Three data types: continuous, coin flips and counts

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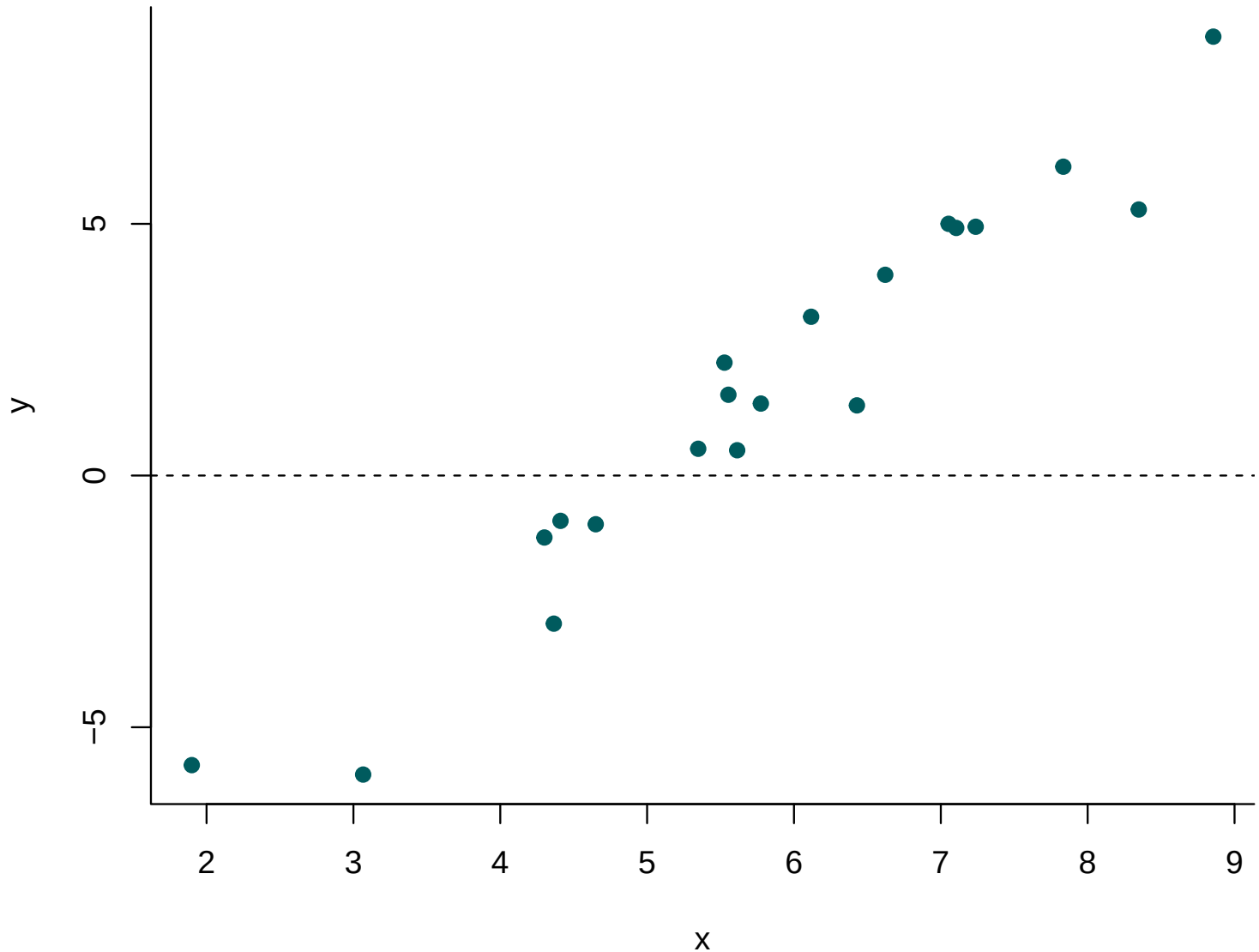
Outline

