

Max-Product

$$P(Y|E=e) = \frac{P(Y, E=e)}{P(E=e)} \propto P(Y, E=e)$$

$Y = \{X_1 \dots X_n\} - E$

constant relative to Y
wrt
with respect to

$$P(Y, E=e) = \frac{1}{Z} \prod_k \phi_k'(D_k')$$

Partition Function
also constant wrt Y

reduced factors
relative to the evidence

$\propto \prod_k \phi_k'(D_k')$
maximize a product of factors

$$\text{Argmax}_Y P(Y|E=e) = \text{Argmax}_Y \prod_k \phi_k'(D_k')$$