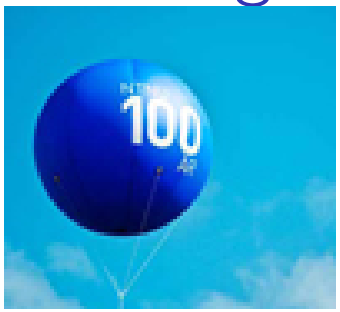
Historical Linguistics

- 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	...

Dispersal of House sparrows

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

- Hatch year
- Sex
- Wing length

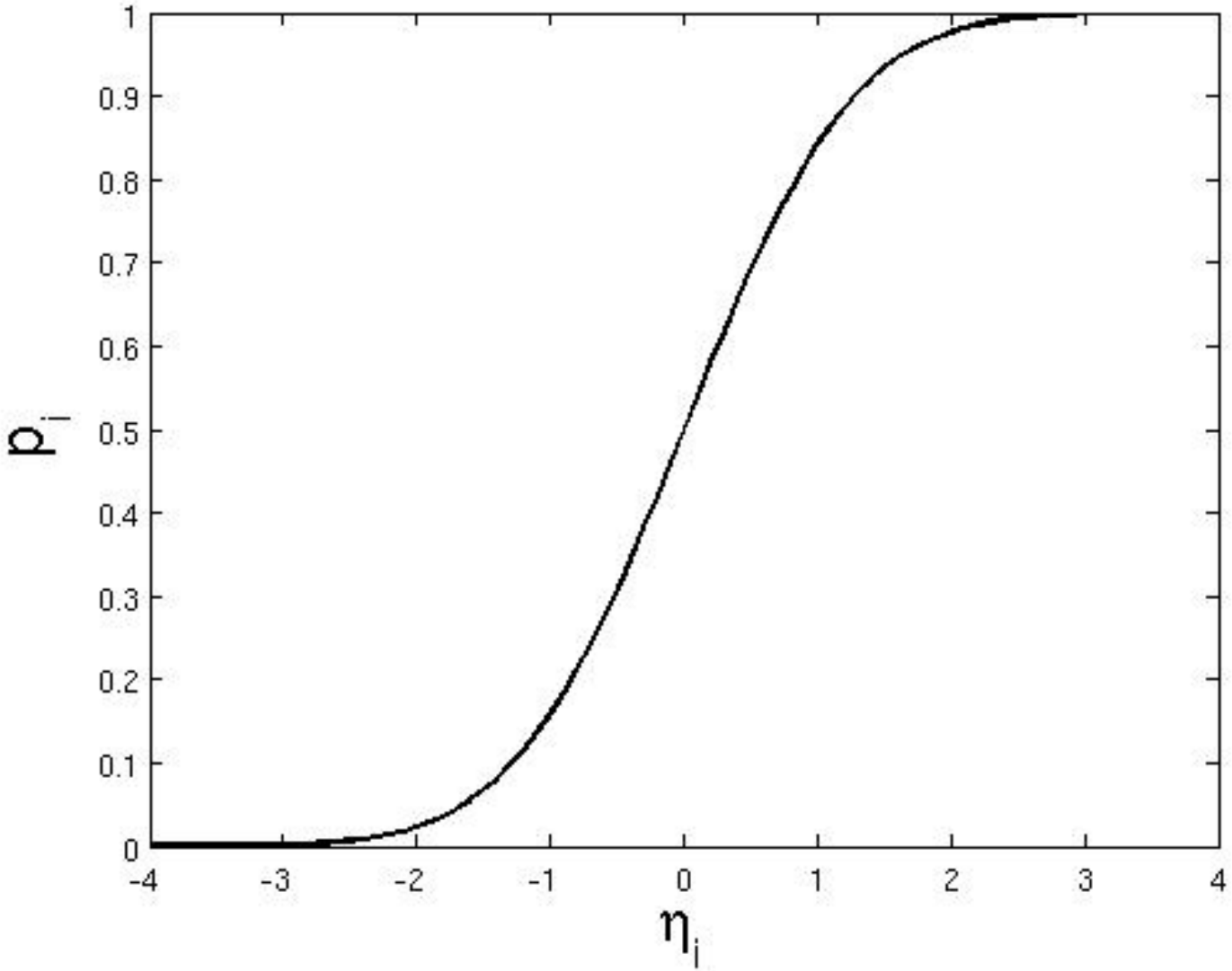
Q1: Does dispersal differ between (hatch) islands?

