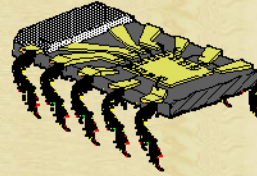




INSTITUT
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Social Emergence in complex systems

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Cooperation

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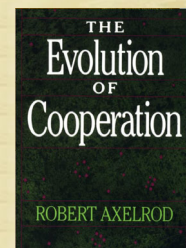
22 November, 2023

1

Cooperative communication

[...] if we inform only those people **who are likely to return the favour**, both of us can gain the benefits of **trade**. It seems clear that we do use our faculties of social cognition to **rational** our conversation to those with whom we have established a non-exploitative relationship; hence the expression 'to be on speaking terms' (S. Pinker 2003, p. 28)

- Information barter
 - Talk only to individuals who reciprocate
- Reputation
 - Talk to show that you are willing to give information

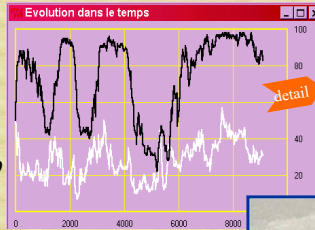
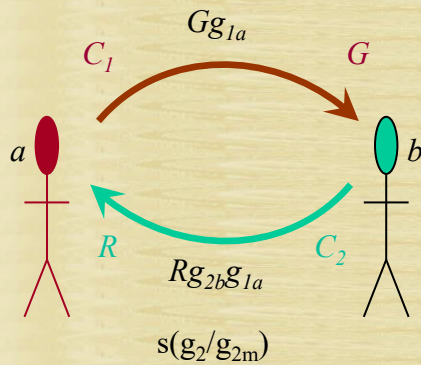


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2

Cooperation ?

(Dessalles 1999, 2000)



$$\frac{GR}{C_1 C_2} > 1 + \frac{s(1)}{s'(1)}$$

(false) predictions

- Utilitarian exchanges
- Good benefit/cost ratio
- Selection against proficient behaviour
- One-to-one interactions
- Public avoidance

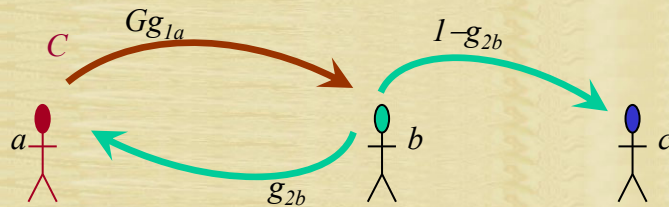
Cooperative communication

- Utilitarian exchanges
 - Information given should always increase the survival of addressees
 - Make several offers before disclosing information
 - Of two pieces of information, always offer the less valuable one first (Gresham's law: *bad money drives out the good*)
- Good benefit /cost ratio
 - Do not easily give away information that is hard to get
- Selection against talkative behaviour
 - Do not give away for free everything valuable you know
 - Be very selective as to whom you speak to
 - Never talk to several people simultaneously



Generalised cooperation

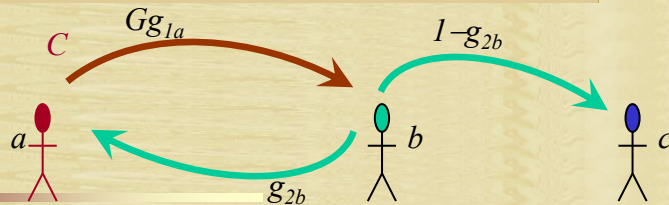
- Individuals provide informations to others to show that they are good cooperators.
- It is in the interest of individuals to talk to cooperators.
- But... it is in the interest of individuals to explore by interacting with new partners.



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Generalised cooperation

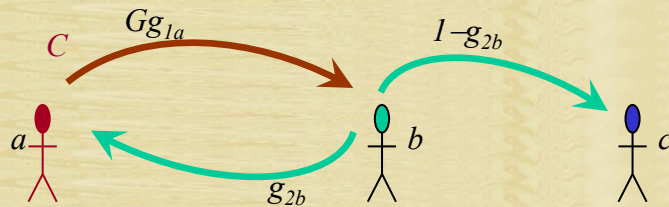


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Coopération généralisée

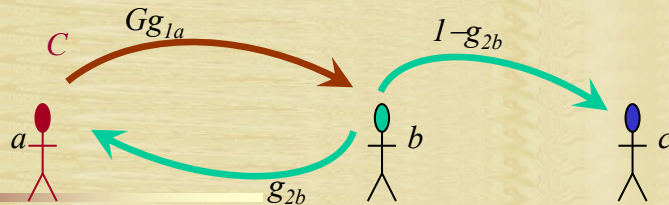
- Les individus donnent des informations pour montrer qu'ils sont bon coopérants.
- Il est dans l'intérêt des individus de parler aux bons coopérants.
- Mais... il est dans l'intérêt des individus d'explorer en interagissant avec de nouveaux partenaires.



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Coopération généralisée



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