

9.916

Aggression and Dominance

Today's Lecture

One mind thinking about another:

- stable
- universal

Social relationships:

- dynamic
- co-dependent
- context-bound

Social relationships depend on a continuous trade-off between mutual benefit and relative benefit

- (1) Last week: Between-group competition
- (2) Today: Within group competition
- (3) Next week: Within group cooperation

Living in Groups

what is a “social group”?

- stable association of adult conspecifics
- division / coordination of labor

benefits:

- rewards of cooperative behavior (war, hunting)
- risk pooling

costs:

- cost of contributing to group benefits (vs freeloading)
- within group competition for resources
(territory), food, mates



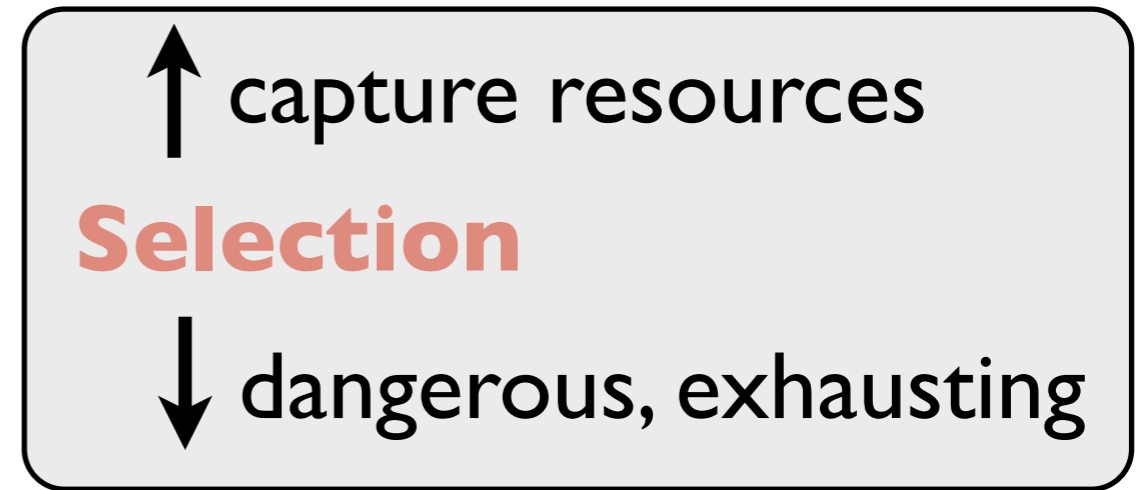
“Normal aggression”

Normal Aggression

Normal Aggression

- conflict over resources
- “reactive”, goal-frustration
- usually within-gender
- low-risk targets
- “last resort”
 - prefer proxies
 - signal intentions
 - make & accept signs of submission
- hyper arousal

Most animal models

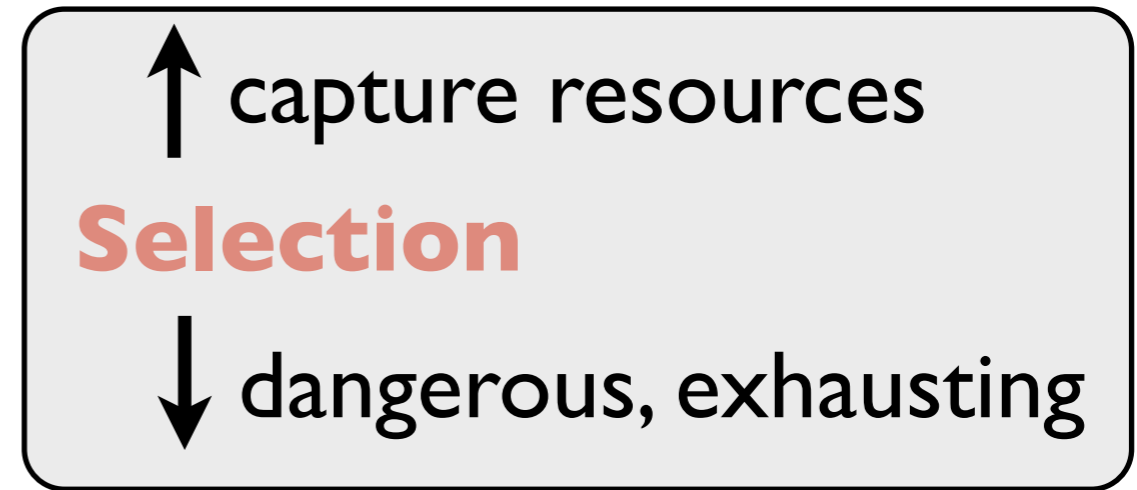


MANY proximal mechanisms

Figure removed due to copyright restriction.

