

EDS222 Week 6

Modeling binary responses with *logistic regression*



what

A curved arrow points from the word 'what' inside a black oval to the underlined text 'binary responses' in the line above.

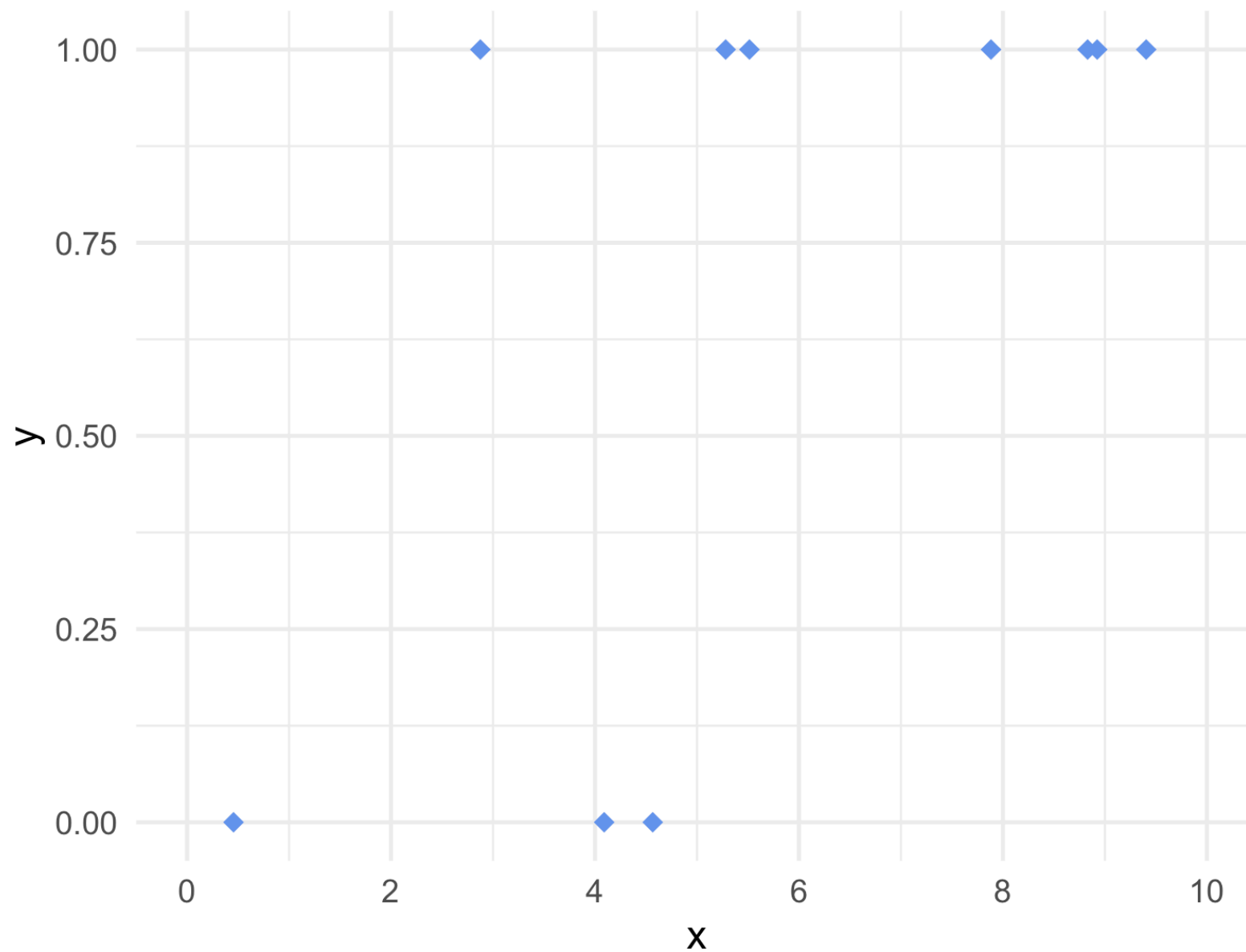


how

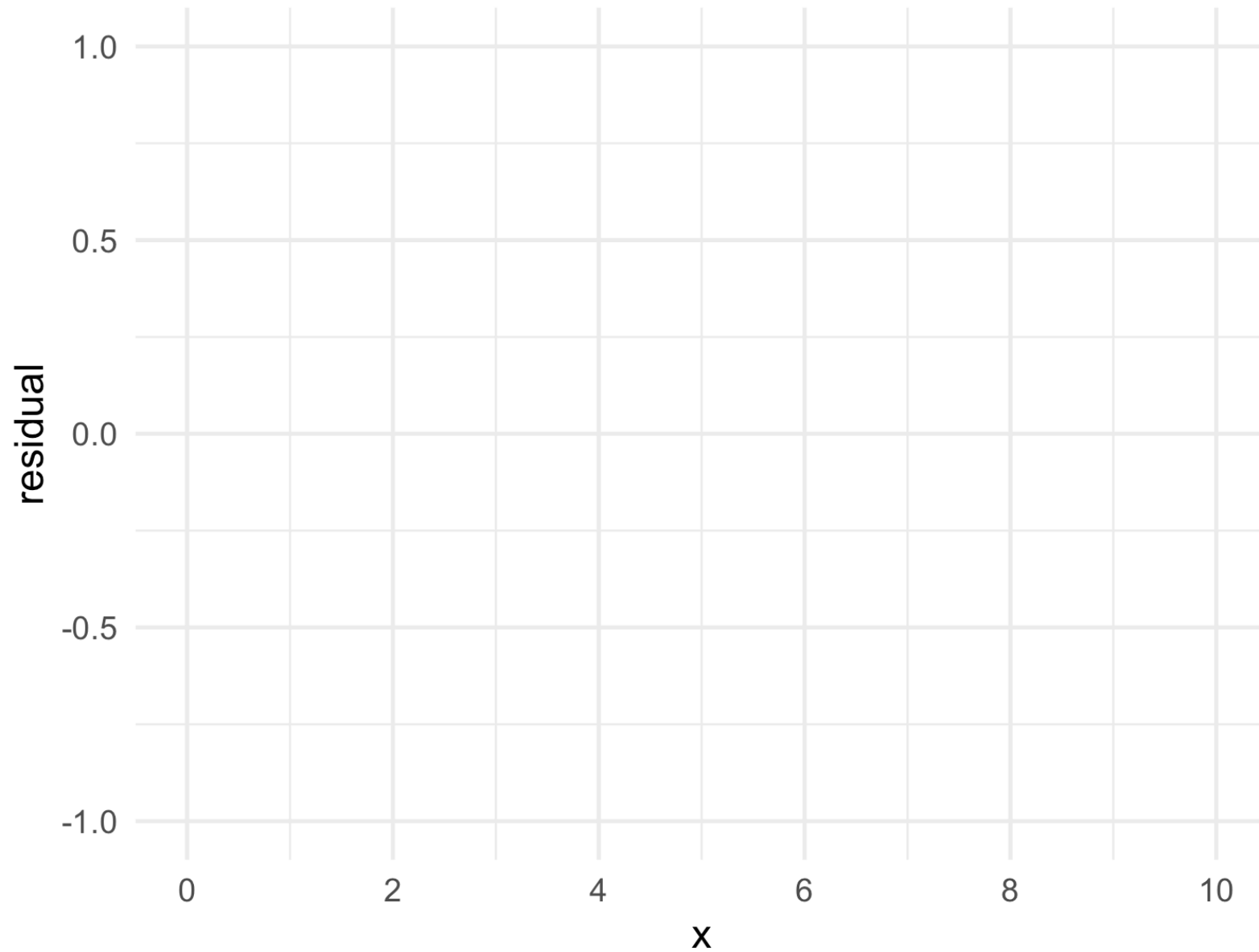
A curved arrow points from the word 'how' inside a black oval to the italicized text 'logistic regression' in the line above.

