

Types of Data

Overview

- Variables can be anything that vary
- This lecture considers:
 - Types of data
 - Different scales of measurement
 - The different functions of statistics
- The need to understand the characteristics of each of your variables is emphasised

Types of Data

- Broadly speaking, there are two types of data
- The first type is called 'nominal' data
- Nominal variables are those in which a case falls into one of two or more categories
- Examples are gender, eye colour, socio-economic status, marital status and nationality
- Nominal variables are also referred to as categorical or qualitative variables

Types of Data (Continued)

- The second type of data is called 'numerical data'
- Numerical variables are those in which a case is assigned a numerical value
- Examples are age, height, weight, IQ, test scores, income, distance or temperature
- Numerical variables are also referred to as score or quantitative variables

Nominal or Numerical?

- Which type of data are each of the following?
 - i. Facebook user (i.e. yes or no)
 - ii. Use of Facebook (i.e. hours per day)
 - iii. Network (i.e. number of friends on Facebook)
 - iv. How do you access Facebook (i.e. mobile phone, PC or laptop)
 - v. Use of Facebook (i.e. Less than five hours per day or at least five hours per day)

Scales of Measurement

- Four different scales of measurement exist:
 1. **Nominal categorisation** – Placing cases into named categories (e.g. sprinters could be categorised based on their nationality)
 2. **Ordinal categorisation** – This ranks cases based on their order on a given variable (i.e. sprinters can be ranked 1st, 2nd, 3rd etc.)
 3. **Interval categorisation** – Where the distances between the sequential points on the scale are equal (e.g. the temperature at the time of the race)
 4. **Ratio categorisation** – The same as interval categorisation, but with an absolute zero (e.g. the sprinters' best times)

Measurement Characteristics

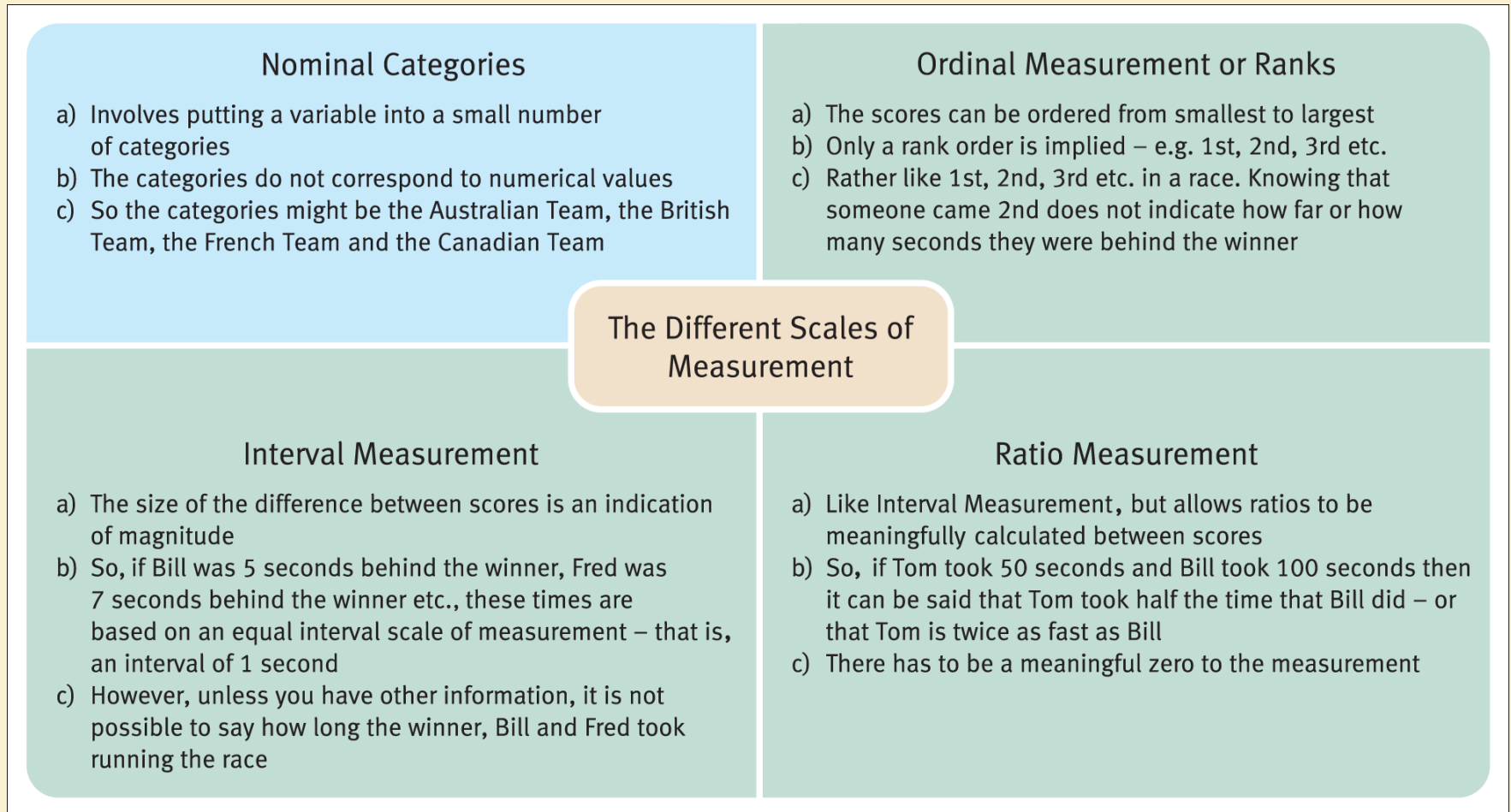


Figure 1.1 The different scales of measurement and their main characteristics

Functions of Statistical Techniques

- Statistical techniques perform **three key functions**:
 1. **Descriptive statistics**, as you would guess, is used to describe the information collected
 2. **Inferential statistics** relates to the confidence with which we can generalise from our sample to the population of interest
 3. **Data reduction techniques** allow a researcher to make sense of large amounts of data through using more advanced statistics

Conclusions

- Data comes in two broad forms
- Nominal variables are those in which cases are placed in categories
- Numerical variables concern those in which cases are given a score value
- It is important to understand which of these types of data each of your variables are as this will influence your analysis
- The measurement of a variable can take four forms: nominal, ordinal, interval and ratio
- Statistics can be used to describe, make inferences about or reduce your data