# Inference for Categorical Data: Chi-Square

AP Statistics · Vocabulary in context

| Word | Example |
|---|---|
| **count** | The **count** of red cars is 12. 12 |
| **category** /'kætɪgəri/ | Each **category** is one possible answer, like “red”. “red” |
| **observed count** | The **observed count** is how many we actually saw. |
| **chi-square** /kaɪ skweə/ | The **chi-square** statistic compares observed and expected counts. |
| **chi-square distribution** | The **chi-square distribution** is never negative. |
| **right-skewed** | The chi-square distribution is **right-skewed**. |
| **degrees of freedom** /dɪ'gri:z ɒv 'fri:dəm/ | The **degrees of freedom** tell you which t-distribution to use. t |
| **goodness-of-fit** /'gʊdnəs ɒv fɪt/ | A **goodness-of-fit** test checks whether data match a claimed distribution. |
| **categorical variable** | Eye colour is a **categorical variable**. |
| **expected count** /ek'spektɪd kaʊnt/ | The **expected count** is what we would see if the null hypothesis were true. |
| **conditions** /kən'dɪʃnz/ | Check the **conditions** before you use the test. |
| **upper tail** | The p-value is the area in the **upper tail**. p-value |
| **fail to reject** /feɪl tə rɪ'dʒekt/ | If the p-value is large, **fail to reject** the null hypothesis. p-value |



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|---|---|
| **two-way table** /tu: weɪ 'teɪbl/ | A **two-way table** shows counts for two categorical variables. |
| **association** /ə,səʊsɪ'eɪʃn/ | There is an **association** between the two variables. |
| **test for homogeneity** /test fɔ: 'hɒmədʒneɪti/ | A **test for homogeneity** compares distributions in several groups. |
| **test for independence** /test fɔ: ˌɪndɪ'pendəns/ | A **test for independence** checks whether two variables are linked. |
| **two-tailed** /tu: teɪld/ | A **two-tailed** test looks for a difference in either direction. |
| **one-sided** | A **one-sided** test looks for a change in only one direction. |
| **p-value** /pi: 'vælju:/ | A small **p-value** means the result would be surprising if there were no real effect. |