November 5, 2024

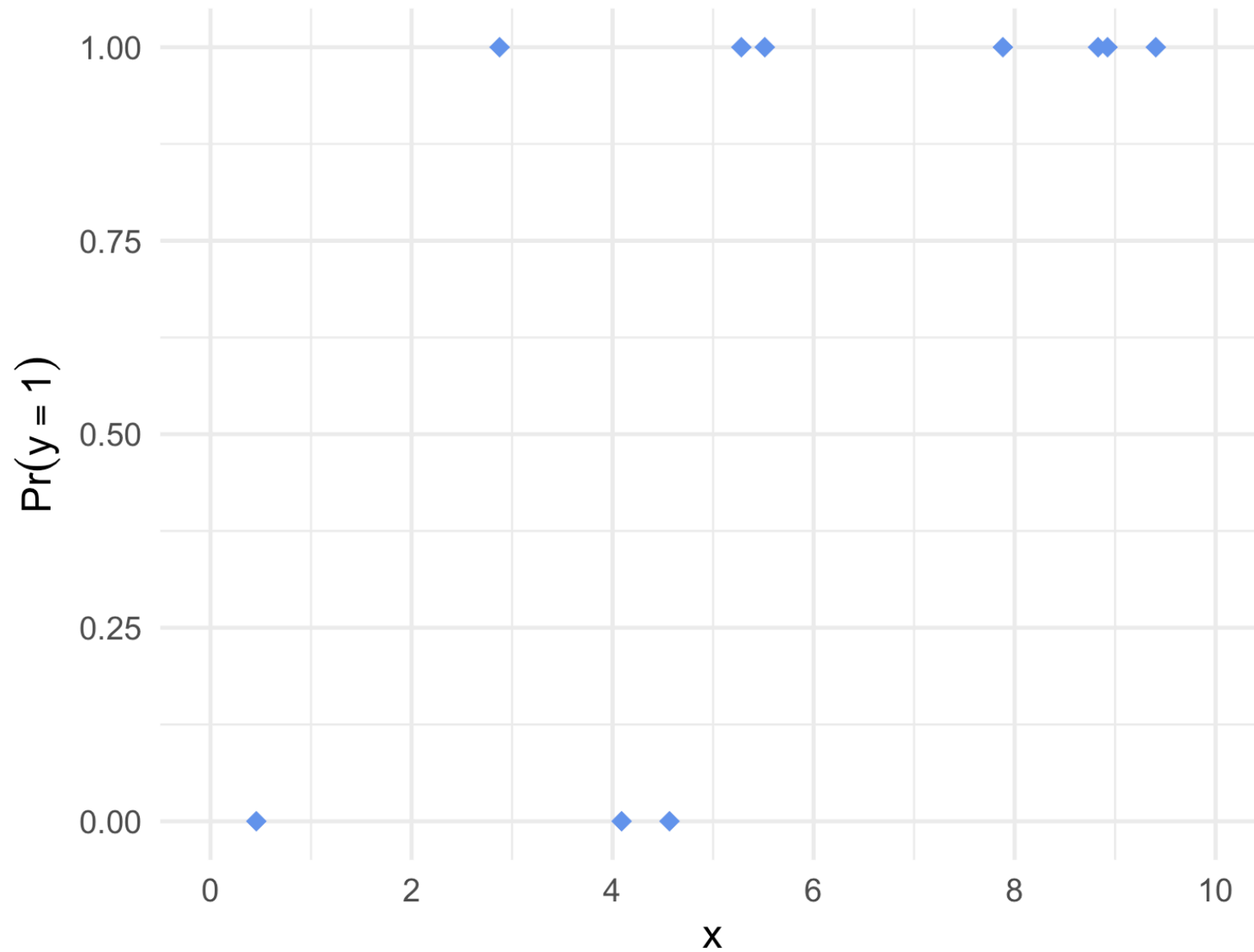
Modeling the unobserved



