act 0	24 ene	✓
tarea 1	28 ene	✓
act 1	3 feb	✓
act 2	9 feb	✓
tarea 2	11 feb	✓
act 3	16 feb	
act 4	22 feb	

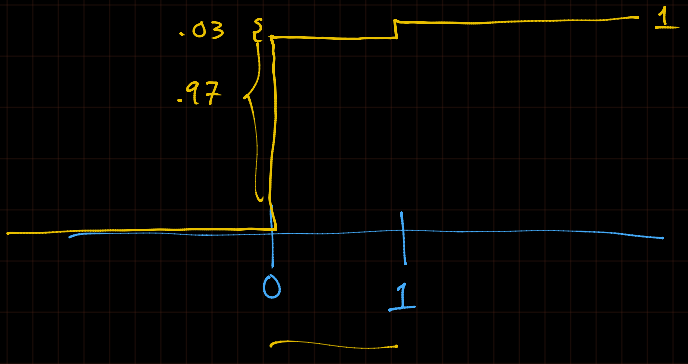
$$\Phi\left(\sqrt{-2\log c}\right) - \Phi\left(-\sqrt{-2\log c}\right) = 1-\alpha$$

$$\Phi\left(\sqrt{-2\log c}\right) - \Phi\left(-\sqrt{-2\log c}\right) + \alpha - 1 = 0$$

$g(c)$ R

Buscar ceros con Newton-Raphson

$$\frac{3}{100} \leq 1$$



$X_1, \ldots, X_{100}$

Ber $\left(\frac{3}{100}\right)$

$$\bar{x}_{100} = \frac{0+0+0+\ldots+1+0++\ldots+1}{100} \qquad 1 = \frac{3}{100}$$

$$R(p;\underline{X}) = \frac{L(p;\underline{X})}{L(\hat{p}_n;\underline{X})} \qquad n=100$$

$$L(p;\underline{X}) = \prod_{i=1}^{n} f(X_i;p)$$

↑ Bernoulli: (yo pienso)

$$= \prod_{i=1}^{n} p^{X_i}(1-p)^{1-X_i}$$

$$= p^{\sum_{i=1}^{n} X_i}(1-p)^{n-\sum_{i=1}^{n} X_i}$$

$$\ell(p;\underline{X}) = \left(\sum_{i=1}^{n} X_i\right)\log p + \left(n - \sum_{i=1}^{n} X_i\right)\log(1-p)$$

$$\ell'(p;\underline{X}) = \frac{n\bar{X}_n}{p} + \left(n - n\bar{X}_n\right)\frac{(-1)}{1-p}$$

$$0 = \frac{\bar{X}_n}{p} - \frac{(1-\bar{X}_n)}{1-p}$$

$$0 = (1-p)\bar{X}_n - p(1-\bar{X}_n)$$

$$= \bar{X}_n - p\bar{X}_n - p + p\bar{X}_n$$

El estimador de máxima verosimilitud es

$$\hat{p}_n = \bar{X}_n$$

$$R(p;\underline{x}) = \frac{L(p;\underline{x})}{L(\hat{p}_n;\underline{x})} = \frac{L(p;\underline{x})}{L(\hat{p}_n;\underline{x})}$$

$$= \frac{p^{\sum_{i=1}^n x_i}(1-p)^{n-\sum_{i=1}^n x_i}}{\bar{x}_n^{\sum_{i=1}^n x_i}(1-\bar{x}_n)^{n-\sum_{i=1}^n x_i}}$$

$$= \left(\frac{p}{\bar{x}_n}\right)^{n\bar{x}_n} \left(\frac{1-p}{1-\bar{x}_n}\right)^{n(1-\bar{x}_n)}$$

con $\bar{x}_n$ cte.