$f(x)[a,b]$

$$\Phi(x)=\int_a^x f(t)dt$$

$$\Phi'(x)=\frac{d}{dx}\int_a^x f(t)dt=f(x)(a\le x\le b)$$

$f(x)[a,b]$

$$\Phi(x)=\int_a^x f(t)dt$$

$f(x)[a,b]$
$F(x)f(x)[a,b]$

$$\int_a^b f(x)dx=F(b)-F(a)$$

$H_j(j=0,1)$
H_j

$P(H_j)(i=0)$
H_j

$(x|H_j)(j=0,1)$
H_j

$p(x|H_j)(j=0,1)$
H_j

$(H_i|H_j)(i,j=0,1)$
H_jH_i
$P(H_i|H_j)(i,j=0,1)$
H_jH_i
c_{ij}
H_jH_i
$_0:$
$x=-A+n, H_1: x=A+n$
$H_0: x_k=-A+n_k, H_1: x_k=A+n_k$
$k=1,2,\ldots,N, x=(x_1,x_2,\ldots,x_N)^T$
$P(H_i|H_j)=\int_{R_i}p(x|H_j)dx$
$_0|H_0)=\int_{R_0}p(x|H_0)dx, P(H_1|H_0)=\int_{R_1}p(x|H_0)dx$
$P(H_0|H_1)=\int_{R_0}p(x|H_1)dx, P(H_1|H_1)=\int_{R_1}p(x|H_1)dx$
$R=R_0\cup R_1, R_0\cap R_1=\emptyset, \int_R p(x|H_j)dx=1$
$P(H_0|H_0)+P(H_1|H_0)=\int_{R_0}p(x|H_0)dx+\int_{R_1}p(x|H_0)dx=$

$\ln \lambda(x) \underset{H_0}{\overset{H_1}{\gtrless}} \ln \eta$

.

$$R = \bigcup_{i=0}^{M-1} R_i, R_i \cap R_j = \emptyset, (i \neq j)$$

$\Leftarrow R R_i \Leftarrow$

$P(H_0) =$
$P(H_1) =$
$\frac{1}{2}$

$x_i(i = 1, 2, \ldots, N)$
N
$p(x_1, x_2, \ldots, x_N) = p(x_1)p(x_2)\cdots p(x_N) = \prod_{i=1}^{N} p(x_i)$
.
n
σ_n^2
$H_1 :$
$r = 1 + n$
$H_0 :$
$r = -1 + n$
$p(r|H_1), p(r|H_0)$
$x \sim \mathcal{N}(\mu_x, \sigma_x^2)(y = ax + b) \sim \mathcal{N}(a\mu_x + b, a^2\sigma_x^2)$
$p(r|H_1) \sim \mathcal{N}(1, \sigma_n^2)$
$p(r|H_0) \sim \mathcal{N}(-1, \sigma_n^2)$
$E(r|H_0) = E(1 + n) = 1 + E(n) = 1, Var(r|H_0) = E[(r|H_0 - E(r|H_0))^2] = E[n^2] = \sigma_n^2 r|H_0 \sim \mathcal{N}(1, \sigma_n^2)$
$E(r|H_1) = E(-1 + n) = -1 + E(n) = -1, Var(r|H_1) = E[(r|H_1 - E(r|H_1))^2] = E[n^2] = \sigma_n^2 r|H_1 \sim \mathcal{N}(-1, \sigma_n^2)$
.
$\sim \mathcal{N}(0, \sigma^2)$
$H_0 :$
$x = n x \sim \mathcal{N}(0, \sigma^2)$
$H_1 :$
$x = m + n x \sim \mathcal{N}(m, \sigma^2)$

$:x \underset{H_0}{\overset{H_1}{\gtrless}} \frac{\sigma^2}{m} \ln \eta + \frac{m}{2}$

$p(l|H_j)(j = 0, 1)$
H_j