Modeling the unobserved

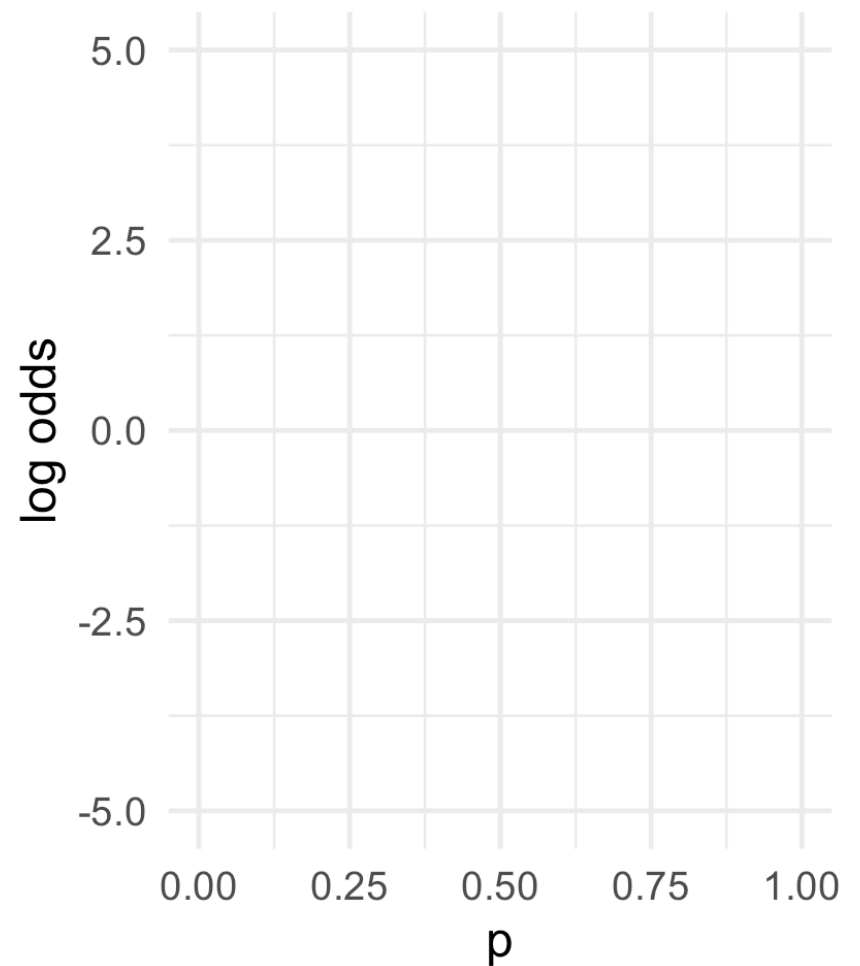
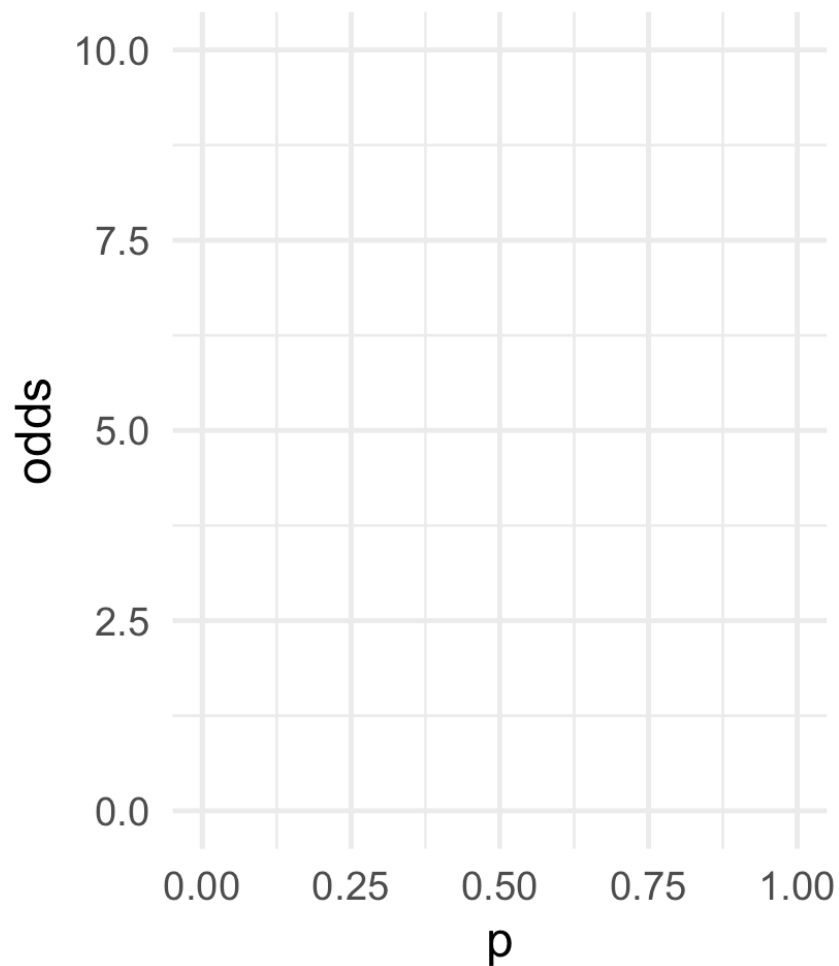


