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

One mind thinking about another:
- stable
- universal

Social relationships:
- dynamic
- co-dependent
- context-bound

(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 freeloding)
- within group competition for resources
  (territory), food, mates

“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

Selection
↑ capture resources
↓ dangerous, exhausting

MANY proximal mechanisms

Most animal models

Nelson & Trainor (2007)
Normal Aggression

*Drosophila melanogaster*

Capture resources

Selection

Dangerous, exhausting

MANY proximal mechanisms

Male-typical fighting:

Genetic splicing

Heat-sensitive activation


Figures removed due to copyright restriction.
Normal Aggression

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- “reactive”, goal-frustration
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- 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

what is a “social group”?
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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

Isolated
Aggregation
Cooperative breeding

Cross-species: structures

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

How is hierarchy recognized / represented?

If simple cue:
- should form same hierarchy twice

Chase et al (2002)
Structure of Social Groups

How is hierarchy recognized / represented?

If simple cue:
- should form same hierarchy twice
- should form same hierarchy from just pairwise interactions

Chase et al (2002)

Figure by MIT OpenCourseWare.

= Fish make transitive inferences?
How is hierarchy recognized / represented?

Fish make transitive inferences:

Observe:

Test:

Easy: AE  Hard: BD

Figures removed due to copyright restriction.

Grosenick et al (2007)
Structure of Social Groups

Costs of group living \(\downarrow\) group structure

Universal human structures

<table>
<thead>
<tr>
<th>Market</th>
<th>Authority / Rank</th>
<th>Reciprocity</th>
<th>Community</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competitive</td>
<td>Priority</td>
<td>Exact matching</td>
<td>Free sharing</td>
</tr>
<tr>
<td>Impersonal</td>
<td>Perogative</td>
<td>Kind &amp; amount</td>
<td>No calculus</td>
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<tr>
<td>Temporary</td>
<td>Stable</td>
<td>Sub-group</td>
<td>Stable</td>
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<td>Promiscuous</td>
<td>Group-level</td>
<td>Conditional</td>
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<td></td>
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<td>Symmetric</td>
</tr>
</tbody>
</table>

Fiske (1990, 1992)
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”

Fiske (1990, 1992)
Structure of Social Groups

Costs of group living \(\downarrow\) group structure

Universal human structures

- **Market**
  - value
  - cost-benefit

- **Authority / Rank**
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- **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?

Brown (2003), Bandura, Ross & Ross (1961)

Figure by MIT OpenCourseWare.
What “determines” aggression?
- Genes
- Power dynamics
- Culture