Expected Counts

The chi-square test for independence is used to determine whether there is an association between a row variable and a column variable in a contingency table constructed from sample data. The null hypothesis is that the variables are not associated; in other words, they are independent. The alternative hypothesis is that the variables are associated, or dependent.

Expected Frequencies in a Chi-Square Test for Independence

To find the expected frequencies in a cell when performing a chi-square independence test, multiply the row total of the row containing the cell by the column total of the column containing the cell and divide this result by the table total. That is,

\[
\text{Expected Frequency} = \frac{(\text{row total})(\text{column total})}{\text{table total}}
\]