Modeling the unobserved



Link functions (logit)

Goal:

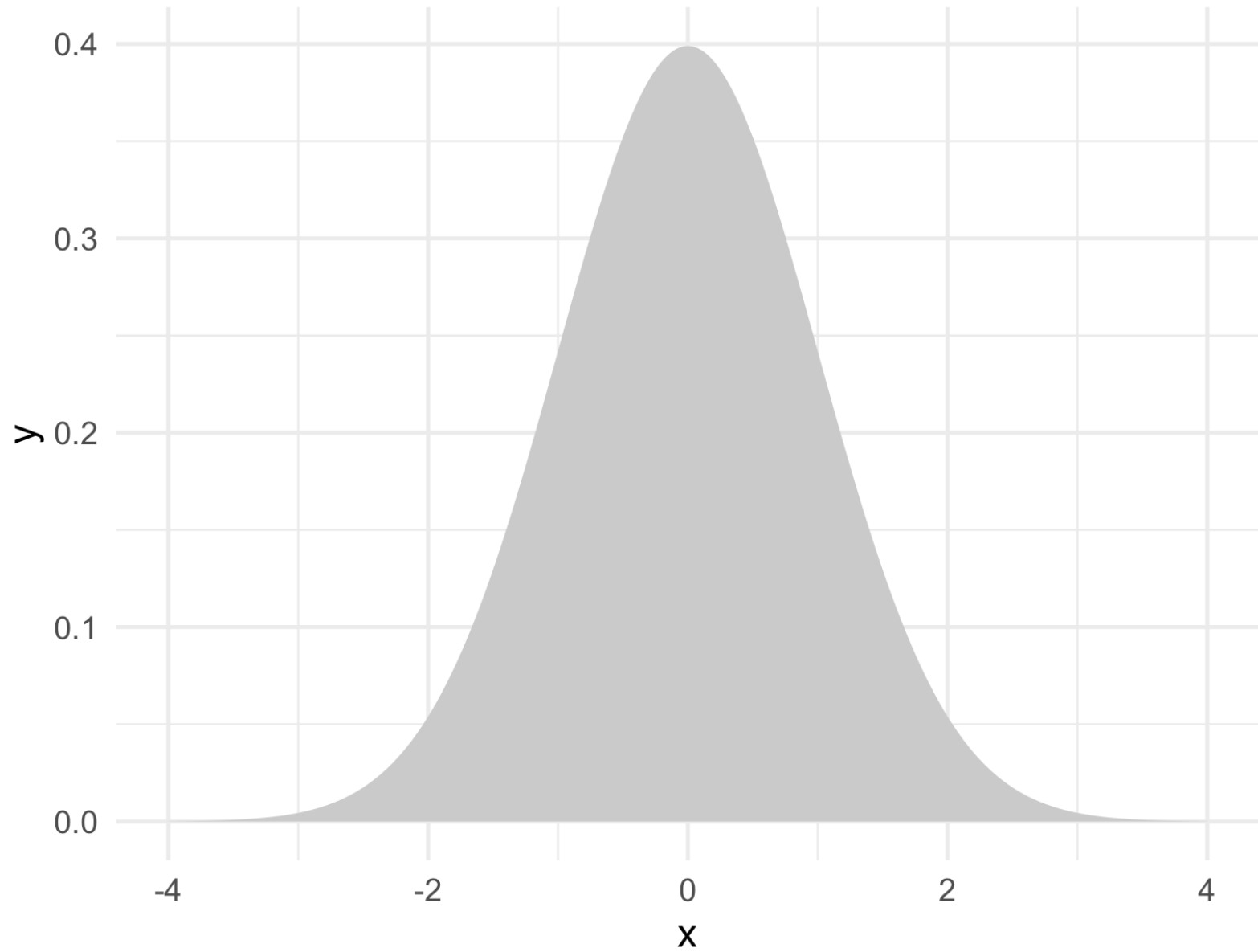


Link functions (logit)

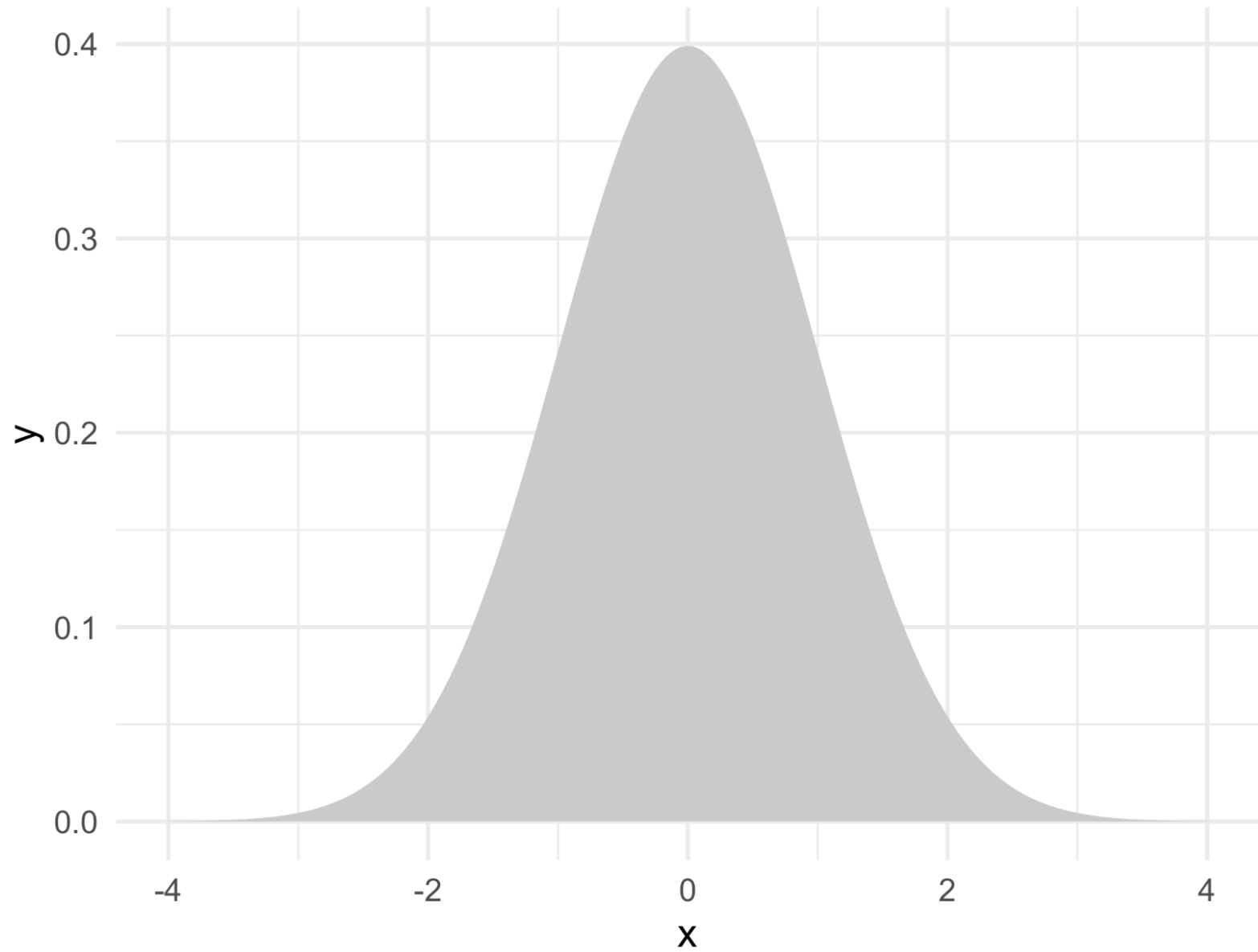
Logistic regression:

