33. Animal Behavior: Social Behavior *(Chapter 56)*

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IV. Animal Societies *(1355-1356)*

1. Conditions Favoring Dispersion in a Population

-When population is dense and competition is strong populations spread out

B. Animal Societies (aggregation) - any group of individuals of the same species that behave in a cooperative manner

-simple society: parent/offspring given that parent provides care

-motion group: school of fish, flock of birds – move through the environment together, composition changes over time, less cooperativity than a simple society

-increase efficiency of locomotion

-increase efficiency of foraging

-anti-predator protection

-protection of young

-Dominance Hierarchies – elaborate level of organization and interaction involving leadership by the dominant animal. The group has a fixed composition. Recognize others as individuals. A 🡪 B 🡪 C 🡪D, A is usually most dominant male. Prove dominance by occasional encounter with animal with lower status. Animals at the bottom are described as submissive. If a predator pick off A, B will move up.

Wrasses – 1 male and multiple females if male is lost most dominant female undergoes a sex change and becomes dominant male

1. Definition

2. Communication as a requisite for social behavior

3. Nonsocial aggregations

C. Simple Societies

1. Parental care

2. Motion groups

D. Dominance Hierarchies

1. Leadership

2. Groups with fixed composition

3. Structures of hierarchies

4. Dominant animals

5. Appeasement by submissive animals

6. Sex reversal in some fishes

V. Sociobiology *(1357-1358)*

-Approach to animal behavior studies that tries to provide a complete explanation of animal behavior through the application of Darwinian principles

-Treat behavior traits just like any other phenotypic traits

-Answer to why trait exists is always that is maximizes fitness

-Why is an animal a member of a group 🡪 increases fitness

A. Goals and Methods

B. Altruism – big problem for sociobiology – behavior harmful to self but beneficial to others

1. Definition

2. Example

3. Apparent evolutionary paradox

# C. Kin Selection – evolution of behavior which through harmful actions to self, benefits relatives. Related individuals share genes so helping relatives help pass on your genes.

# -Should give up potential for reproduction if it will help your full sibling more than two-fold

1. Definition and action

2. Calculating degrees of relatedness

3. Prediction of animal behavior

VI. Complex Animal Societies *(1358-1359)*

Eusocial insects – ants, bees, wasps

A. Kin Selection and the Evolution of Complex Societies

B. Insect Societies

1. The queen and the castes

2. Organization and development of an ant colony

3. Communication within the colony

4. The importance of trophallaxis – feeding each other. Some individuals go out and collect food. One individual in the hive will beg and a full individual will regurgitate food. Have pheromones for this.

5. Haplodiploidy and the evolution of sociality

-In social insects, males are haploid and females are diploid

C. Primate Societies

-Live in family groups with dominance hierarchies

1. Diversity in social organization

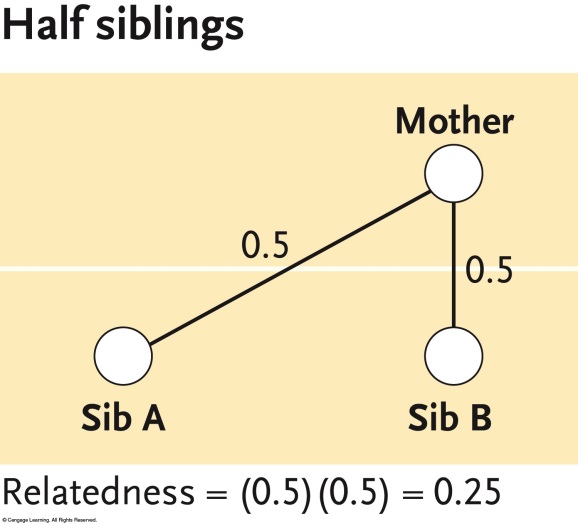
2. Dominance hierarchies

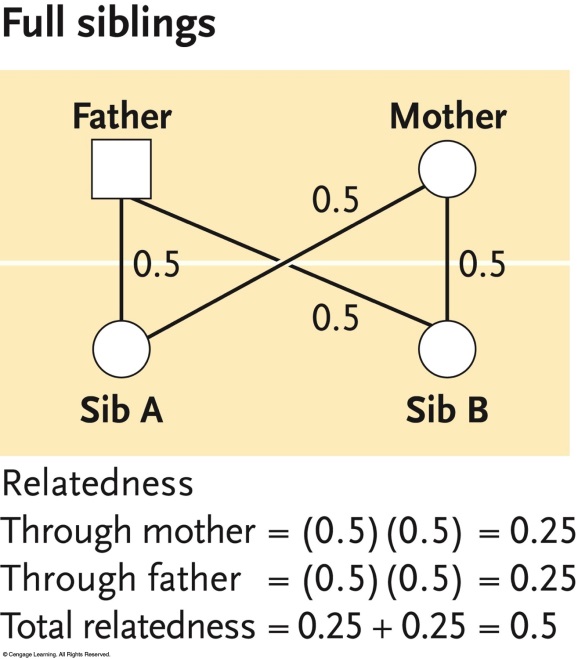
3. Individual recognition

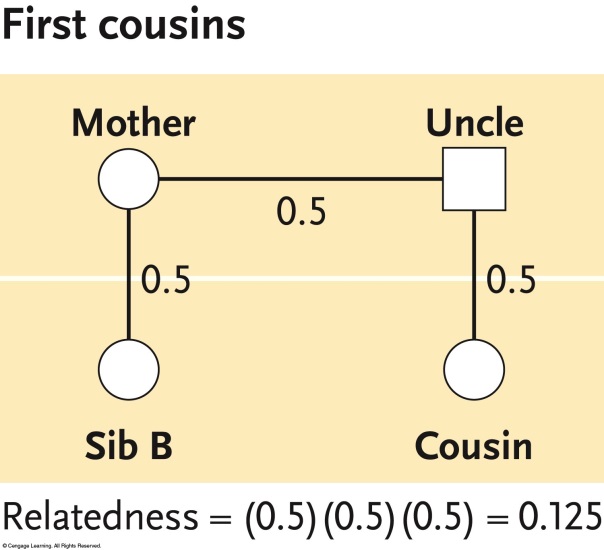
4. Use of ritualized behaviors

5. Potential for breeding

33-1







33-2