Describe some features of the response data y

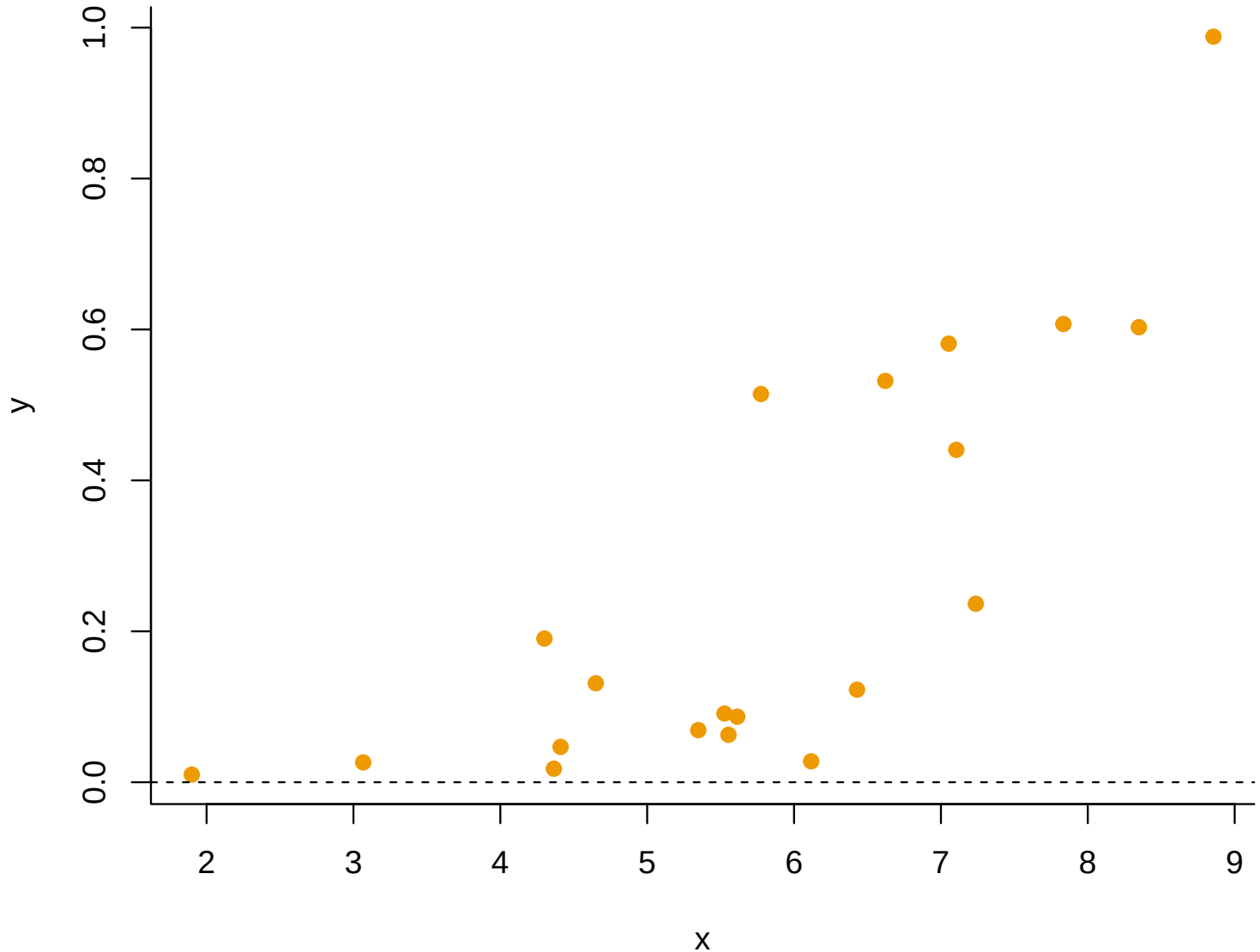


Describe some features of the response data y

Continuous data

- Response y is continuous, e.g., $y = 1.25$ possible
- Response can be positive or negative (on the real line)
- Apparent positive linear relationship with continuous variable x
- **Example** y could be a change in water height