Q2: Does dispersal differ between island and sex?

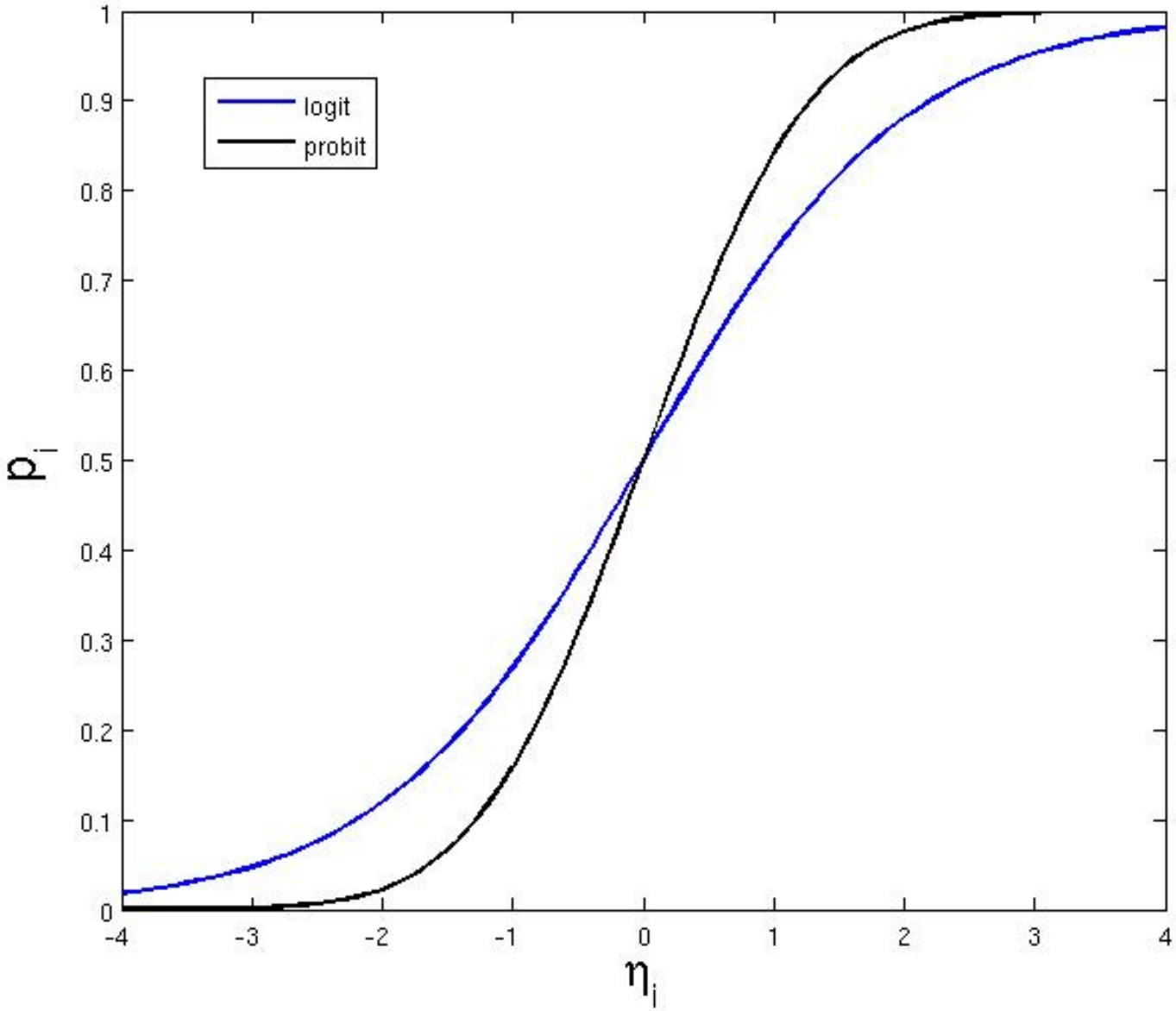
Q3: Does wing length influence dispersal?

Q4: For a bird with hatch island 2, sex F and wing length $5cm$, what is the probability it will disperse?

Probit link



Logit link



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