Introduction

* What are personalities?

Different individual behaviour that is consistent over time and context

* Why a snowdrift game and not a prisoner’s dilemma?
* Research aim
* Why is this important?

When looking from an adaptive point of view it is more advantageous to be flexible over time and context. It seems that this is not the case in animal, insect and fish behaviour, where limited plasticity is observed.

This mechanism is poorly understood. There might be more to it from an evolutionary perspective.



Overview variables

P0

Pc

Pd

Ps 🡪 model 2.0 ?

Model 0.0

* Small overview variables
  + B (benefits) 4
  + C (costs) 2
  + μ (mutation rate) 0.01
  + P0 (cooperation either 0 or 1) 0.05, 0.95, 0.67
  + nI (number of interactions) 10
* Model set-up/traits
  + Each individual has nI interactions in its life. Gets fitness according to payoff matrix depending on strategies. Next generation based on fitness values. μ chance to change P0 state.
* Data overview

Model 0.1

* Small overview variables
  + B (benefits) 4
  + C (costs) 2
  + μ (mutation rate) 0.01
  + P0 (cooperation between 0 and 1) 0.05, 0.95, 0.67
  + nI (number of interactions) 10
  + σ (standard deviation of normal distribution used for change of P0) 0.01
* Model set-up/traits
  + Each individual has nI interactions in its life. Gets fitness according to payoff matrix depending on strategies. Next generation based on fitness values. μ chance to change P0 by small amount taken from normal distribution with standard deviation σ)
* Data overview

Model 1.0

* Communication

Only honest communication is evolutionary stable 🡪 Botero et al.

* Small overview variables
  + B (benefits) 4
  + C (costs) 2
  + μ (mutation rate) 0.01
  + P0 (cooperation between 0 and 1) 0.05, 0.95, 0.67
  + nI (number of interactions) 10
  + σ (standard deviation of normal distribution used for change of P0) 0.01
  + Pi (obtain information either 0 or 1) 0.5
* Model set-up/traits
  + Each individual has nI interactions in its life. Gets fitness according to payoff matrix depending on strategies if no info is present. If info is present, individual guesses what partner will do depending on P0 and pick optimal strategy based on it. Next generation based on fitness values. μ chance to change P0 by small amount taken from normal distribution with standard deviation σ. μ chance to change Pi state.
* Data overview

Model 1.1

* Small overview variables
  + B (benefits) 4
  + C (costs) 2
  + μ (mutation rate) 0.01
  + P0 (cooperation between 0 and 1) 0.05, 0.95, 0.67
  + nI (number of interactions) 10
  + σ (standard deviation of normal distribution used for change of P0) 0.01
  + Pi (obtain information either 0 or 1) 0.5
* Model set-up/traits
  + Each individual has nI interactions in its life. Gets fitness according to payoff matrix depending on strategies if no info is present. If info is present, individual guesses what partner will do depending on P0 if it’s not a responsive individual, otherwise based on mean cooperation chance in previous generation, and pick optimal strategy based on it. Next generation based on fitness values. μ chance to change P0 by small amount taken from normal distribution with standard deviation σ. μ chance to change Pi state.
* Data overview

Research aim

Literature list

* Sih, A., Bell A., Johnson J. C. 2004 Behavioral syndromes: an ecological and evolutionary overview. *Trends in Ecology and Evolution*. **19**, 372 – 378
* Johnson J. C. & Sih A. 2005 precopulatory sexual cannibalism in fishing spiders (*Dolomedes triton*): a role for behavioural syndromes. *Behav. Ecol. Sociobiol.* **58**, 390 – 396
* Wolf M., Van Doorn G. S. & Weissing F.J. 2010 On the coevolution of social responsiveness and behavioural consistency. *Proc. R. Soc. B*. **278,** 440 – 448