

Comparing χ^2

o h h a a n can yd. n. o a h o. h
can o a a o nd nd n a o o a y o a on a n
cac a h o o on p fn

o h a o a on z a n o h $2 \times 2 \chi^2$ ay h oo d
o a y a p o o h P and P_2 h a p FN and ? co

standard deviation $s_d \equiv \sqrt{p - p \cdot \frac{1}{n} + \frac{1}{n_2}}$ 4

n h ca o nd nd n o a on . o a on an P and P_2 co d d . n h & n
99 229 y o o h a h o v d o a . p and p_2 no ?
oy n h o v a anc

only χ^2 test condition χ^2 test
 ▶ p -value and w_d^+ test χ^2 test
 and χ^2 test

a 4 b h co . a on. o h da a n a 3

shall will shall will p p2 \hat{p} s^2 χ^2
9 99942 90

data and N conditions d and d_2 can be

$$\frac{d}{d_2} = \frac{2}{328} = \frac{8^2}{4 \cdot 429} \quad \text{and}$$

hence χ^2 test is

χ^2 test for independence in a 2x2 table. The test statistic is calculated as:

$$\chi^2 = \sum_{i=1}^2 \frac{(d_{1i} - d_{2i})^2}{s_{1i}^2 + s_{2i}^2}$$

$$\chi^2_D \equiv \sum_{i=1}^r \frac{(d_{1i} - d_{2i})^2}{s_{1i}^2 + s_{2i}^2} \quad (2)$$

The test is used to determine if there is a significant association between two categorical variables. The null hypothesis is that the variables are independent, and the alternative hypothesis is that they are dependent.

6. Heterogeneity χ^2 tests

Heterogeneity tests are used to determine if the relationship between two categorical variables is consistent across different groups or strata.

and a non-negativity constraint

$$T(N, \pi, \hat{p}) = \begin{array}{|c|c|} \hline N \hat{p} \alpha & N \hat{p} \alpha \\ \hline N \hat{p} \alpha & N \hat{p} \alpha \\ \hline \end{array} \begin{array}{c} N \hat{p} \\ N \hat{p} \\ N \end{array}$$

By construction T_1 and T_2

χ^2 co o o co n o d nc conc h z o
 h c ϕ and h z o h daa N h co c a oac h lo con c n canc
 o h co a on yo h o a
 n a oac h a ca lo h o n y nd nd nc lo oy a on o
 on oco a on o daa h a o oca h a h daa non a
 a d d n can yd n y h an n a n o h a A on an nd nd n
 h o n y x d a o h d nd n a a and a h on y
 h a on an nd nd n a a
 h y h n h h o oy a ad n h a o c c anc ca
 h a a ady x d x n a c a n o c h an h d nd n a a h a
 nc a d d c a d n o daa h o co a h c a h o h a c a n h
 a cond n o d oco a oodn o h on yo on a ad n
 h on d o do c z d n on d n on h a n d nc o
 d nc h d nc a h an a c an h n can ay h a h d nc
 n can h d nc o d nc

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