“Normal” regression:

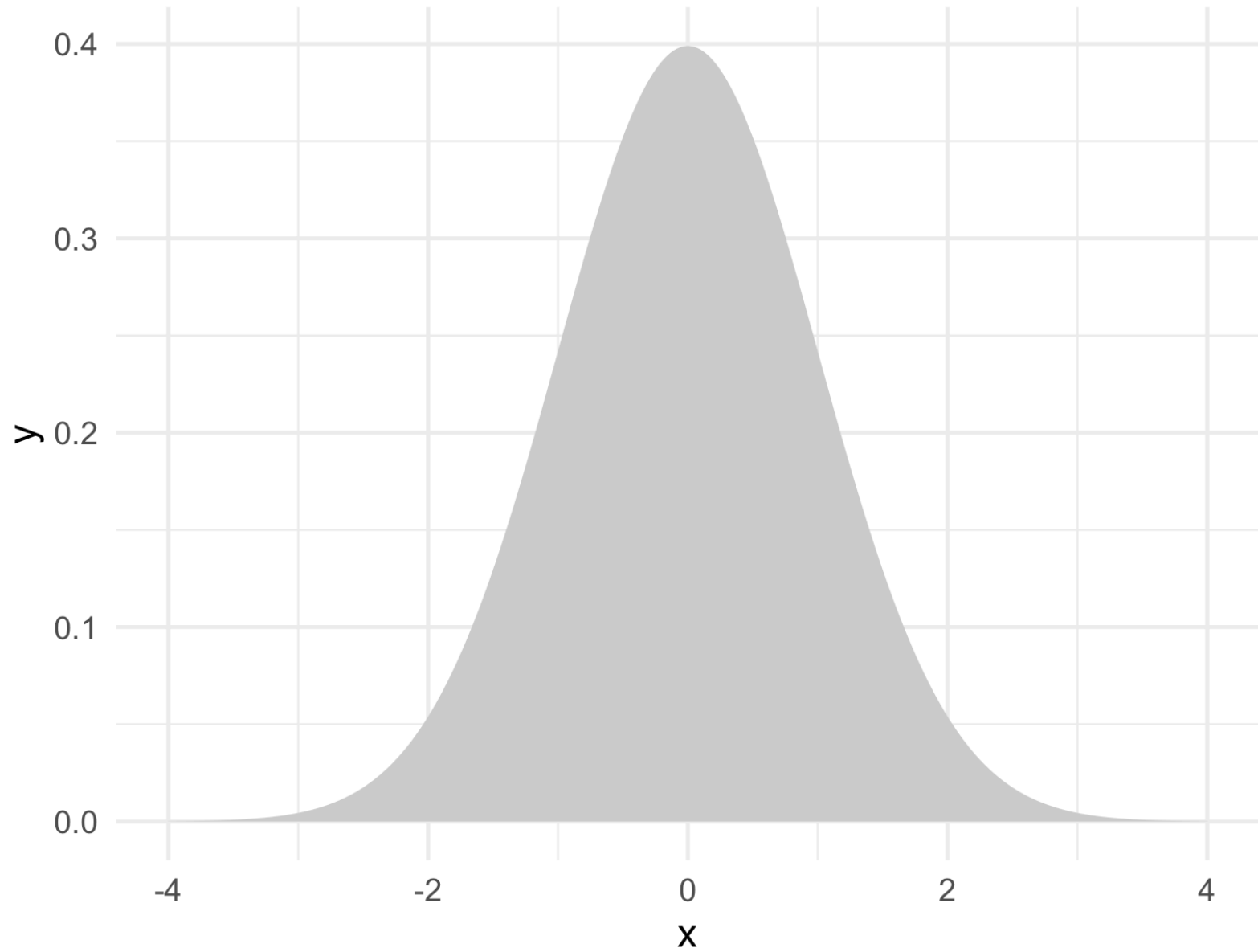
Likelihood



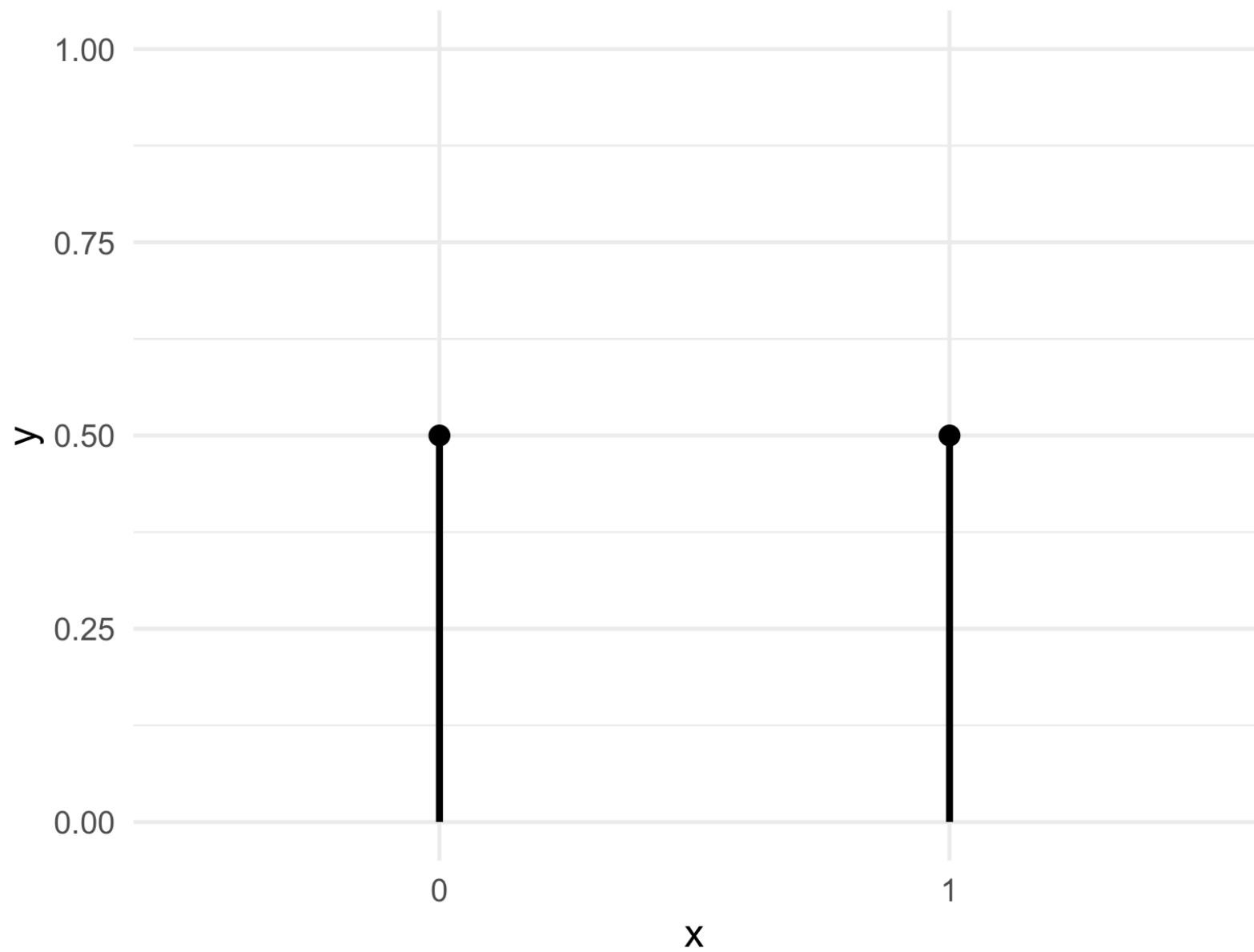
Likelihood



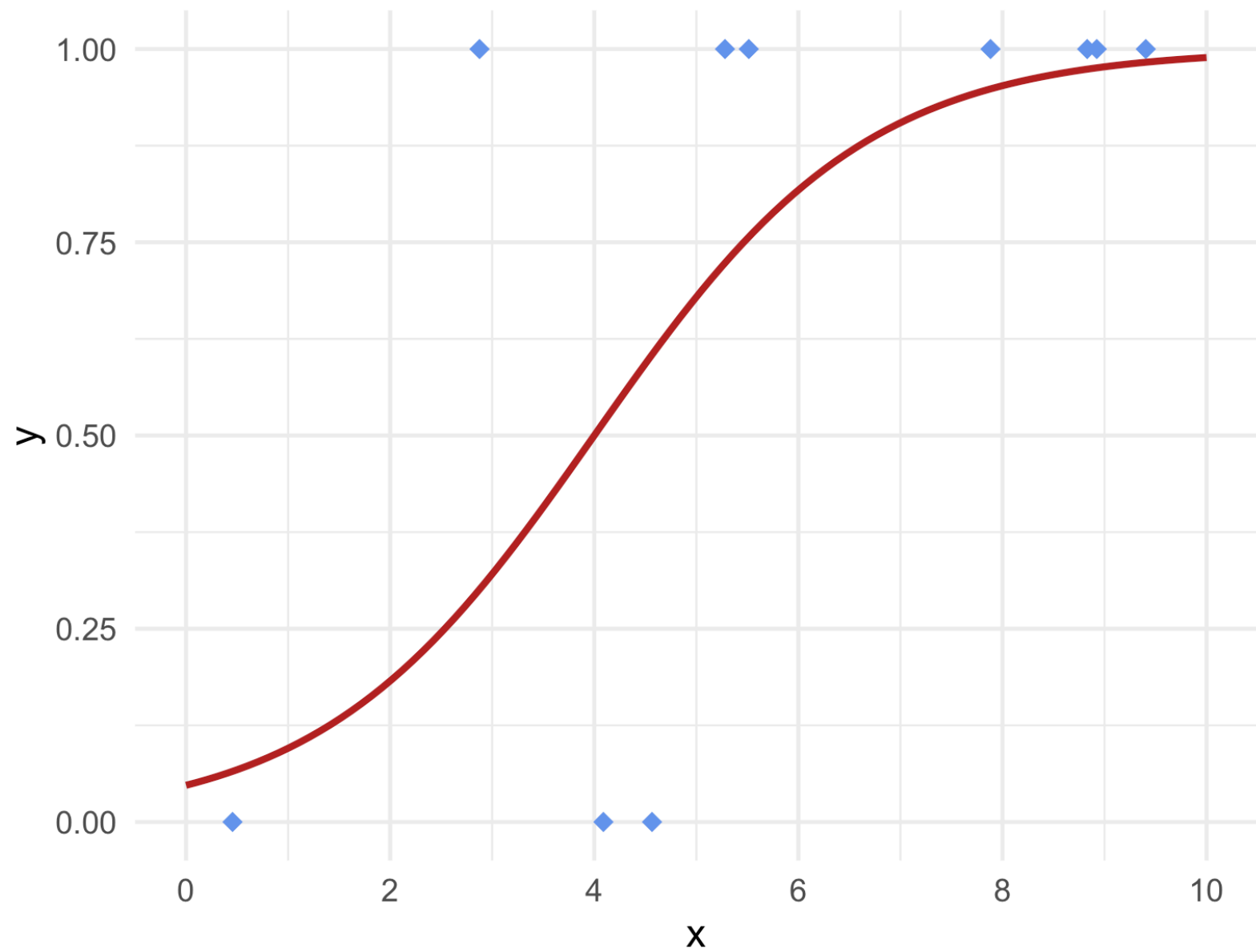
Likelihood



