Population and Social interactions

$$X_i(t) = \begin{cases} 1 & \text{if site } i \text{ occupied by } \text{at time } t \text{ } (1 \le i \le N) \\ 0 & \text{if site } i \text{ occupied by } \text{at time } t \text{ } (1 \le i \le N) \end{cases}$$

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We are interested in $\mathbb{E}[\overline{X}]$, the expected (\mathbb{E}) proportion (\overline{X}) of altruists in the population.

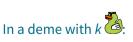
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Social interactions affect fecundity







In a deme with
$$k$$

$$f = 1 + \omega \left(b \frac{k-1}{n-1} - c \right),$$

$$f = 1 + \omega \left(b \frac{k}{n-1} \right).$$