Describe some features of the response data y

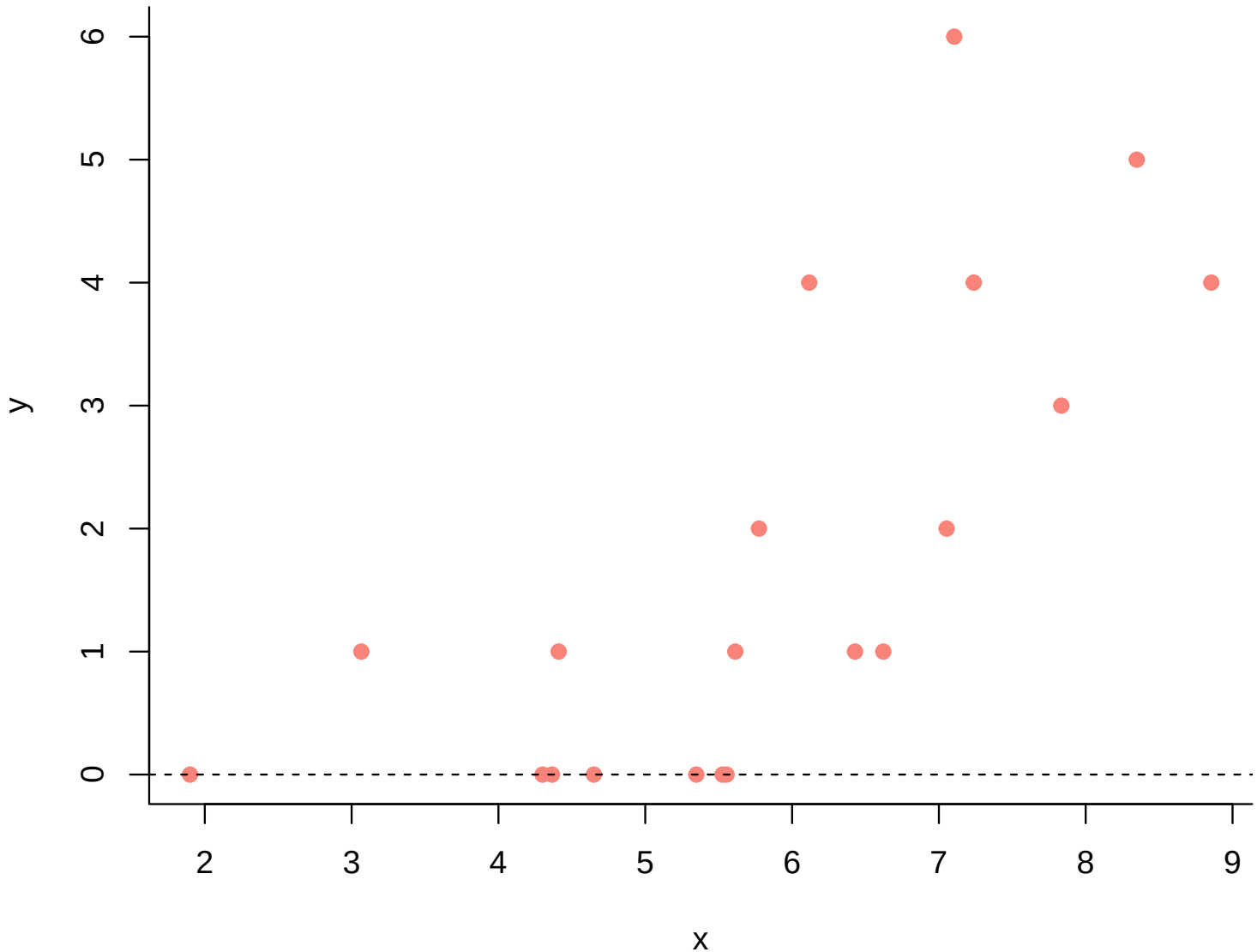


Describe some features of the response data y

Positive continuous data

- Response y is also continuous, e.g., $y = 0.25$ possible
- Response can only be positive (on the positive real line)
- Apparent positive non-linear relationship with continuous variable x
- **Example** y could be mass of individuals
  - Discuss what values mass/weight of a fish could be

