

Still no Peter¹⁵

1.1.

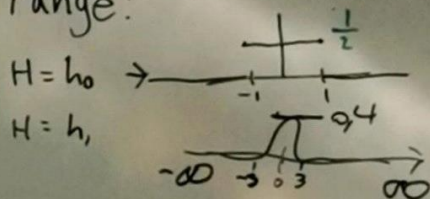
$$h_0: Y \sim U(-1, 1)$$

$$h_1: Y \sim N(0, 1)$$

$$f_{Y|H}(Y|h_0) P_1 = P(H=h_0) = p$$

$$f_{Y|H}(Y|h_1) P_2 = P(H=h_1) = 1 - p$$

a. range:

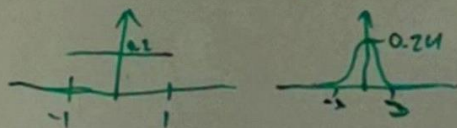


if $Y=y$, such that $|y| > 1$, then normal dist.

c. Calculate decision regions for MAP rule.
Find the value of $\hat{H}_{\text{MAP}}(y)$ for all possible values of y :

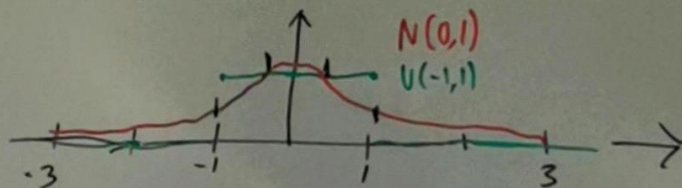
$$P = 0.4$$

$$\hat{H}_{\text{MAP}}(y) = \arg \max_{h_k \in \mathcal{H}} P(H=h_k|Y) = \arg \max_{h_k \in \mathcal{H}} f_{Y|H}(Y|h_k) P_k$$



$$N(0, 1) = P_2 \cdot 0.4 = 0.24$$

$$U(-1, 1) = P_1 \cdot 0.5 = 0.2$$



Decision rule:

if $|y| > 1$: h_1

if $|y| < \text{approx } 0.5$: h_1

if $\sim 0.5 < |y| < 1$: h_0

□