Normal Aggression

Drosophila melanogaster



MANY proximal mechanisms

Male-typical fighting:

Figures removed due to copyright restriction.

Genetic
splicing

Heat-sensitive
activation

Normal Aggression

Normal Aggression

- conflict over resources
- “reactive”, goal-frustration
- usually within-gender
- low-risk targets
- “last resort”
 - prefer proxies
 - signal intentions
 - make & accept signs of submission
- hyper arousal

Abnormal Aggression

- unprovoked
- instrument, goal-oriented
- indiscriminate
- high-risk targets
- deliberate strategy
 - ignore proxies
 - hide intentions
 - reject signs of submission
- hypo arousal

Living in Groups

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benefits:

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- risk pooling

costs:

- cost of contributing to group benefits (vs freeloading)
- within group competition for resources

↑ group size

↓ group structure

Structure of Social Groups

Costs of group living ↓ group structure

Cross-species: structures

Isolated

Aggregation

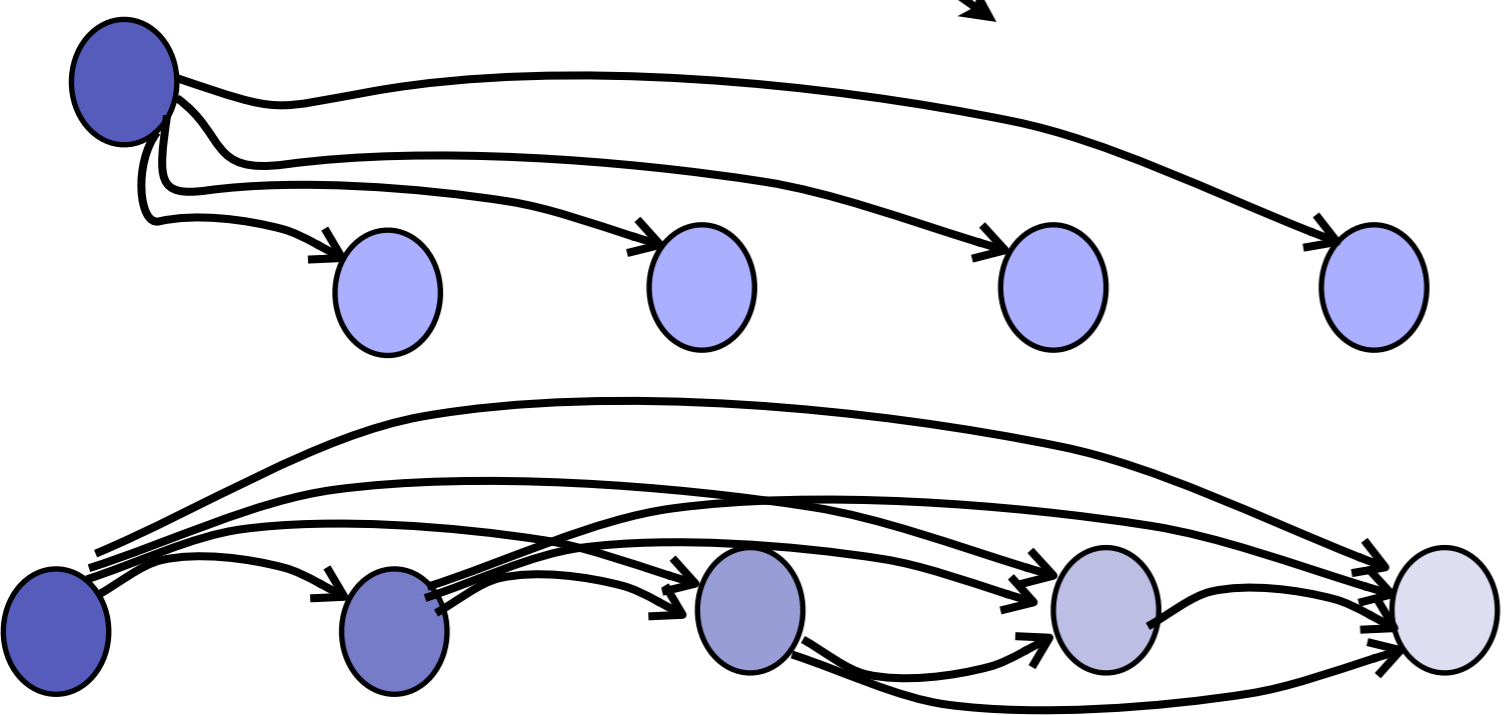
Cooperative breeding

Castes
Linear Hierarchy

Dominance hierarchy:
- priority access to resources: food, mates

Why have a hierarchy?
- prevent conflict

How is hierarchy recognized / represented?
- simple vs complex?



Structure of Social Groups

Costs of group living ↓ group structure

How is hierarchy recognized / represented?

If simple cue:

- should form same hierarchy twice

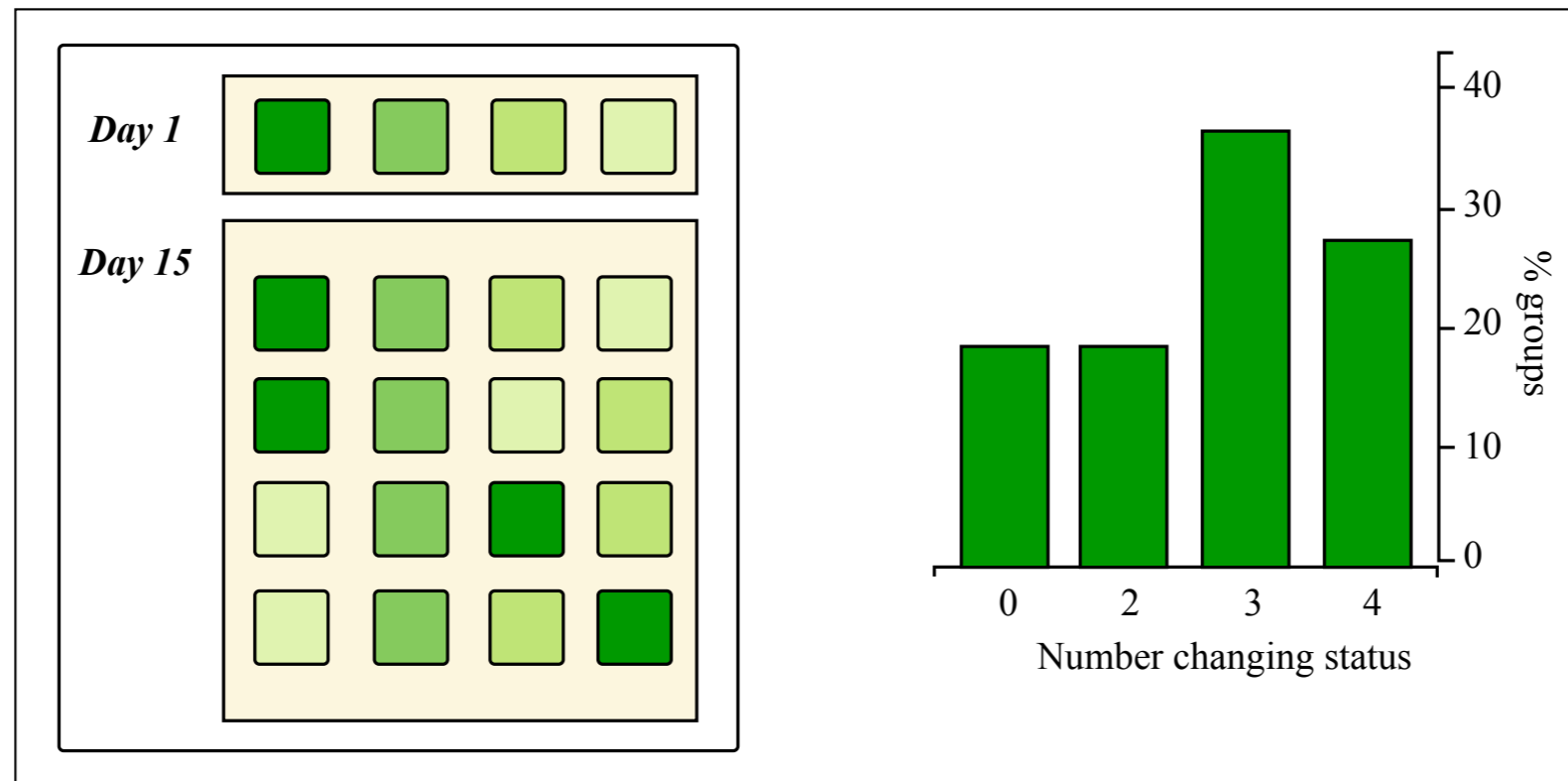


Figure by MIT OpenCourseWare.