Describe some features of the response data y

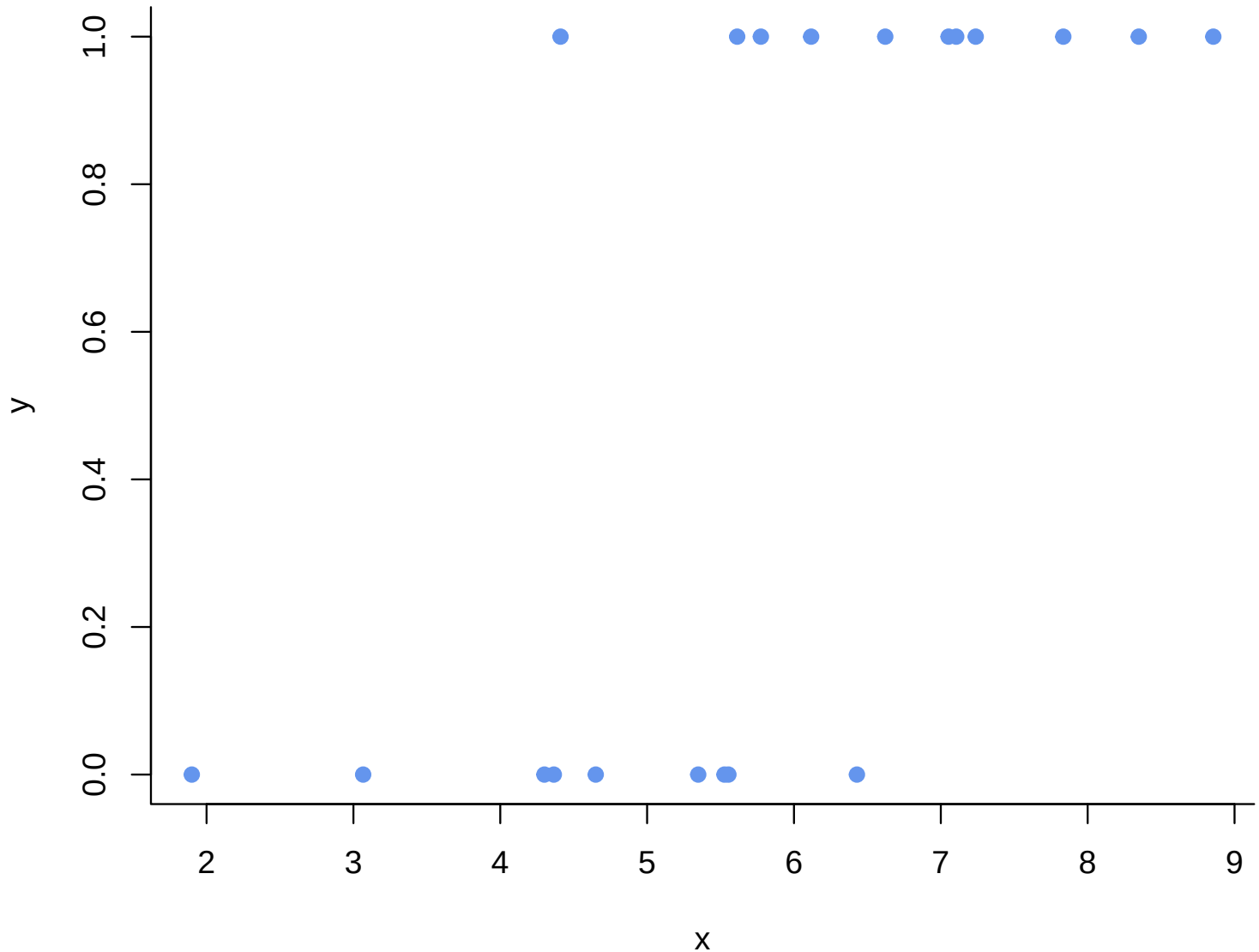


Describe some features of the response data y

Count data

- Response y is a count (discrete), e.g., $y = 1.25$ impossible
- Response can be zero or a positive integer
- Apparent positive non-linear relationship with continuous variable x
- **Example** y could be abundance
  - Discuss what values of abundance are possible

Describe some features of the response data y



Describe some features of the response data y

Binary data

- Response y can be either a 1 or a 0 (or other binary categories)
  - Often it is a sum of positives out of a given number of trials, e.g., total number of heads in 10 coin flips
  - Key thing is that for any one flip there can only be 2 outcomes
- Apparent positive non-linear relationship with continuous variable x
- **Example** y could be maturity status (mature/immature) for an organism
  - Discuss other binary data examples

Outline

Probability distribution

A function that describes the probabilities associated with possible outcomes for an experiment (think of the response y)

Continuous probability distributions

Normal distribution