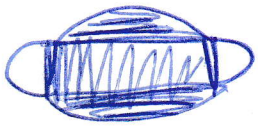

$Y = d$ ~~$H(X)$~~ $\Rightarrow Y|X$

$\mathbb{R}$ $H(f(X))$

Then $\mathbb{P}(Y \leq y) =$

~~$P_{Y|X}(y$~~ $Y = d$ $H(f(X))$

Then $P_{Y|X}(y|x) = h(f(X), y)$

~~e.g.~~

Suppose $Y|X \sim N(h_1(f(X)), h_2(f(X))$

Then $P_{Y|X}(y|x) =$ → Added as context text below the Lem

Lemma: Suppose $Y|X \sim f_{\theta(X)}$ or $f(X)$

Same family of distns $\{f_\theta : \theta \in \Theta\}$

Then $P_{Y|Z} \sim f_{\theta(Z)}$

Need to write up this Lemma