Structure of Social Groups

Costs of group living ↓ group structure

How is hierarchy recognized / represented?

If simple cue:

- should form same hierarchy twice
- should form same hierarchy from just pairwise interactions

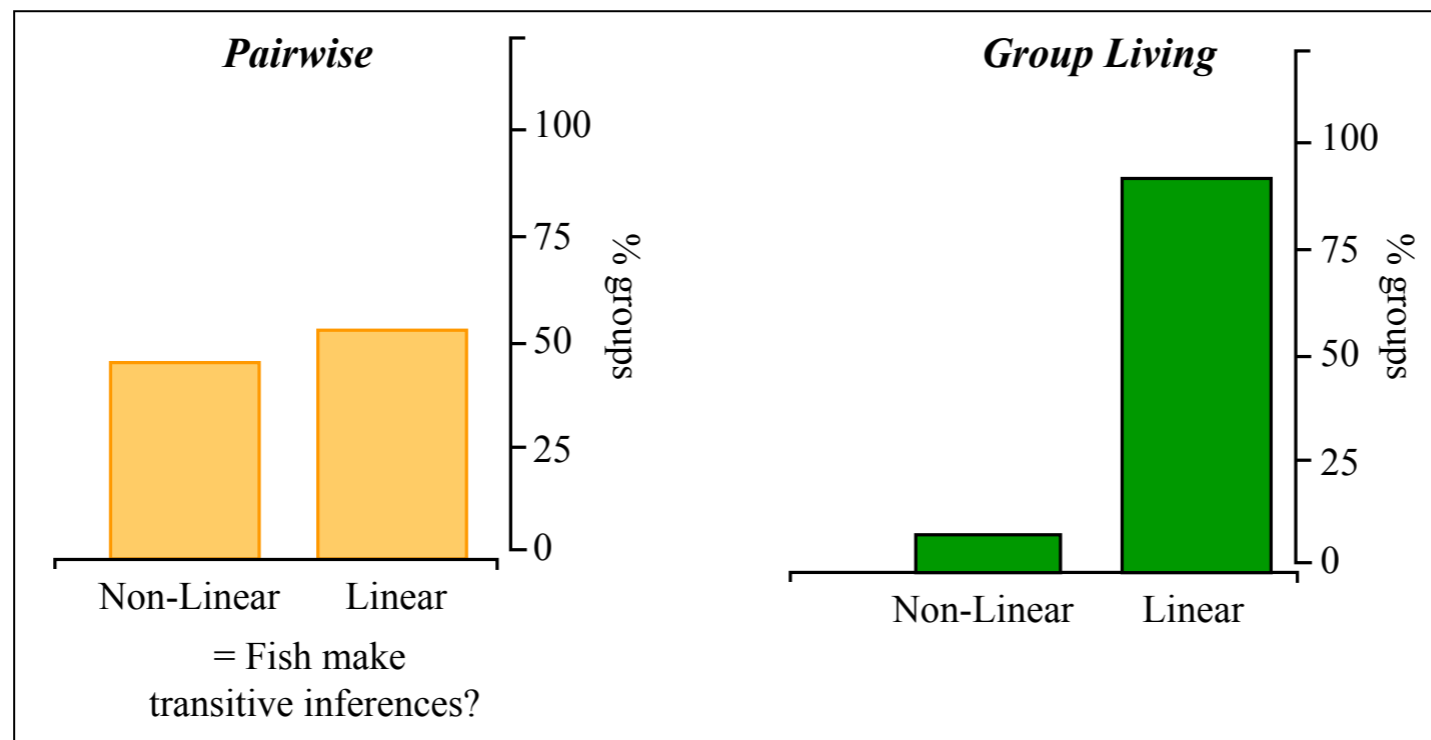


Figure by MIT OpenCourseWare.

