Likelihood of multiple observations

$Pr(d|P)$ $\quad d = y = \{ y_1, y_2, y_3, \ldots, y_N \}$

$$y_i \sim Normal(\mu, \sigma)$$

$$Pr(d|\mu,\sigma) = Pr(y_1|N(\mu,\sigma)) \cdot Pr(y_2|N(\mu,\sigma)) \cdot \ldots$$

$$= \prod Pr(y_i|N(\mu,\sigma))$$

$$X = e^{\log(X)}$$

$$Pr(d \mid \mu, \sigma) = e^{\log Pr(d \mid \mu, \sigma)}$$

$$\log(Pr(d \mid \mu, \sigma)$$

$$\| $$

$$\log\left(\prod Pr(y_i \mid N(\mu, \sigma))\right)$$

$$\log(x \cdot y) = \log(x) + \log(y)$$

$$\sum_i \log(Pr(y_i \mid \mu, \sigma))$$

$$Pr(p/d) = \frac{L(d/p) \cdot Prior(p)}{norm}$$

$$Pr(p/d) = e^{\left(\log(L(d/p)) + \log(Prior(p)) - norm\right)}$$