input var   output
χ Y

Pixel value
     & $\longrightarrow$ Semantic label
feature map

CRF:

model $P(Y|X)$ ---· Prediction of Y over X

$\phi = \{\phi_1(D_1), \phi_2(D_2), \dots \phi_k(D_k)\}$ Probability of vars

unnormalized measure $\longleftarrow \tilde{P}_\phi(X,Y) = \prod\limits_{i=}^{k} \phi_i(D_i)$

$Z_\phi(X) = \sum\limits_{Y} \tilde{P}_\phi(X,Y)$ --- For any given X, sum over Y

$\tilde{P}_\phi(Y|X) = \dfrac{1}{Z_\phi(X)} \tilde{P}_\phi(X,Y)$

ex:

	$\dfrac{\tilde{P}_\phi(Y|X)}{Z(X^0)}$	
$X^0 Y^0$	$/Z(X^0)$	$+\}$
$X^0 Y^1$	$=/Z(X^0)$	
$X^1 y^0$	$=/Z(X^1)$	$+\}$
$X^1 y^1$	$=/Z(X^1)$	