= *Fish make transitive inferences?*

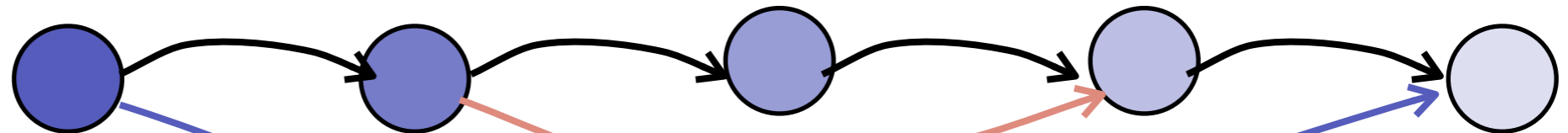
Structure of Social Groups

Costs of group living ↓ group structure

How is hierarchy recognized / represented?

Fish make transitive inferences:

Observe:



Test:

Easy: AE

Hard: BD

Figures removed due to copyright restriction.

Structure of Social Groups

Costs of group living ↓ group structure

Universal human structures

Market

value
cost-benefit

Competitive
Impersonal
Temporary
Promiscuous

Authority / Rank

precedence
deference

Priority
Perogative
Stable
Group-level

Transitive
Antisymmetric

Reciprocity

quid pro quo
distributive justice

Exact matching
Kind & amount
Conditional
Sub-group

Nontransitive
Symmetric

Community

solidarity
common identity

Free sharing
No calculus
Stable
Family

Transitive
Symmetric

Structure of Social Groups

Costs of group living ↓ group structure

Universal human structures

Market

value
cost-benefit

Authority / Rank

precedence
deference

Reciprocity

quid pro quo
distributive justice

Community

solidarity
common identity

Moose of Burkina Faso:

→
purchase nuts
in the market

→
gifts distributed
by rank among
the elder men,
then young
men, then
wives

→
exactly equal
piles within the
group

→
children, wives:
“here, have
some”

Structure of Social Groups

Costs of group living ↓ group structure

Universal human structures

Market

value
cost-benefit

Authority / Rank

precedence
deference

Reciprocity

quid pro quo
distributive justice

Community

solidarity
common identity

Switching models is a moral violation

Banking

Community: “We’re all family”

Market: no leniency

The price of hierarchy

Violence ↓ hierarchy

BUT hierarchy also permits violence, aggression

- towards subordinates, “inferiors”
- when suggested or licensed by a “superior”

e.g. Milgram: Yale vs Research Associates of Bridgeport

Adult model kicks, tosses, hits with mallet; verbal aggression

Adult model subdued

Frustration



Imitation?

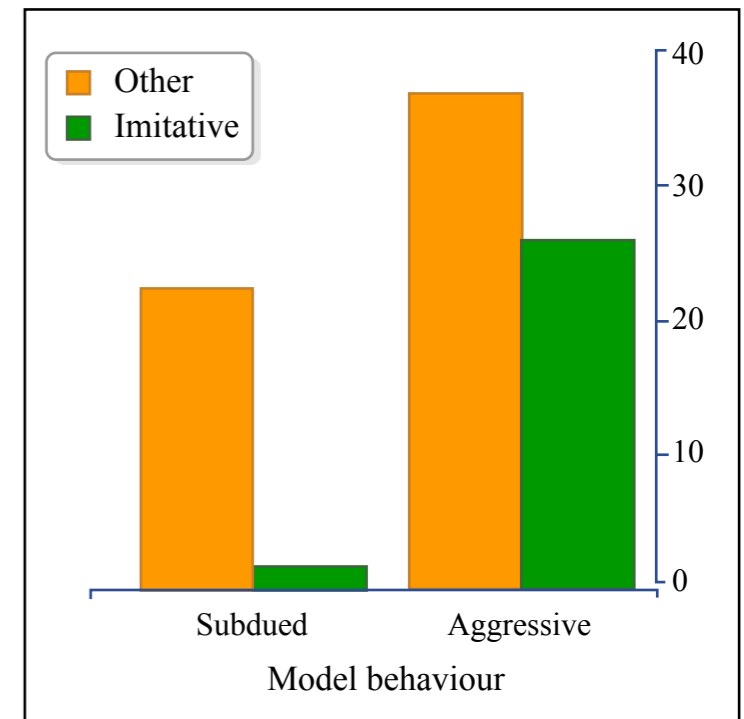


Figure by MIT OpenCourseWare.

What “determines” aggression?

- Genes***
- Power dynamics***
- Culture***

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