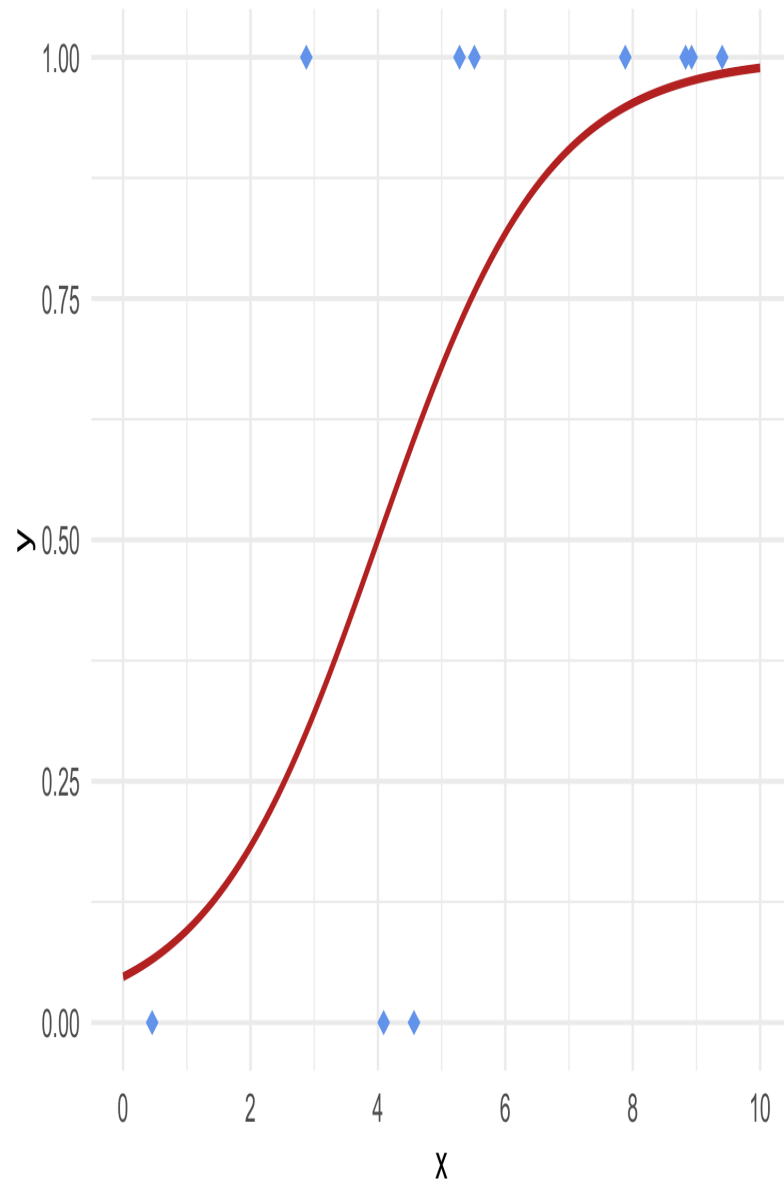
Likelihood



Likelihood



Coefficient estimation



Review

1. **Modeling the unobserved**

Model the *underlying probability*, not the data directly

2. **Link functions**

Use a *link function* (logit) to transform the parameters of a non-normal distribution (Bernoulli)

3. **Coefficient estimation**

Say goodbye to SSE, embrace the power of *likelihood* for coefficient estimation