8 Categorical data and expected counts – Part 1

Name: _____ Class: _____ Date: _____

Vocabulary 词汇

Write each word three times. 把每个单词抄写三遍。

English	中文	Write it 3 times (English)		
Categorical data	分类数据			
expected	期望			

Recall

Not all data are numbers –some are categories:

- Eye colour, favourite subject, or blood type are categories.
- You count how many fall into each category.

This sheet lines up how to compare category counts. Each idea has a worked example.

New ideas

1 Categorical data

Categorical data 分类数据 sort things into groups (categories) rather than measuring a number. You summarize them with **counts** in each category.

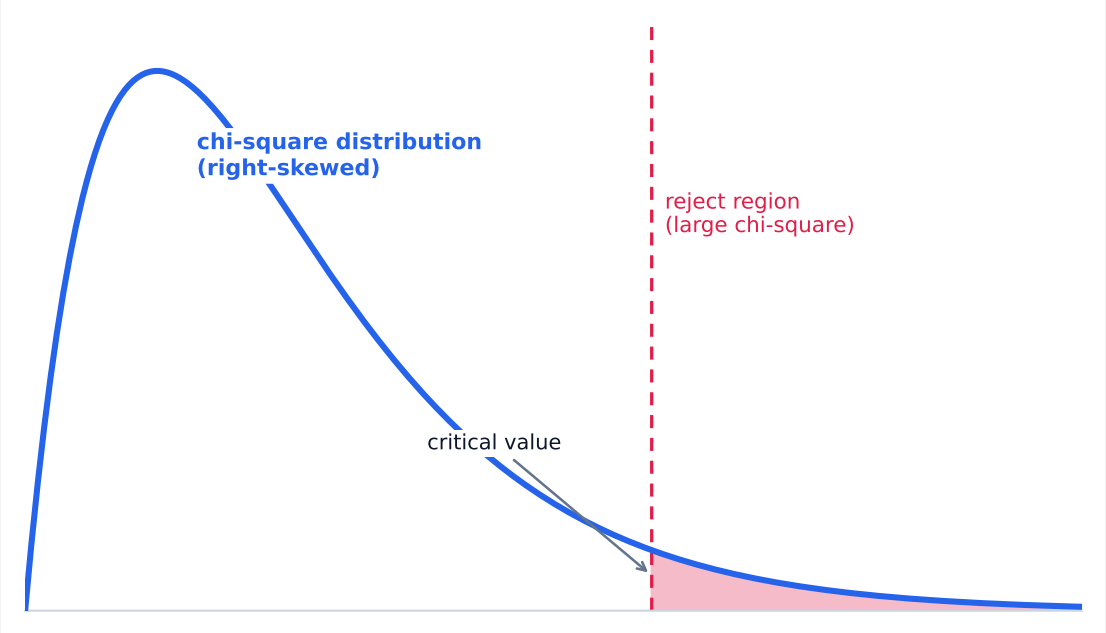
2 Observed and expected

An **observed** count is what you actually got; an **expected** 期望 count is what you would expect if a claim were true.

Worked example. Rolling a fair die 60 times, you **expect** 10 of each number. If you **observe** 15 sixes, that is more than expected.

3 Measuring the gap

To judge whether the observed counts differ from expected by more than chance, we compare each observed count with its expected count.



4 The question

The key question: are the differences between observed and expected small enough to be chance, or big enough to be real?

Watch out: the **expected** counts are what a claim (like "the die is fair") predicts – they are not the observed data. The whole test compares what you **got** against what the claim **predicts**.

Practice

Try these in order. The methods are all above.

2.1 State what categorical data are, with an example. [2]

2.2 State the difference between an observed and an expected count. [2]

2.3 A fair coin is flipped 100 times. State the expected number of heads. [2]

2.4 A fair die is rolled 120 times. State the expected count for each number. [2]

2.5 State the key question when comparing observed and expected counts. [2]