Finding Derivations: Significant

- A contrast-set for which at least two groups differ in their support is called ***Significant.***
- Perform an statistical test (chi-square) for the contrast set:
- Null hypothesis: “The support for the contrast-set is the same across all groups”
- We build a 2 X k contingency table, k is the number of groups
- Compute the χ^2 statistics and check value in the chi-square distribution
- Must be less than a threshold α. (Typically, α = 0.05)

c1: “*Product = burger ∧ Store = Fastfood*”

	Inner City	Industrious	Countryside
c1	944	776	172
¬ c1	2745	1851	4597

$$\chi^2 = \sum_{i=1}^{2} \sum_{j=1}^{k} \frac{(O_{ij} - E_{ij})^2}{E_{ij}}$$

→ Expected values

$$E_{ij} = \frac{\sum_{i=1}^{2} O_{ij} \sum_{j=1}^{k} O_{ij}}{N}$$

→ Observed values

Finding Derivations: Surprising

- A contrast-set for is considered to be **surprising** if the support of the contrast set in each group is different from its specialised nodes

Example

For the contrast set c1: "$Product = burger \wedge Store = Fastfood$"

support($Store = Fastfood$) = 13%

support($Product = burger \wedge Store = Fastfood$) = 12%

Subset support ratio = $\frac{12}{13} \approx 0.92$