Clasif bayesiană

Calculul coef-or w_i cf ex 2.38 pt datele de la pr 4.2 (ciuperci)

vezi slides #89-97 din ... Bayes.pdf

în spec slides #90-91, #97

slide #97

$$w_0 = \sum_{j=1}^{4} \ln \frac{1-\theta_{j1}}{1-\theta_{j0}} + \ln \frac{\theta_y}{1-\theta_y} \overset{\text{slide \#90}}{=} \ln \frac{1-\theta_{11}}{1-\theta_{10}} \cdot \frac{1-\theta_{21}}{1-\theta_{20}} \cdot \frac{1-\theta_{31}}{1-\theta_{30}} \cdot \frac{1-\theta_{41}}{1-\theta_{40}} \cdot \frac{\theta_y}{1-\theta_y} =$$

(4 = nr atr-lor de intr.)

slide #91

$$\ln \frac{1-\frac{2}{3}}{1-\frac{3}{5}} \cdot \frac{1-\frac{1}{3}}{1-\frac{2}{5}} \cdot \frac{1-\frac{1}{3}}{1-\frac{2}{5}} \cdot \frac{1-\frac{1}{3}}{1-\frac{3}{5}} \cdot \frac{\frac{3}{8}}{1-\frac{3}{8}} = \frac{\frac{27}{9}}{243}$$

$$= \ln \frac{\frac{1}{3}}{\frac{2}{5}} \cdot \frac{\frac{2}{3}}{\frac{3}{5}} \cdot \frac{\frac{2}{3}}{\frac{3}{5}} \cdot \frac{\frac{2}{3}}{\frac{2}{5}} \cdot \frac{3}{5} = \ln \frac{2}{3^4} \cdot \frac{5^3}{3} = \ln \frac{2 \cdot 5^3}{3^5} = \ln \frac{250}{243}$$

$$= \ln 1\frac{7}{243} = 0{,}028$$

slide #97

$$w_j = \ln \frac{\theta_{j1}(1-\theta_{j0})}{\theta_{j0}(1-\theta_{j1})} \quad \text{pt } j = 1, \ldots, 4$$

$$\Rightarrow w_1 = \ln \frac{\frac{2}{3}}{\frac{3}{5}} \cdot \frac{\frac{2}{5}}{\frac{1}{3}} = \ln \frac{4}{3} = 0.288$$

$$w_2 = \ln \frac{\frac{1}{3}}{\frac{2}{5}} \cdot \frac{\frac{3}{5}}{\frac{2}{3}} = \ln \frac{3}{4} = -w_1 = -0.288; \quad = w_3$$

$$w_4 = \ln \frac{\frac{1}{3}}{\frac{3}{5}} \cdot \frac{\frac{2}{5}}{\frac{2}{3}} = \ln \frac{1}{9} = -\ln 9 = -0.219$$

$\Rightarrow$ rep-l lin corr lui Bayes Naiv pe ac set de date este

$$w_1x_1 + w_2x_2 + w_3x_3 + w_4x_4 + w_0 = 0 \iff 0.288x_1 - 0.288(x_2+x_3) - 0.219x_4 + 0.028$$