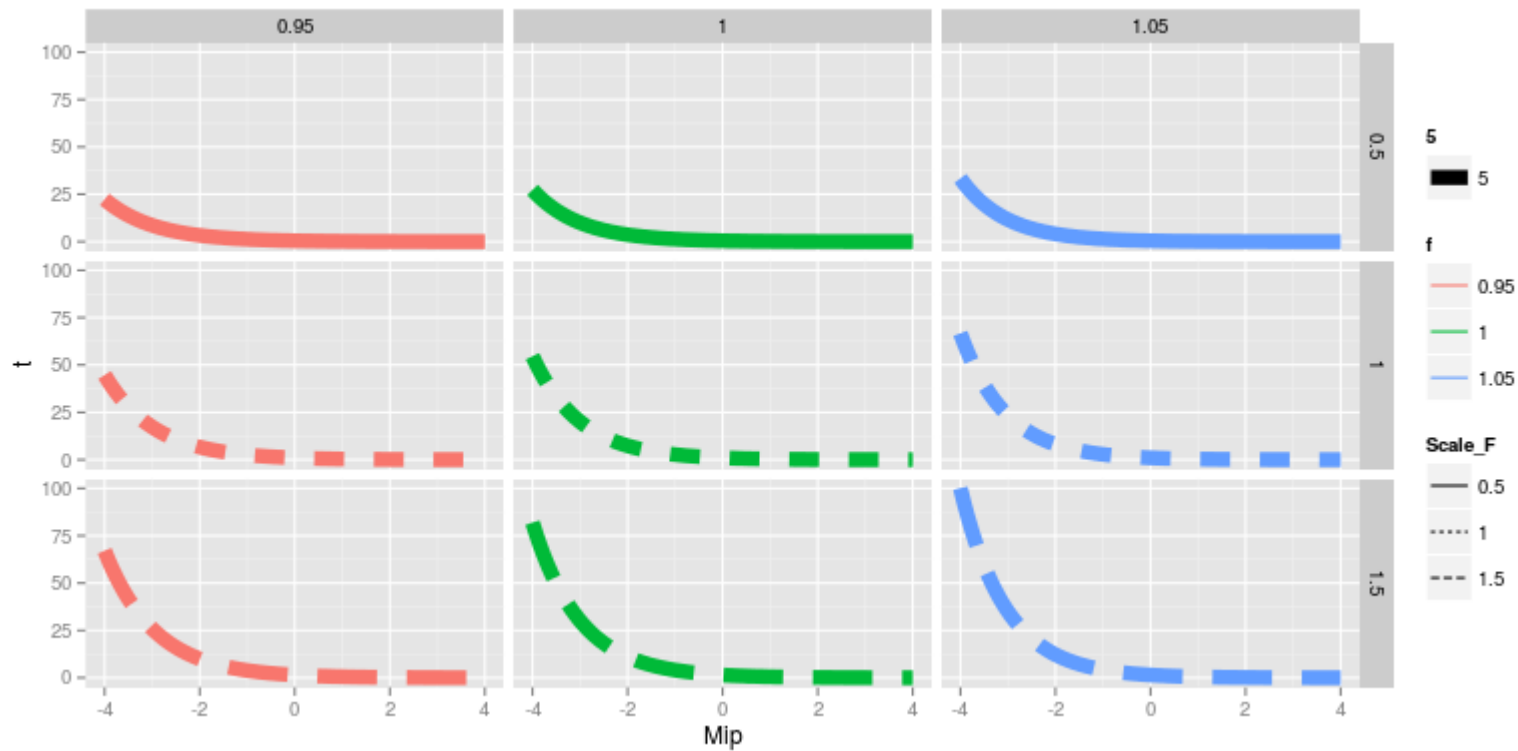
Scaling factor (=1)

Match Score

Production Strength (= 0)

The diagram illustrates the components of the latency equation. It features the equation  $\text{time} = F e^{-f(M_{ip} + Sp)}$  at the top. Below the equation, four labels are positioned with arrows pointing to specific parts of the formula: 'Scale F' points to the 'F' term; 'Scaling factor (=1)' points to the 'f' term; 'Match Score' points to the 'M<sub>ip</sub>' term; and 'Production Strength (= 0)' points to the 'Sp' term.

# Latency





# Latency & Probability

