## Historical Linguistics

- Inspired by Ch 3.5.2.
- Interested in languages that descend from the same historical languages.
  - Norwegian and Swedish from Norse.
  - Modern French and Spanish from Latin.
- Languages that are separated by time $t$.
- Probability that a particular meaning has cognate words, $\exp(-\lambda t)$.
- Data: A linguist (*Clue*) judges if $N$ different meanings are cognate:

| Meaning | Norwegian | Swedish | Cognate |
|---------|-----------|---------|---------|
| Laugh | Le | Skratta | No |
| House | Hus | Hus | Yes |

Similar data for Spanish and French.

# Shooting balloons



- $N$ trail subjects, $i = 1, 2, \ldots, N$
- Each shot $n_i$ times, trying to hit balloons.
- Count hits $y_i$.
- Explanatory variables:
    - Experienced / non-experienced gunman
    - Wind speed

Data:

| Trail person | 1 | 2 | 3 | ... |
|---|---|---|---|---|
| Experienced | 1 | 0 | 0 | ... |
| Wind speed | 2.13 | 0.59 | 1.03 | ... |
| $n_i$ | 6 | 3 | 5 | ... |
| $y_i$ | 2 | 1 | 1 | ... |

If house sparrows disperse / move from the hatch island, they do it the first year.
Model dispersal with

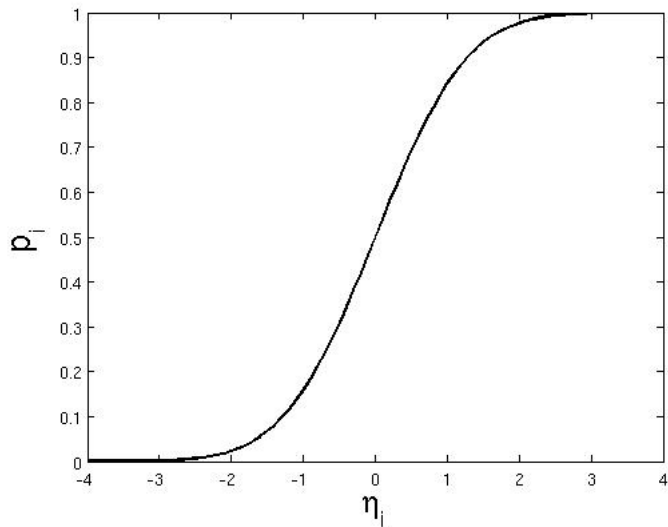- Hatch year
- Sex
- Wing length

  - Q1: Does dispersal differ between (hatch) islands?
  - Q2: Does dispersal differ between island and sex?
  - Q3: Does wing length influence dispersal?
  - Q4: For a bird with hatch island 2, sex $F$ and wing length $5cm$, what is the probability it will disperse?

# cloglog link