<span style="color:red">Chi-squared test for independence</span>
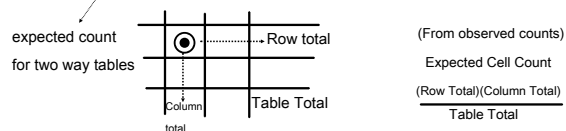
- applied to two categorical variables from a single population

- used to determine whether there is a significant associaiton between the two variables.

$H_0$: Two variables are independent

$H_A$: Two variables are NOT independent

**Conditions**: counted data condition, independence assumption, randomization, 10% condition, expected cell frequency condition

Calculate $\chi^2 \longrightarrow$ P-value

if p-value small, reject null

expected count for two way tables

Row total

Column total

Table Total

(From observed counts)

Expected Cell Count

$$\frac{(\text{Row Total})(\text{Column Total})}{\text{Table Total}}$$

\*\*\*    Not independent ≠ dependent

Practice